

2024 American Control Conference
July 8-12, 2024 || Toronto, Canada



ACC 2024 CONFERENCE PROGRAM

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WELCOME TO THE ACC2024

THE AMERICAN AUTOMATIC CONTROL COUNCIL

The American Automatic Control Council (AACC) was established in 1957, “to promote cooperation among the various segments of the automatic control profession within the US, and to represent the US in international activities.” To implement this mission, the AACC is the United States’ National Member Organization of the International Federation for Control (IFAC). In this role, AACC facilitates participation in IFAC by US control engineers.

AACC does not have individuals as members. Rather, to widely promote cooperation throughout the control profession, our members include professional engineering societies that have an interest in automatic control. The current membership is: American Institute of Aeronautics and Astronautics (AIAA), American Institute of Chemical Engineers (AIChE), Applied Probability Society (APS, a subdivision of INFORMS), American Society of Civil Engineers (ASCE), American Society of Mechanical Engineers (ASME), Institute of Electrical and Electronics Engineers (IEEE), International Society of Automation (ISA), Society for Modeling & Simulation International (SCS), and Society for Industrial and Applied Mathematics (SIAM). Each member society selects a person to represent their organization on the AACC Board of Directors who direct the activities of AACC. AACC is a non-profit organization, returning their entire annual surplus to its member organizations.

In addition to representing the US in IFAC, AACC’s major activities include two high-quality annual conferences: the American Control Conference (ACC) offered in late Spring or early Summer, and the Modeling, Estimation and Control Conference (MECC) offered in the Fall. The proceedings of these conferences are archived in IEEE Xplore and IFAC’s PapersOnLine, respectively. AACC also coordinates all IFAC symposiums, workshops and conferences held in the US. Please visit the AACC website a2c2.org for more information about upcoming conferences.

AACC sponsors a set of awards that recognize outstanding achievement in control theory and practice. The awards are given annually at the ACC. You are invited to attend this year’s ceremony on Thursday, 11 July 2024, starting at 11:45 AM in the Frontenac Ballroom.

AACC also supports control education from K-12 through post-graduate studies. The AACC provides opportunities for personal and professional development and recognition to its large cast of volunteers, on whom it is crucially dependent for its operations and success.

To find out more, either visit the AACC booth in the exhibit area or browse our website. If you think you may want to volunteer for AACC activities, stop by the booth and leave your name. There are many opportunities for volunteers to help coordinate and promote automatic control events.

GREETINGS FROM THE AACC PRESIDENT

Welcome to Toronto and the 2024 American Control Conference (ACC). As an annual gathering sponsored by the American Automatic Control Council (AACC), the ACC brings together experts from academia, government, and industry across all engineering disciplines as well as applied mathematics, to share new and creative ideas and results in control. Please take this opportunity to socialize and collaborate with old friends as well as making new ones. It is amazing to see all the student attendees; we hope you use the conference as a vehicle to learn and interact with the senior members of our community.

Over the past several years, Dr. Martha Grover and her Operating Committee have spent an enormous amount of time and effort planning the conference. On behalf of all the participants, I want to extend our thanks for an outstanding job. We are all looking forward to the technical sessions, plenaries, workshops, special sessions, exhibits, social events, and receptions.

I also want to extend my heartfelt appreciation to all the volunteers including the General Chairs, Conference Operating Committees, Board of Directors, AACC Standing Committees, and the Officers that make the ACCs and all other AACC sponsored conferences outstanding events. I would also like to thank all the authors and reviewers for their contributions to ACC 2024.

Thank you for attending this premier control event and enjoy your time in Toronto,

Robert P. Judd, Ph.D.
President, American Automatic Control Council

GREETINGS AND THANKS FROM THE GENERAL CHAIR

It is my pleasure to welcome you all to the 2024 American Control Conference in Toronto. The American Control Conference provides a unique opportunity for members of the controls community—from across the nine member societies of AACC—to gather together and share their latest findings. This year we are returning to Canada after the successful 2012 ACC in Montreal, and we appreciate the hospitality of Toronto, the key contributions of our five members of the Operating Committee from Canadian institutions, and the foundational support of IFAC Canada in establishing this exciting venue on the Toronto waterfront.

This year we are partnering with AACC on the Bystander Intervention workshop, to help ensure that the ACC continues to be a safe and welcoming experience for all our participants. Thank you to those members of the community who participated in this inaugural workshop. We have extensive financial support for students at this year's ACC, thanks to the generous support of the US National Science Foundation, AACC, and member societies, enabling us to support the conference registration of 200 students and hotel costs for 90 students. Our student-industry networking session on Wednesday provides a venue for students to build their community here at the conference and beyond. The student contest by Quanser returns to the 2024 ACC after a successful inaugural contest in San Diego last year. Be sure not to miss the Student Best Paper Session on Wednesday starting at 3:00 pm.

I am grateful for all the critical contributions of the Operating Committee, without whom this all-volunteer conference would not be possible. Program Chair Kam Leang has led the review and construction of the technical program. Thanks to our vibrant community, we had a robust and strong set of submissions. I hope you all will find new ideas and receive constructive feedback throughout the technical program this week.

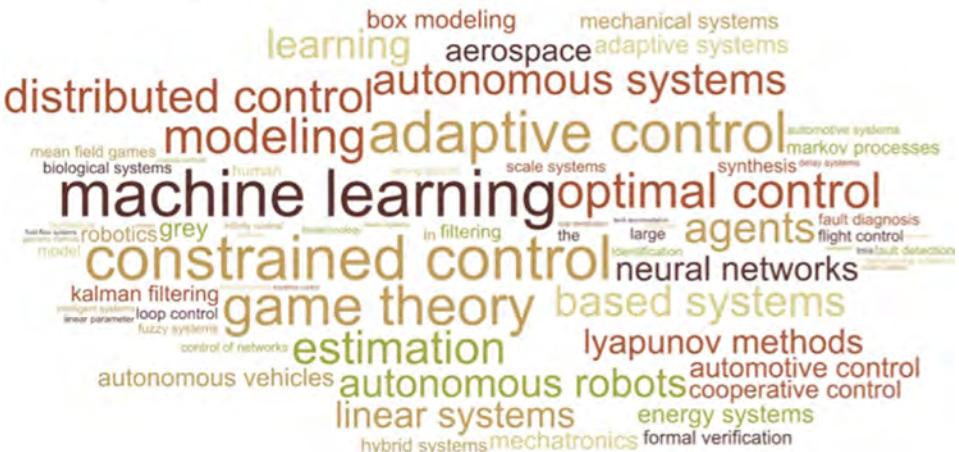
With best wishes for a great conference experience, and thank you for your support.

Martha Grover

General Chair, 2024 American Control Conference

TECHNICAL PROGRAM OVERVIEW

The Technical Program of the 2024 American Control Conference captures the most recent advancements made and emerging trends of control theory and applications (see word cloud below). We thank all contributors for the 1391 paper submissions, of which 864 will be published in the conference proceedings, leading to an acceptance rate of 62%. The program also includes 34 invited sessions, 14 workshops, 2 tutorial sessions, 20 special sessions, and 43 Late-Breaking News posters.



We are happy to have four plenary speakers share their exciting work in control. You will hear them describe the latest in uncrewed autonomous vehicles, control of biological processes, decision-making algorithms, and AI-driven approaches to control. The conference offers great opportunities for control researchers and practitioners to hear and learn about the latest work in control through morning Rapid Interactive sessions, followed by afternoon traditional technical sessions.

I want to thank the entire Program Committee, as well as Luis Ricardez-Sandoval, Invited Sessions Chair, and Hugh Liu, Industry and Applications Chair for their valuable input and outstanding editorial service. My sincere appreciation also goes to the Society Review Chairs, Associate Editors, and Associate Editors-at-Large for their diligent and dedicated work. I especially thank the dedicated anonymous reviewers for their constructive reviews of submitted papers. Finally, I want to thank General Chair Martha Grover, Conference Editorial Board Chair Amir Aghdam, and Pradeep Misra of PaperCept, Inc. for all their efforts and support in creating the program. Please enjoy the conference and I hope to see you in Toronto this week!

Kam K. Leang
Program Chair, 2024 American Control Conference

GREETINGS FROM THE IFAC PRESIDENT

As the President of IFAC (International Federation of Automatic Control), I extend my warm congratulations to ACC 2024 in Toronto. The ACC is organized under the auspices of the American Automatic Control Council (AACC), which serves as the US National Member Organization (NMO) of IFAC.

AACC holds a significant position within IFAC, having been an NMO since the federation's inception in 1957. Notably, three past IFAC Presidents—Harold Chestnut (1957-1958), John C. Lozier (1972-1975), and Stephen J. Kahne (1993-1996)—have hailed from AACC. Many scholars and engineers representing AACC currently hold key roles within IFAC, serving as Executive Officers, Technical Board Members, Publication Board Members, Conference Board Members, and various Committee Members. AACC also plays a significant role in hosting numerous IFAC Conferences and its members make substantial contributions to IFAC's publications.

While IFAC itself doesn't have individual members, it established "IFAC Affiliates" several years ago, along with a comprehensive portal (<https://affiliates.ifac-control.org/>). This platform is free to join for all scholars and engineers in automatic control, providing them with various benefits such as newsletters and reduced registration fees at IFAC Conferences.

The 23rd IFAC World Congress in 2026 will take place in the picturesque beach-front city of Busan, Republic of Korea. Most nationalities will not require a visa for entry. Busan is renowned internationally as a prime destination for meetings and has been recognized as the best destination in Asia by CNN. The vision for IFAC WC 2026 is to foster global friendship through control technology, drawing strength from innovative global diversity. Furthermore, the notion of global friendship in the future will embrace living harmoniously with the convergence of artificial intelligence (AI).

ACC and various IFAC conferences serve not only as vibrant forums for technical discussions but also as platforms for researchers worldwide to collaborate and exchange ideas. These technical meetings offer an exciting opportunity to forge connections with diverse individuals from around the world.

I extend my best wishes for the success of ACC 2024.

Dongil "Dan" Cho

President, the International Federation of Automatic Control

PLENARY SESSIONS

Plenary Lecture

Control of Uncrewed Vehicle Systems – from Unconventional Flyers to Maritime Autonomy

Kingsley Fregene

Lockheed Martin, USA

Wednesday, July 10, 8:30 – 9:30
Metro E/C

This talk will provide an overview of research and technology development efforts for controlling uncrewed vehicles operating in the aerial and maritime domains, and across domains. In the first part of the talk, we will describe autonomous control development for a variety of bio-inspired and hybrid uncrewed vehicles including a family of single and double-winged micro air vehicles (MAVs) inspired by fruits and seeds. We will also highlight selected application areas in omni-directional sensing and navigation-aiding. In the second part of the talk, we will discuss control schemes for uncrewed maritime vehicles and demonstrate application to relevant missions. We will describe multi-vehicle control and experiments in coordinated control across domains. The talk will conclude by taking a brief look at human-autonomy teaming in the context of control for optionally-crewed air vehicles.

Kingsley Fregene is the Director of Technology Integration, overseeing practices for defining and executing the strategic Research and Technology portfolio of Lockheed Martin's Corporate Technology Office. Prior to his current role, he was the Chief Engineer for Applied Research at Lockheed Martin in Dallas, TX, where he guided the execution of a diverse portfolio of advanced technology development efforts. Before that, he led the Robotics & Intelligent Systems group at Lockheed Martin Advanced Technology Labs, and a variety of autonomous control, sensing, and civil aviation R&D efforts at Honeywell.



Kingsley has served on the editorial boards and program committees of IEEE

Control Systems Society and Robotics & Automation Society periodicals and conferences. He has also served as Chair, IEEE Technical Committee on Aerospace Controls. He was the 2021 recipient of the Control Engineering Practice Award from the American Automatic Control Council. Kingsley and his work have featured in National Geographic: Engineering Inspirations from Nature, a video and workbook series for middle school students, and in the children's books Tiny Robots (2015) and Mimic-Makers: Biomimicry Inventors Inspired by Nature (2021).

Kingsley is a Fellow of the IEEE, holds several patents, and has authored journal articles, conference papers and book chapters, including 4 best paper award winners, in autonomy, robotics, uncrewed vehicle systems, machine learning, applications of AI, and intelligent control systems. He received his Ph.D. and M.A.Sc. degrees from the University of Waterloo, Canada, and his B.Eng. with first class honors from Federal University of Technology, Owerri, Nigeria, all in Electrical & Computer Engineering.

Plenary Lecture

A Control Systems Approach to Cell Fate Reprogramming

Domitilla Del Vecchio

Massachusetts Institute of Technology, USA

Thursday, July 11, 8:30 – 9:30
Metro E/C

Today, it is possible to reprogram the type of a cell for on-demand patient-specific cell therapy, wherein damaged cells in the body are replaced with healthy cells of the correct type generated from easy-to-extract patient's cells. One approach to produce cells of the desired type is to first reprogram somatic cells, such as skin cells, to pluripotent stem cells, and to then differentiate these pluripotent cells down to the cell type in need. Both processes require accurate control of the temporal concentration of fate-specific proteins, called transcription factors, in the cell in order to efficiently generate high quality output cells. However, so far, accurate control of cellular concentrations has been out of reach. Practitioners inject DNA that produces the appropriate transcription factors in the starting cells at constant rates, without any control on cellular concentrations. In the past decade, the advances in engineering biology have reached the stage where we can implement nonlinear controllers to regulate the cellular level of key molecular players. In this talk, I will illustrate key obstacles to accurate control of protein levels in mammalian cells by conceptualizing the problem through input/output nonlinear, stochastic, models of gene regulation in the context of cell fate determination. I will then use these models to design biomolecular high-gain and integral feedback controllers in mammalian cells to achieve set-point regulation robustly to noise and cellular perturbations. Finally, I will go back to the problem of reprogramming somatic cells to pluripotency and I will show our controllers in action both as a way to uncover optimal reprogramming trajectories and as a way to enforce more accurately optimal transcription factor levels during reprogramming. This is the first instance in which biomolecular controllers have been used for pluripotent stem cell reprogramming. With these tools and experimental demonstrations, we have set the foundations for future research on the use of sophisticated biomolecular networks as controllers of complicated biological processes.

Domitilla Del Vecchio received her Ph. D. degree in Control and Dynamical Systems from the California Institute of Technology, Pasadena, and the Laurea degree in Electrical Engineering (Automation) from the University of Rome at Tor Vergata in 2005 and 1999, respectively. From 2006 to 2010, she was an Assistant Professor in the Department of Electrical Engineering and Computer Science and in the Center for Computational Medicine and Bioinformatics at the University of Michigan, Ann Arbor. In 2010, she joined the Department of Mechanical Engineering at the Massachusetts Institute of Technology (MIT), where she is currently Professor and member of the Synthetic Biology Center.



She is a Fellow of the International Federation of Automatic Control (2022), an IEEE Fellow (2021), and a recipient of the Newton Award for Transformative Ideas during the COVID-19 Pandemic (2020), the 2016 Bose Research Award (MIT), the Donald P. Eckman Award from the American Automatic Control Council (2010), the NSF Career Award (2007), the American Control Conference Best Student Paper Award (2004), and the Bank of Italy Fellowship (2000). Her research focuses on developing techniques to make synthetic genetic circuits robust to context and on applying these to biosensing and cell fate control for regenerative medicine applications.

*Eckman Plenary Lecture***Hybrid Dynamical Seeking Systems: Model-Free
Feedback Decision-Making and Control****Jorge I. Poveda**

University of California, San Diego, USA

Thursday, July 11, 10:00 – 11:00
Metro E/C

The convergence of physical and digital systems in modern engineering applications has inevitably led to closed-loop systems that exhibit both continuous-time and discrete-time dynamics. These closed-loop architectures are modeled as hybrid dynamical systems, prevalent across various technological domains, including robotics, power grids, transportation networks, and manufacturing systems. Unlike traditional “smooth” ordinary differential equations or discrete-time recursions, solutions to hybrid dynamical systems are generally discontinuous, lack uniqueness, and have convergence and stability properties that are defined with respect to complex sets. Therefore, effectively designing and controlling such systems, especially under disturbances and uncertainty, is crucial for the development of autonomous and efficient data-driven engineering systems capable of achieving adaptive and self-optimizing behaviors. In this talk, I will delve into recent advancements in the analysis and design of feedback controllers that can achieve such properties in complex scenarios via the synergistic use of adaptive “seeking” dynamics, robust hybrid control, and decision-making algorithms. These controllers can be systematically designed and analyzed using modern tools from hybrid dynamical systems theory, which facilitate the incorporation of “exploration” and “exploitation” behaviors within complex closed-loop systems via multi-time scale tools and perturbation theory. The proposed methodology leads to a family of provably stable and robust algorithms suitable for solving model-free feedback stabilization and decision-making problems in single-agent and multi-agent systems for which smooth feedback solutions fall short.

Jorge I. Poveda received double B.Sc. degrees in Electronics Engineering and Mechanical Engineering, both from the University of Los Andes, Bogota, Colombia, in 2012. He received his M.Sc. and Ph.D. degrees in Electrical and Computer Engineering from UC Santa Barbara in 2016 and 2018, respectively. After receiving his Ph.D., he was a Postdoctoral Fellow in the School of Engineering and Applied Sciences at Harvard University. Afterward, he joined the faculty of the Electrical, Computer, and Energy Engineering Department at the University of Colorado, Boulder, where he was an Assistant Professor from 2019 until 2022. Subsequently, he joined the Electrical and Computer Engineering Department at the University of California, San Diego, where he is currently an Assistant Professor. He has received the CCDC Outstanding Scholar Fellowship and Best Ph.D. Thesis awards from UC Santa Barbara, the CRII and CAREER awards from the National Science Foundation, the Young Investigator Award from the Air Force Office of Scientific Research, and the 2023 Donald P. Eckman award from the American Automatic Control Council. His research interests are in feedback control, hybrid and adaptive dynamical systems, real-time optimization, and network systems.



Plenary Lecture

Automatic Control in the Era of Artificial Intelligence

Francesco Borrelli

University of California, Berkeley, USA

Friday, July 12, 8:30 – 9:30
Metro E/C

In an era where Artificial Intelligence (AI) is often seen as a universal solution for any complex problem, this presentation offers a critical examination of its role in the field of automatic control. To be concrete, I will focus on Optimal Control techniques, navigating through its history and addressing the evolution from its traditional model-based roots to the emerging data-driven methodologies empowered by AI.

The presentation will delve into how the theoretical underpinnings of Optimal Control have been historically aligned with computational capabilities, and how this alignment has shifted over the years. This juxtaposition of theory and computation motivates a deeper investigation into the diminishing relevance of certain traditional control methods amidst the AI revolution. We will critically examine scenarios where AI-driven approaches could outperform classical methods, as well as cases where the hype surrounding AI overshadows its actual utility.

The talk will conclude with a nuanced view of state-of-the-art optimal control methods in practical applications including self-driving cars, advanced robotics and energy efficient systems. From this perspective, we will identify and explore future potential directions for the field, including the design of learning control architectures which seamlessly integrate predictive capabilities at every level, focusing on systems that can autonomously refine their performance over time through continuous learning and interaction with their environment.

Francesco Borrelli received his ‘Laurea’ degree from the University of Naples Federico II, Italy in 1998, and his PhD from the Automatic Control Laboratory at ETH-Zurich, Switzerland in 2002. He is currently a Professor at the Department of Mechanical Engineering at the University of California, Berkeley, USA, where he conducts research in the field of predictive control.



Professor Borrelli has authored over 200 publications in the field of predictive control and is the author of the book Predictive Control, published by Cambridge University Press.

He has received several awards for his contributions to the predictive control field, including the 2009 NSF CAREER Award, the 2012 IEEE Control System Technology Award, and was elected IEEE Fellow in 2016. In 2017, he was awarded the Industrial Achievement Award by the International Federation of Automatic Control (IFAC) Council.

Professor Borrelli has been a consultant for major international corporations since 2004, with his recent industrial activities focusing on the application of predictive control in self-driving vehicles, utility scale solar power plants, automotive control systems, and building energy efficiency control. He was the founder and CTO of BrightBox Technologies Inc, a company focused on cloud-computing optimization for autonomous systems, and was the co-director of the Hyundai Center of Excellence in Integrated Vehicle Safety Systems and Control at UC Berkeley. He is also the founder of WideSense Inc., a company focused on E-Mobility.

Professor Borrelli's research interests include model predictive control, learning, and their application to robotics, transportation, and energy control systems.

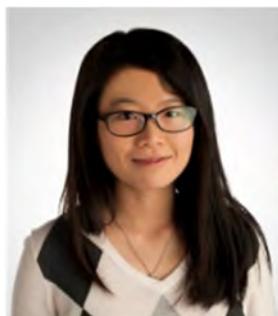
AACC AWARDS

The American Automatic Control Council sponsors various awards. These awards are given to recognize excellence in scientific, technological, or educational contributions to automatic control. Congratulations to this year's winners!

Donald P. Eckman Award

Mengdi Wang, Princeton University

For extraordinary contributions to the intersection of control, dynamic systems, machine learning, and information theory.



Mengdi Wang is associate professor at the Center for Statistics and Machine Learning, Department of Electrical and Computer Engineering, Department of Computer Science (by courtesy) and the Omenn-Darling Bioengineering Institute (by courtesy) at Princeton University. Mengdi received her PhD in EECS from MIT in 2013, where she worked with Dimitri P. Bertsekas at the Laboratory for Information and Decision Systems. She was a visiting research scientist at DeepMind, Institute of Advanced Studies, and Simons Institute on Theoretical Computer Science.

Mengdi is currently leading Princeton's AI Accelerated Innovation Initiative, and is also affiliated with the Princeton Language+Intelligence Initiative. She works on reinforcement learning, generative AI and LLM + RL agents for bio and general science applications. She was Program Chair for ICLR 2023 and Senior AC for Neurips, ICML, COLT.

Richard E. Bellman Control Heritage Award

Naomi Ehrich Leonard, Princeton University

For fundamental contributions to geometric control theory, networked multiagent systems, and for bridging control theory with ecological systems, neuroscience, and the arts.



Naomi Ehrich Leonard is Chair and Edwin S. Wilsey Professor of Mechanical and Aerospace Engineering at Princeton University. She is associated faculty in Princeton's Program in Applied and Computational Mathematics, Biophysics Program, and the Princeton Neuroscience Institute. During 2013-2023, she directed Princeton's Council on Science and Technology. She is Founding Editor of the Annual Review of Control, Robotics, and Autonomous Systems. Leonard received her BSE in Mechanical Engineering from Princeton

University in 1985. From 1985 to 1989 she worked as an engineer in the electric power industry. She received her PhD in Electrical Engineering from the University of Maryland in 1994. Leonard is a MacArthur Fellow, a member of the American Academy of Arts and Sciences, and a Fellow of the ASME, IEEE, IFAC, and SIAM. Previous honors include the 2023 IEEE Control Systems Award, the IEEE Control Systems Society's 2017 Hendrik W. Bode Lecture Prize, the ASME's 2014 Nyquist Lecture Prize, the American Automatic Control Council's 2020 John R. Ragazzini Education Award and 2022 O. Hugo Schuck Best Paper Award (with S. Park), and the IFAC's 1999 Automatica Best Paper Award. Leonard works in control theory, nonlinear dynamics, and geometric mechanics. She was among the first to investigate the simple rules that enable individual agents—whether living organisms or robotic vehicles—to work together in groups by coordinating decision-making, sensing, and motion. In the early 2000's, she led a multidisciplinary team on the development and deployment of a first-of-its-kind automated and adaptive ocean observing system featuring a coordinated network of underwater gliders. Leonard has used control theory to make contributions in a range of disciplines with collaborators in oceanography, ecology and evolutionary biology, neuroscience, and the arts.

John R. Ragazzini Education Award

John Hedengren, Brigham Young University

For contributions to control education with the Arduino-based Temperature Control Lab, Gekko Optimization Suite software, interactive online resources, videos, and open-access APMonitor online courses for programming, control, and optimization.



Dr. John Hedengren is a Professor at Brigham Young University in the Chemical Engineering Department. He leads the BYU PRISM group with a focus on physics-informed machine learning for optimization of energy systems, unmanned aircraft, and drilling. He led the development of the Temperature Control Lab that is used by many universities for process control education. His publications span topics of data science, machine learning, carbon capture, unmanned aerial systems, and predictive control. His highest cited paper is the Gekko

Optimization Suite as a platform for engineering optimization and model predictive control. Beyond his academic pursuits, Dr. Hedengren is actively involved in professional service. He is a CACHE Trustee, develops webinars for AIChE CAST division, and is the Communications Chair for the American Automatic Control Council. He is chair of the IEEE CSS Technical Committee on Control Education to promote public awareness, university education, and continuing education related to control. The committee develops laboratory experiments, computer-aided learning, and the use of distance and virtual education technologies to highlight the cross-disciplinary nature of control. He has a PhD from the University of Texas at Austin coupled with a 7-year tenure in the chemical industry. His expertise has been recognized by the Society of Petroleum Engineers where he served as a Distinguished Lecturer. He delivers university and professional education on control, optimization, and machine learning through APMonitor online resources. He is the recipient of the 2014 AIChE David Himmelblau Award and the 2018 AIChE Computing Practice Award.

Babatunde A. Ogunnaike Control Practice Award

Thomas A. Badgwell, University of Texas, Austin

For lifetime achievement in the development and application of Model Predictive Control technology, and for leadership in the international process control community.



Thomas A. (Tom) Badgwell, PhD, PE, is a Professor of Practice in the McKetta Department of Chemical Engineering at The University of Texas at Austin. He earned a BS degree from Rice University and MS and PhD degrees from the University of Texas at Austin, all in Chemical Engineering, and he is registered as a Professional Engineer in Texas. Tom's career has focused on modeling, optimization, and control of chemical processes, with past positions at Setpoint, Fisher/Rosemount, Rice University, Aspen Technology, and ExxonMobil. He is a co-founder of

Collaborative Systems Integration, an Austin-based startup providing systems integration services and software products for Open Process Automation (O-PAS) based systems. Tom is a Fellow of the American Institute of Chemical Engineers (AIChE) and a past Director of the Computing and Systems Technology (CAST) Division, from which he received the Computing Practice Award in 2013. He is also a member of the IEEE Control System Society, in which he serves as a Distinguished Industrial Lecturer for 2024. Tom was inducted into the Control Global Process Automation Hall of Fame in 2022. He has served as an Associate Editor for the Journal of Process Control, as a Member of the IFAC Industry Committee, and is presently the Vice Chair, Industry, on the IFAC Technical Committee (6.1) on Chemical Process Control. Tom served as an Industrial Trustee of the Computer Aids in Chemical Engineering (CACHE) Corporation, and as the Co-Chair of the inaugural CACHE-sponsored Foundations Of Process Analytics and Machine learning (FOPAM) conference in 2019. He has 5 patents, and his 25 refereed publications have received over 11,000 citations.

O. Hugo Schuck Best Paper Award (Application)

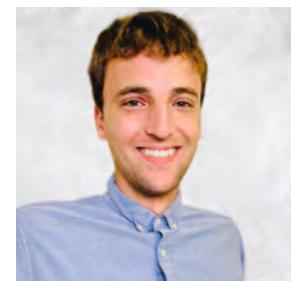
Iman Nodozi, Jared O'Leary, Ali Mesbah, Abhishek Halder

"A Physics-informed Deep Learning Approach for Minimum Effort Stochastic Control of Colloidal Self-Assembly," 2023 ACC Proceedings, pages 609-615.

Iman Nodozi is a PhD student in Electrical and Computer Engineering with the University of California at Santa Cruz, USA. He received his BS degree in Electrical Engineering from the Hamedan University of Technology, Hamedan, Iran, in 2013, and his M.S. degree in Electrical Engineering from Imam Khomeini International University, Qazvin, Iran, in 2016. His primary research interests include stochastic systems, control, optimization, and machine learning. At UC Santa Cruz, he has received the Baskin School of Engineering Dissertation Year fellowship (2023-24) and the Regent's Fellowship (2019-20).



Jared O'Leary earned a PhD in Chemical Engineering from UC Berkeley in August 2022, where he worked on characterizing, modeling, and controlling colloidal self-assembly systems, which demonstrate intrinsically stochastic and nonlinear dynamics. Jared's thesis work aimed to uncover a deeper mechanistic understanding of colloidal self-assembly by investigating strategies based on machine learning and optimal control for (i) quantifying and classifying colloidal self-assembly system states, (ii) learning tractable stochastic dynamical models of colloidal self-assembly dynamics, and (iii) learning control policies that dynamically change external actuators to guide colloidal self-assembly. Jared was recognized for his thesis work in 2021 by being named a Director's Student Presentation Award Finalist for the Computing & Systems Technology Division (CAST) of the American Institute of Chemical Engineers (AIChE). Jared's research at UC Berkeley was supported by the Achievement Rewards for College Scientists (ARCS) Fellowship. Prior to UC Berkeley, Jared worked at Theranos for three years as a Systems Integration and Validation Engineer and Team Lead. Prior to Theranos, Jared earned a B.S. in Chemical Engineering with Honors and Distinction from Stanford University, where he won the Michel Boudart Award for Overall Excellence and the Channing Robertson Outstanding Junior Awards from Stanford's Chemical Engineering department. Currently, Jared is the CEO and Co-Founder of SirenOpt, a seed-stage start-up



company that makes a real-time micro- and nano-materials metrology platform based on cold atmospheric plasmas. Through SirenOpt, Jared is a 2023 Activate Berkeley Fellow, which allows Jared and SirenOpt to actively collaborate with the Lawrence Berkeley National Lab. Outside of engineering, Jared enjoys watching football and basketball, attending concerts, and playing board games. Jared was born in Oakland, CA and was raised in nearby Contra Costa County.

Ali Mesbah is an Associate Professor of Chemical and Biomolecular Engineering at the University of California at Berkeley. Before joining UC Berkeley, Dr. Mesbah was a senior postdoctoral associate at MIT. He holds a Ph.D. degree in Systems and Control and a Master's degree in Chemical Engineering, both from Delft University of Technology. Dr. Mesbah is a senior member of the IEEE and AIChE. He serves on the Editorial Boards of the IEEE Transactions on Control Systems Technology, IEEE Control Systems Letters, and IEEE Transactions on Radiation and Plasma Medical Sciences. Dr. Mesbah is recipient of the Alexander von Humboldt Research Fellowship in 2023, the Best Application Paper Award of the IFAC World Congress in 2020, the AIChE's 35 Under 35 Award in 2017, the IEEE Control Systems Outstanding Paper Award in 2017, and the AIChE CAST W. David Smith, Jr. Publication Award in 2015. His research interests lie at the intersection of optimal control, machine learning, and applied mathematics, with applications to learning-based analysis, optimization, and predictive control of materials processing and manufacturing systems.



Abhishek Halder is an Associate Professor in the Department of Aerospace Engineering at Iowa State University, and a Visiting Associate Professor in the Department of Applied Mathematics at University of California (UC) Santa Cruz, USA. He served as an Assistant Professor in the Department of Applied Mathematics, and an affiliated faculty in the Department of Electrical and Computer Engineering at UC Santa Cruz. Before that he held postdoctoral positions in the Department of Mechanical and Aerospace Engineering at UC Irvine, and in the Department of Electrical and Computer Engineering at Texas A&M University. He obtained his Bachelors and Masters from Indian Institute of Technology (IIT) Kharagpur in 2008, and Ph.D. from Texas A&M University in 2014, all in Aerospace Engineering. His research interests are in stochastic systems, control and optimization with application focus on large scale cyber-physical systems. He is a co-founder of the annual NorCal Control Workshop that



brings together systems-control researchers from academia and industry in the Northern California region fostering collaboration and professional networking. He is the creator and instructor for the course "Feedback Control" in the California State Summer School for Mathematics & Science (COSMOS) which teaches feedback control theory to 8-11 graders without using calculus or linear algebra. His research with students and collaborators has been recognized with several awards including Applied Mathematics Research Award from UC Santa Cruz, Outstanding Doctoral Student Award from Texas A&M University, and Best Dual Degree Thesis Award from IIT Kharagpur. Abhishek is a Senior Member of IEEE.

O. Hugo Schuck Best Paper Award (Theory)

Xiangyuan Zhang, Bin Hu, Tamer Basar

"Learning the Kalman Filter with Fine-Grained Sample Complexity," 2023 ACC Proceedings, pp. 4549-4554.

Xiangyuan Zhang is a Ph.D. Candidate in the Department of Electrical and Computer Engineering at the University of Illinois Urbana-Champaign (UIUC), advised by Prof. Tamer Başar. He obtained a B.S. degree in Computer Engineering from UIUC in 2020. His research aims to integrate control theory, reinforcement learning, optimization, and game theory to enable large-scale intelligent autonomy. Xiangyuan received an IEEE CDC Outstanding Student Paper Award (2023), an IFAC World Congress Young Author Prize Honorable Mention (2023), an IPIN Best Student Paper Award Finalist (2018), and several fellowships at UIUC. He spent summers at Apple and Mitsubishi Electric Research Laboratories.



Bin Hu serves as an Assistant Professor in the Department of Electrical and Computer Engineering at the University of Illinois Urbana-Champaign (UIUC) and holds an affiliation with the Coordinated Science Laboratory. His research is dedicated to establishing fundamental connections between control and machine learning. His current areas of interest include: 1) system and control tools for the robustness and safety of large foundation models, 2) the interplay between large language models and control, 3) the connections between robust control and reinforcement learning, and 4) control-theoretic tools for the analysis and design of iterative algorithms in optimization and learning. Bin earned his B.S. degree in Theoretical and Applied Mechanics from the University of Science and Technology of China in 2008, and his M.S. degree in Computational Mechanics from Carnegie Mellon University in 2010. He received his Ph.D. in Aerospace Engineering and Mechanics from the University of Minnesota in 2016. Between July 2016 and July 2018, Bin worked as a postdoctoral researcher in the Wisconsin Institute for Discovery at the University of Wisconsin-Madison. In 2021, Bin received the NSF CAREER award and the Amazon Research Award.



Tamer Başar has received B.S.E.E. from Robert College, Istanbul, and M.S., M.Phil, and Ph.D. degrees in engineering and applied science from Yale University. After stints at Harvard University, Marmara Research Institute (Gebze, Turkey), and Boğaziçi University (Istanbul), he joined the University of Illinois Urbana-Champaign (UIUC) in 1981, where he is currently Swanlund Endowed Chair Emeritus, CAS Professor Emeritus of ECE, and Research Professor at CSL and ITI. At Illinois, he has served as Director of the Center for Advanced Study (2014-2020), Interim Dean of Engineering (2018), and Interim Director of the Beckman Institute (2008-2010).



He is a member of the US National Academy of Engineering and a Fellow of the American Academy of Arts and Sciences; and Fellow of IEEE, IFAC, SIAM, and AAAI. He has served as President of the IEEE CSS, Founding President of the International Society of Dynamic Games (ISDG), and President of AACC. He has received several awards and recognitions over the years, including the IEEE CSS Bode Lecture Prize (2004), IFAC's Quazza Medal (2005), AACC's Bellman Control Heritage Award (2006), ISDG's Isaacs Award (2010), the IEEE Control Systems Technical Field Award (2014), Medal of Science of Turkey (1993), IEEE Millennium Medal (2000), and Wilbur Cross Medal from Yale University (2021). He has also received honorary doctorates and professorships from a number of international institutions, including KTH Royal Institute of Technology (Stockholm); Tsinghua, Shandong, and Northeastern Universities (China); Boğaziçi and Doğuş Universities (Istanbul); and NAS of Azerbaijan. He was Editor-in-Chief of the IFAC Journal Automatica between 2004 and 2014, and is currently editor of several book series. He has contributed to the fields of systems, control, communications, optimization, networks, and dynamic games, and has current research interests in stochastic teams, games, and networks (with finite- and infinite-population models); multi-agent systems and learning; data-driven distributed optimization; epidemics modeling and control over networks; strategic information transmission, spread of disinformation, and deception; security and trust; energy systems; and cyber-physical systems.

CONFERENCE INFORMATION

REGISTRATION

Registration is **mandatory** for all conference and workshop participants. Personal badges will be provided to identify registered participants. On-site registration and registration packet pick-up for all advanced registrations may be done at the conference registration desk. The Registration Desk is scheduled to be open during the following hours:

Monday, July 8	12:00 – 17:00
Tuesday, July 9	8:00 – 19:00
Wednesday, July 10	8:00 – 17:00
Thursday, July 11	8:00 – 17:00
Friday, July 12	8:00 – 16:00

Included in the three-day conference registration fee is full access to the conference technical program, including access for downloading the conference proceedings; tickets to the opening and closing receptions; coffee break refreshments; and access to a mobile-friendly technical program with links to papers and available videos. Member and Non-Member registration also includes the conference banquet. Registration fees are shown in the table below. Registrants who are members of any of the American Automatic Control Council Societies (AIAA, AIChE, ASCE, ASME, IEEE, INFORMS APS, ISA, SCS and SIAM) may register at the Member rate.

Registration Categories	Advance Registration Fee (by June 1st)	On-Site or after June 1st Registration Fee	Proceedings (Access)	Dinner Banquet
Member	\$540	\$650	Included	Included
Non-Member	\$680	\$790	Included	Included
Student/Retiree	\$270	\$325	Included	Included
One day registration	\$400	\$400	Not included	Not included

Conference proceedings can be purchased for \$15 on a USB drive. Printed Full Program Booklet (including detailed information for all sessions and papers): \$15 Additional conference banquet tickets can be purchased for \$120. Paper upload for authors is available only with Member and Non-Member registration; up to 4 papers can be uploaded for each registration.

Workshop registration fees are shown in the table below.

Registration Categories	Advanced Registration (until June 1st)		On-site Registration (after June 1st)	
	Member/ Non-member	Student/ Retiree	Regular	Student/ Retiree
Full day workshop	\$240	\$120	\$280	\$140
Half day workshop	\$130	\$65	\$150	\$75

INTERNET ACCESS

Basic wireless internet access is available free of charge in all conference and meeting rooms.

COFFEE BREAKS

Coffee breaks will be held in the Dockside Foyer, Pier/Harbour Foyer, and the Frontenac area as follows:

Wednesday: 9:30 – 10:00 and 15:00 – 15:30

Thursday: 9:30 – 10:00 and 15:00 – 15:30

Friday: 9:30 – 10:00 and 15:00 – 15:30

EXHIBITS

Please take time during the conference to visit our exhibitors in the Frontenac area! Please refer to the Sponsors page for more details.

OPENING RECEPTION

Tuesday July 9, 18:30 – 20:30, Harbour Ballroom

PLENARY SESSIONS

Wednesday, Thursday, and Friday morning plenaries will be held between 8:30 – 9:30 in the Metro Ballroom. On Thursday, the Eckman Plenary will be held between 10:00 – 11:00 in the Metro Ballroom.

AWARDS CEREMONY

Thursday July 11, 11:45 – 12:45, Frontenac Ballroom

All conference attendees are encouraged to attend the announcements of the annual AACC and ACC awards. Come celebrate accomplishments in our field!

CONFERENCE BANQUET

Thursday July 11, 18:30 – 21:30, Royal Ontario Museum

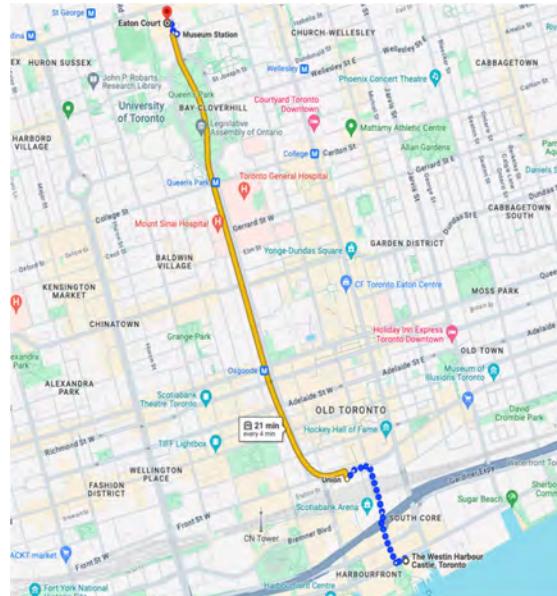
The Royal Ontario Museum (ROM), located at 100 Queens Park, Toronto, is ~3.5km from the conference hotel. The easiest way to get there is using the Subway, which will take approximately 20 minutes door-to-door:

1. Walk from the Westin Harbour Castle to Union Station (700m walk)
2. Take the Yonge-University Line to Museum Station (5 stops)
3. Exit onto Queen's Park and cross the street to enter the ROM

The fare is \$3.30 CAD, and payment with credit card or Apple Pay is accepted.

Union Station can also be reached from the hotel using the 510A (Spadina to Union Station) streetcar. For this, walk 100m to the Queens Quay/Ferry Docks Station, and then ride the streetcar one stop to Union station. A map that shows the subway route is provided below.

Alternatively, attendees can use Uber/Lyft or a Taxi, costing around \$15 CAD and taking 20–25 minutes during rush hour.



A banquet ticket is included with the registration packets for Member and Non-Member registrants. Additional conference banquet tickets can also be purchased for \$120 USD each. Children under 4 are free.

CLOSING RECEPTION

Friday July 12, 18:30 – 20:30, Harbour Ballroom

DEPENDENT CARE REIMBURSEMENT

The American Automatic Control Council (AACC) offered funds to partially offset the expense of dependent care for registrants at the American Control Conference (ACC) 2024. Funds were allocated not to exceed \$500 per applicant. Highest priority was given to conference registrants who are presenting a paper(s), or in a workshop or special session. See the conference website for more information.

VENUE AND LOCAL INFORMATION



The 2024 ACC takes place at the Westin Harbour Castle, located on the waterfront in downtown Toronto. The hotel is within walking distance of many of Toronto's most popular sites, including the CN Tower, the St. Lawrence Market, the Toronto theater district, the Toronto Blue Jays Ballpark, the Distillery District, and vibrant and diverse neighborhoods like Kensington Market. All presentations and meetings are held in the conference hotel.

Toronto is Canada's largest city and the 4th most populous city in North America. Located along Lake Ontario's northwestern shore, Toronto is a world leader in business, finance, technology, entertainment, and culture. Its large population of immigrants from all over the globe has also made Toronto one of the most multicultural cities in the world.

Toronto is easy to get around, with the subway running through the downtown core, and a network of streetcars to help you access the varied neighborhoods. Come and explore the city, from the financial district to upscale shopping in Yorkville, to the eclectic mix of bars and coffee shops in Kensington Market. Attendees are encouraged to enjoy the city and surrounding area with their family members. Due to its patchwork of urban parks, Toronto is known as "a city within a park." Attractions include High Park, which spans over 400 acres, and Toronto Island Park, accessible by ferry from downtown. The city has a booming food scene and has been ranked the most diverse food scene worldwide.

TRANSPORTATION



Most attendees will fly into Toronto Pearson International Airport (YYZ), which has non-stop service to over 155 destinations worldwide. From there, transportation to the conference is straightforward: the UP Express train is a 25-minute ride to Union Station in downtown Toronto, and it runs every 15 minutes. Alternatively, one can take a 30-minute Taxi or Uber directly to the conference venue.

An alternative for some attendees is the Billy Bishop Toronto City Airport (YTZ), which has non-stop flights to over 20 destinations in Canada and in the United States. This airport is just 2km from the conference hotel and can be accessed via Taxi/Uber, the 509 Harbourfront Eastbound streetcar, or directly walking.

EXHIBITORS AND SPONSORS

ACC 2024 thanks all of our sponsors for their generous support of our conference. Many of our sponsors will have exhibits at the conference that we encourage everyone to visit. Exhibits will be open 8:00 to 17:00 on Wednesday and Thursday and 8:00 to 12:00 on Friday.

GOLD SPONSORS

Boeing

Boeing is the world's largest aerospace company and leading manufacturer of commercial jetliners and defense, space and security systems. A top U.S. exporter, the company supports airlines and U.S. and allied government customers in 150 countries. Boeing products and tailored services include commercial and military aircraft, satellites, weapons, electronic and defense systems, launch systems, advanced information and communication systems, and performance-based logistics and training.



Elsevier

Elsevier is a global information analytics business that helps scientists and clinicians to find new answers, reshape human knowledge, and tackle the most urgent human crises. For 140 years, we have partnered with the research world to curate and verify scientific knowledge. Today, we're committed to bringing that rigor to a new generation of platforms. Elsevier provides digital solutions and tools in the areas of strategic research management, R&D performance, clinical decision support, and professional education; including ScienceDirect, Scopus, SciVal, ClinicalKey and Sherpath. Elsevier publishes over 2,500 digitized journals, including The Lancet and Cell, 39,000 e-book titles and many iconic reference works, including Gray's Anatomy. Elsevier is part of RELX, a global provider of information-based analytics and decision tools for professional and business customers.



Halliburton

Halliburton is one of the world's leading providers of products and services to the energy industry. Founded in 1919, we create innovative technologies, products, and services that help our customers maximize their value throughout the life cycle of an asset and advance a sustainable energy future. We combine technology, services and execution expertise to assist our customers with hydrocarbons location, geological data management, drilling and formation evaluation, well construction and completion, and production optimization throughout the life of their asset.



MathWorks

The MATLAB and Simulink product families are fundamental applied math and computational tools at the world's educational institutions.



Adopted by more than 6,500 universities and colleges, MathWorks products accelerate the pace of learning, teaching, and research in engineering and science. MathWorks products help prepare students for careers in industry worldwide, where the tools are widely used for data analysis, mathematical modeling, and algorithm development in collaborative research and new product development. Application areas include data analytics, mechatronics, communication systems, image processing, computational finance, and computational biology.

Mitsubishi Electric

Mitsubishi Electric Research Laboratories (MERL), located in Cambridge, MA, is the North American R&D organization for Mitsubishi Electric Corporation, a

\$40B global manufacturer of electrical products including elevator and escalators, HVAC systems, electrical power systems, satellites, factory automation equipment, automotive electronics and visual information systems. Controls researchers at MERL collaborate with corporate R&D laboratories, business units in Japan and academic partners around the world to develop new control algorithms and control technologies that extend the capabilities and the performance envelope of these systems.



For students who are interested in pursuing an exciting summer of research, please check out our internship program and learn more on our Website, Facebook, LinkedIn or @MERL_news.

MERL interns work closely with top researchers, and gain valuable industry experience – at an impressive 1:1 intern to researcher ratio. Internships are expected to lead to publications in major conferences and journals. We also recently started a PostDoc program. For PhD graduates interested in applying please see our website www.merl.com

We offer competitive compensation and relocation assistance. Boston is a fantastic student-oriented city, home to some of the best universities in the world.

The summer season is especially lively as MERL and Boston are teeming with researchers and visitors from all over the world.

Quanser

Quanser is the world leader in innovative technology for engineering education and research. With a heritage in creating leading-edge platforms for controls, mechatronics, and robotics,



Quanser has built a legacy over the past 35 years of transformational solutions that bring emerging technologies including autonomous robotics, IoT, self-driving, and virtual reality to students worldwide. Quanser is unique as the only commercial organization that offers a comprehensive, academically sound platform for delivering programs that push the boundaries of traditional engineering education and research. Through a wide network of academic partners and faculty equivalent researchers and course designers, Quanser works with institutions to solve the challenges of modern engineering as opposed to conventional vendors.

SILVER SPONSORS

General Motors

We envision a future of zero crashes, zero emissions and zero congestion, and we have committed ourselves to leading the way toward this future. General Motors has been pushing the limits of transportation and technology for over 100 years. Today, we are in the midst of a transportation revolution. And we have the ambition, the talent and the technology to realize the safer, better and more sustainable world we want. As an open, inclusive company, we're also creating an environment where everyone feels welcomed and valued for who they are. One team, where all ideas are considered and heard, where everyone can contribute to their fullest potential, with a culture based in respect, integrity, accountability and equality. Our team brings wide-ranging perspectives and experiences to solving the complex transportation challenges of today and tomorrow. At General Motors, innovation is our north star. As the first automotive company to mass-produce an affordable electric car, and the first to develop an electric starter and air bags, GM has always pushed the limits of engineering. We are General Motors. We transformed how the world moved through the last century. And we're determined to do it again as we redefine mobility to serve our customers and shareholders and solve societal challenges.



Multidisciplinary Digital Publishing Institute (MDPI)

A pioneer in scholarly, open access publishing, MDPI has supported academic communities since



Academic Open Access Publishing
since 1996

1996. Based in Basel, Switzerland, MDPI has the mission to foster open scientific exchange in all forms, across all disciplines. Our 437 diverse and open access journals, including 428 peer-reviewed journals and 9 conference journals, are supported by more than 295,000 academic experts who share our mission, values, and commitment to providing high-quality service for our authors. We serve scholars from around the world to ensure the latest research is freely available and all content is distributed under a Creative Commons Attribution License (CC BY).

Society for Industrial and Applied Mathematics (SIAM)

SIAM publishes textbooks and monographs in print and electronic format. Visit our booth to browse our titles, all available at discounted conference pricing. SIAM partners

with authors to publish books of outstanding quality and accessible pricing. If you're interested in writing a book, please contact SIAM Executive Editor greenspan@siam.org. More info: <https://www.siam.org/Publications/Books>.



Unitree Robotics

UNITREE ROBOTICS, established in 2016, promoted robots to the global market in 2017.

Unitree was one of the earliest manufacturers of quadruped robots in the world, and an outstanding pioneer in the marketization of global high-performance quadruped robots who is fully committed to promoting mobile robots to truly enter people's lives. With self-developed core components, motion control algorithms, robot perception system, and other self-developed technologies, Unitree Robotics has cooperated with a number of top universities and industry-leading technology enterprises. It not only provides customers with technical support such as software development and mechanical programming, but also helps customers configure a lot of external equipment. Quadruped robots have been used in many application scenarios such as security inspection, ground exploration, and detection. At present, hundreds of brands are equipped with Unitree quadruped robot, and many application areas such as petrochemical, security, electric power and education use the mature product solutions and technical support of Unitree Robotics.



Wiley

Wiley champions those who see knowledge as a force for good. A trusted leader in research and learning, our pioneering solutions and services are paving the way for knowledge seekers as they work to solve the world's most important challenges. Around

the globe, we break down barriers for innovators, empowering them to publish and advance discoveries in their fields, evolve their workforces, and shape minds through teaching and learning. Together, we are unlocking the creation and curation of knowledge for all, transforming today's biggest obstacles into tomorrow's brightest opportunities.



Whether you're already publishing your work or have ever considered it, we can help you achieve your goals. Why should I publish? Where should I publish? What topics are hot? Wiley book acquisitions editor Lisa McClain is available at ACC 2024 to answer all your questions. You can also email Lisa at emcclain@wiley.com if you don't have time to stop by!

BRONZE SPONSORS

Franklin Open

Franklin Open is a peer-reviewed, gold open-access journal that focuses on the fields of engineering and applied mathematics. Franklin Open is a partner journal to the longstanding Journal of The Franklin Institute, which has been publishing scientific research and discoveries for almost 200 years. The journal was created to not only continue that legacy, but to provide a sustainable platform for new research to be widely disseminated from all voices in the scientific and academic communities. Franklin Open aims to publish high-quality manuscripts under such topics as, Complex Networks & Cyber-Physical Systems, Control Engineering & Robotics, Energy & Power Systems, Information & Communications, Data Science & Artificial Intelligence, Neural Networks & Learning Systems, and Speech, Image, & Signal Processing. We welcome new submissions as well as special issue proposals through our website. If you have any questions, please contact franklinopen@fi.edu.



Robust Engineering Systems

Our firm Robust Engineering Systems, LLC (referred to as RES going forward) developed a software named TAACSD Tool-Box (Transformation Allergic Approach Control Systems Design Tool-Box) which offers an innovative, new and novel, pure State Space MIMO based approach to design highly robust control systems much different from the current literature eigenvalue based MATLAB Control Systems Design Tool-Box designs being offered by the Mathworks company. The RES developed TAACSD Tool-Box, uses a US patent awarded (patent number 11, 815,862 awarded in November 2023) Transformation Allergic (TA) Approach. It does not use eigenvalues as state variable convergence measures but instead uses Transformation Allergic Indices, which are always real scalars. RES developed TAA CSD Tool-Box offers much improved robustness to various uncertainties/perturbations such as real parameter variations, unmodeled dynamics, and accommodates time varying perturbations as well as multiple equilibrium points and errors in guidance commands and initial conditions together. TAA CSD Tool-Box assumptions are much different from the MATLAB CSD Tool-Box. Application areas of TAA CSD Tool-Box include Aero



and Space Systems, Electromechanical systems, Automotive and Robotics, Integrated Flight and Propulsion Control, Power/Energy Systems and Microgrid Stability and Control Systems with Communication Constraints and others. For more details, please visit www.robustengsys.com

SPECIAL SESSIONS

In addition to the main technical program, the conference includes breakfast-time, lunch-time, and evening special sessions on industry, outreach, education, family-friendly topics, emerging topics, and funding opportunities.

WEDNESDAY SPECIAL SESSIONS

Early Career Welcome Breakfast

Organizer: Anastasia Bizyaeva, Erfauan Noorani, Jeffrey Chen, Philip Paré

Time: 7:30 – 8:30 Wednesday, July 10, 2024

Location: Pier 2

Graduate students, postdoctoral scholars, and early career researchers are warmly invited to a special breakfast session designed to kick off the first full day of the conference in a friendly and informal setting. This breakfast will be a perfect opportunity to meet new peers and to make a game plan for your conference agenda. It is also a chance to meet members of the newly formed NextCom committee within the Control Systems Society and learn about upcoming resources, workshops, and networking opportunities aimed at supporting early career members of our community.



Anastasia
Bizyaeva



Erfauan Noorani



Liangjie
(Jeffrey) Chen



Philip E. Paré

Family-Friendly Session: STEM-Themed Animated Shorts and Games

Organizer: **Helen Durand**

Time: 10:00 – 11:30 Wednesday, July 10, 2024

Location: Dockside 1

This family-friendly session will consist of showing a STEM-related short story intended to be enjoyable by both older and younger audiences, followed by STEM-related games. This content will last approximately 30 minutes, repeated 3 times so that people can come through to enjoy it or repeat it. The age range being targeted will be preschool/pre-K to early elementary age range, though older audiences are also welcome and may enjoy the events. Parents or guardians are required to be present and always supervise their children.



Helen Durand

An Overview of NSF Programs

Organizer: **Yue Wang and Jordan Berg**

Time: 11:00 – 12:30 Wednesday, July 10, 2024

Location: Pier 2

The National Science Foundation (NSF) offers multiple funding opportunities for investigators working in the field of controls, both within disciplinary programs in Engineering and other directorates, and through foundation-wide cross-cutting initiatives. This presentation will describe opportunities that are relevant to the robotics, dynamics and controls communities.

The presentation will also describe programs targeted toward junior investigators, as well as guidelines for proposal preparation and NSF's Intellectual Merit and Broader Impacts criteria. A question-and-answer session will follow the presentation.



Yue Wang



Jordan Berg

Elsevier: How to get published - first steps in getting your work published in journals

Organizer: **Kay Tancock**

Time: 11:30 – 12:30 Wednesday, July 10, 2024

Location: Queen's Quay 1

A guide to publishing within Elsevier's control and systems portfolio of journals for early career researchers. The session will elaborate on the most efficient ways of submitting a paper and give Early Career Researchers tips and tricks to ensure their research is more likely to be accepted. It will also include a 'Meet the Publisher' event where researchers can ask their publishing questions one-on-one with the publisher.



Kay Tancock

Social Justice and Control Theory: Bridging Engineering and Equity

Organizer: **Satadru Dey, Damoon Soudbakhsh, Polina Ringler, Ankush Chakrabarty, Stephanie Stockar**

Time: 11:30 – 12:30 Wednesday, July 10, 2024

Location: Dockside 2

A panel on "Social Justice and Control Theory" can provide a platform for discussing the intersection of control theory, engineering, and societal concerns related to equity, fairness, and social justice. The panel features experts from various fields, including control theory, engineering, ethics, and social justice advocacy. The objective is to help bridge the gap between the technical aspects of control theory and the ethical and societal considerations needed to ensure that control systems and technology contribute to a more equitable and just society. Furthermore, it should inspire collaboration and encourage engineers and technologists to integrate social justice in their work.



Satadru Dey

The Pennsylvania State University



Damoon Soudbakhsh



Polina Ringler



Stephanie Stockar



Ankush Chakrabarty

Tackling Control Problems with Open-Source Software in Julia and Python

Organizer: **Jan Drgona, LaGrande Gunnell, Joshua Pulsipher, John Hedengren**

Time: 11:30 – 13:00 Wednesday, July 10, 2024

Location: Bay

This 1.5-hour session will feature three informal tutorials (30 minutes each) that highlight the capabilities of prominent open-source software packages for posing



Jan Drgona



LaGrande Gunnell



Joshua Pulsipher



John Hedengren

and solving control problems in Python and Julia, namely NeuroMANCER, Gekko, and InfiniteOpt. These each will be led by a core developer of each package. In the context of control, NeuroMANCER provides a differentiable programming library for parametric model-based optimal control, Gekko provides optimization and machine learning methods for rigorous nonlinear model predictive control, and InfiniteOpt provides a flexible optimization interface for posing optimal control problems with uncertainty and novel modeling objects.

Women in Control Luncheon

Organizer: **Afef Fekih and Dennice Gayme**

Time: 12:00 – 13:30 Wednesday, July 10, 2024

Location: Pier 4 and Pier 5

The Women in Control Committee (WiC) is dedicated to empowering and promoting gender diversity in the Control Systems Society (CSS) by facilitating the development of mentoring and programs to promote the retention, recruitment, and growth of women CSS members. The WiC luncheon at ACC 2024 in Toronto, Canada provides the opportunity to network, discuss women's roles in CSS, inspire the next generation of female leaders, and foster collaborations to advance women's leadership. This special session will provide female researchers and professionals with the invaluable opportunity to network, seek guidance, and engage with senior faculty members and industry leaders.



Afef Fekih



Dennice Gayme

Student Networking Event

Organizer: Mugdha Basuthakur, Chantel Lapins, Yasmine Marani,
Sasha McKee, Jacob Anderson

Time: 17:30 – 19:30 Wednesday, July 10, 2024

Location: Metro W

The Student Networking special session aims to provide all interested students attending ACC 2024 the opportunity to receive valuable career advice from experts in industry, academia, and national laboratories. Moreover, it seeks to enhance student engagement in the conference and promote awareness of the benefits of involvement in the control community by offering a platform that facilitates connections with peers and the attending professionals. In the first 25 minutes of this structured event, the invited professionals will present their backgrounds and areas of interest.



Mugdha
Basuthakur



Chantel Lapins



Yasmine
Marani



Sasha McKee



Jacob
Anderson

This will be followed by 3 rounds of rotating round-table conversations where, in each round, 7-8 students will have the opportunity for open discussion with a professional for 20 minutes before moving to another table. The final 30 minutes are reserved for open social networking to allow students to connect with peers and the remaining invited professionals with whom they did not interact during the round-table discussions. An assortment of snacks will be provided!

THURSDAY SPECIAL SESSIONS

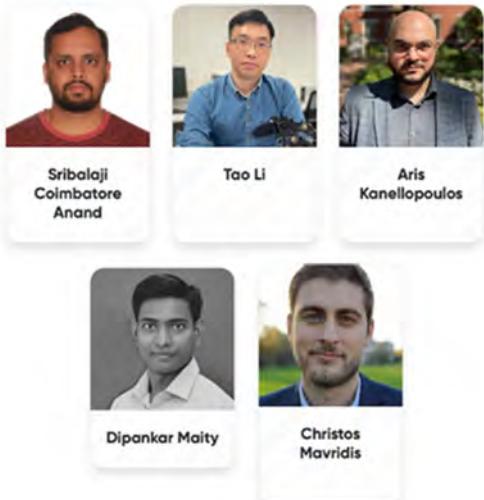
Student Breakfast (Part I): Security and Privacy of the Next-Generation Cyber-Physical Systems

Organizer: Sribalaji Coimbatore, Tao Li, Aris Kanellopoulos, Christos Mavridis, Dipankar Maity

Time: 7:30 – 8:30 Thursday, July 11, 2024

Location: Dockside 1

Students and early-career researchers are warmly invited to special breakfast sessions on Thursday and Friday. Sponsored by the Technical Committee on Security and Privacy, the student-organized sessions will explore a new landscape of cyber-physical systems (CPS) research by bringing together young scholars working on the security and privacy of CPS and their applications in diverse areas. In addition to technical presentations, this student-organized workshop features a panel discussion and experience-sharing mixer on academic job-seeking and career development. The primary objective of these sessions is to engage early-career researchers from multiple topical areas in control society and create a vibrant and sustainable research thrust dedicated to the security, privacy, and resiliency of the next-generation cyber-physical systems.



Getting Funded by NSF: Proposal Preparation and the Merit Review Process

Organizer: **Yue Wang and Jordan Berg**

Time: 11:30 – 13:15 Thursday, July 11, 2024

Location: Bay

So, you think you have a great research idea, now how do you get funding from the National Science Foundation (NSF) to do the work? A well-scoped and written proposal is instrumental to successful submission. This session targets junior faculty and researchers who might be new to NSF and describes detailed guidelines and practical advice for proposal preparation. The presenter will go over NSF review process and Intellectual Merit and Broader Impacts criteria, as well as share most common mistakes made by the Primary Investigators when submitting a proposal. Question-and-answer session will follow the presentation.



Yue Wang



Jordan Berg

Fostering Justice, Diversity, Equity, and Inclusion (JEDI) in the Controls Community

Organizer: **Victor Zavala and Karen Rudie**

Time: 11:30 – 12:30 Thursday, July 11, 2024

Location: Queen's Quay 1

This session will aim to bring together students and researchers from industry and academia to discuss ideas on how we can promote Justice, Diversity, Equity, and Inclusion (JEDI) in the control field, as a way to foster representation and a sense of belonging for all members of the controls community. The session will involve a panel composed of researchers, who will share their experiences in promoting JEDI initiatives. All members of the ACC community, including underrepresented minorities, are welcome to attend this event.



**Victor M.
Zavala**



Karen Rudie

How to Make a STEM Outreach Film

Organizer: **Helen Durand**

Time: 11:30 – 12:30 Thursday, July 11, 2024

Location: Dockside 1

This session will discuss the use of film in STEM outreach. We will cover our experience with topics such as: 1) how to start such a film; 2) how to see if the film is “working”; 3) how to move into the animation process (even if you are not an artist). We will discuss potentially useful software as well as aspects of the editing process. We will focus on filmmaking in the case of wanting to tell a story where STEM plays a role in the plot, but the film is not directly a tutorial on STEM concepts (i.e., indirect teaching of STEM through the plot and characters).



Helen Durand

The Boeing Company

Organizer: **Kevin Wise, Heather Hussain, Mark Ward, Joseph Gaudio, Ryan Ratliff**

Time: 12:00 – 13:15 Thursday, July 11, 2024

Location: Queen's Quay 2

As a leading global aerospace company, Boeing develops, manufactures and services commercial airplanes, defense products and space systems for customers in more than 150 countries. As a top U.S. exporter, the company leverages the talents of a global supplier base to advance economic opportunity, sustainability and community impact. Boeing's diverse team is committed to innovating for the future, leading with sustainability, and cultivating a culture based on the company's core values of safety, quality and integrity. Join our team and find your purpose at boeing.com/careers. Boeing wants to get to know you and what legacy you want to create that will change the world. Come to the Boeing special session and meet the team!



Kevin Wise



Heather Hussain



Mark Ward



Ryan Ratliff



Joseph Gaudio

Industry Lunch: MERL: Fundamental Research with Real-World Impact

Organizer: **Stefano Di Cairano, Karl Berntorp, Abraham Vinod, Avishai Weiss**

Time: 12:00 – 13:15 Thursday, July 11, 2024

Location: Pier 2

Mitsubishi Electric Research Laboratories (MERL) is a leading research organization that conducts fundamental research for industrially motivated problems. MERL is a subsidiary of Mitsubishi Electric Corporation, a global manufacturer of a wide range of products including robots, automotive, HVAC, factory automation, electrical systems, and space systems. MERL researchers collaborate with corporate laboratories and academic partners from around the world to develop novel solutions to challenging problems.

In this talk we present an overview of research activities at MERL, including fundamental research in control and its application to a variety of future products. We discuss fundamental research including model predictive control and control of constrained systems, estimation and motion planning for autonomous systems, real-time optimization and integration of learning and control. Then, we describe how these fundamental research areas have impacted real world applications and products such as automated vehicles, drones, spacecraft, robots and navigation systems.

Students and faculty interested in collaborations and ideas exchange are encouraged to attend.

FRIDAY SPECIAL SESSIONS

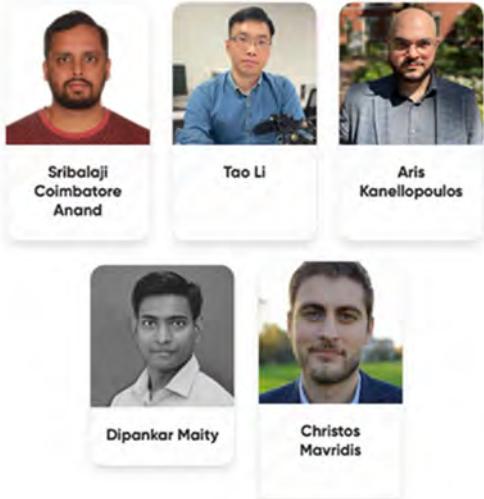
Student Breakfast (Part II): Security and Privacy of the Next-Generation Cyber-Physical Systems

Organizer: Sribalaji Coimbatore, Tao Li, Aris Kanellopoulos, Christos Mavridis, Dipankar Maity

Time: 7:30 – 8:30, Friday, July 12, 2024

Location: Dockside 1

Students and early-career researchers are warmly invited to special breakfast sessions on Thursday and Friday. Sponsored by the Technical Committee on Security and Privacy, the student-organized sessions will explore a new landscape of cyber-physical systems (CPS) research by bringing together young scholars working on the security and privacy of CPS and their applications in diverse areas. In addition to technical presentations, this student-organized workshop features a panel discussion and experience-sharing mixer on academic job-seeking and career development. The primary objective of these sessions is to engage early-career researchers from multiple topical areas in control society and create a vibrant and sustainable research thrust dedicated to the security, privacy, and resiliency of the next-generation cyber-physical systems.



Feedback Screening of "Independence"

Organizer: **Helen Durand**

Time: 10:15 – 13:15, Friday, July 12, 2024

Location: Dockside 1

In this session, attendees will be able to watch a full-length film being created by Dr. Helen Durand called "Independence." The film is a science fiction adventure. Dr. Lucas is at ethical odds with a number of colleagues due to his experiments in finding ways to mark the offenses of individuals against programmed moral standards, supposedly to improve their lives. Dr. Lucas' research ideas at the intersection of science and morality have caused Dr. Fuertes serious issues. He is living a life of deception to avoid nearing death, trying to find some way to make up for his past and become free. This film may be appropriate for teenagers and above due to scientific discussions (with significant artistic liberty) and also violence in plot points, including murder, harm, and peril. This is an initial version of the script that will be presented in stop motion or storyboard format and is in the development stage. Your feedback is welcome. Get ready for moral values meets eigenvalues.



Helen Durand

Navigating the Landscape of Innovation: Insights from Industry and Consulting

Organizer: **Shreshta Rajakumar Deshpande and Yan Chen**

Time: 11:30 – 12:30, Friday, July 12, 2024

Location: Bay

The dynamic landscape of innovation, research, and product delivery continuously evolves, presenting us with valuable lessons and insights. This special session aims to explore how one's perspective and priorities are influenced by the role they play in the innovation ecosystem: corporate, academic, or startup. The speaker/s will delve into the positive aspects, the challenges, and the less glamorous realities associated with each of these roles. Additionally, strategies for striking a balance between these perspectives will be discussed, to foster a more efficient and effective society.



**Shreshta
Rajakumar
Deshpande**



Yan Chen

Key topics of discussion include: shifting perspectives in problem perception and definition, decision-making dynamics in these different contexts, and roadmaps towards productive societal innovation.

Recent Systems and Control Research in Canada

Organizer: Yang Shi and James Richard Forbes

Time: 11:30 – 13:00, Friday, July 12, 2024

Location: Queen's Quay 2

Over the years, researchers based in Canada have consistently made substantial contributions to the field of systems and control. This session aims to highlight the recent theoretical and technological breakthroughs achieved by these Canadian scholars and professionals in areas such as control, mechatronics, data analytics, intelligent systems, and automation. Beyond showcasing these innovations, our goal is to foster a platform for Canadian researchers to engage with and gain insights from their peers across institutions. We also hope to stimulate discussions among Canadian experts and their global counterparts, paving the way for potential collaboration.



Yang Shi



James Richard
Forbes

Role of Learning and Control in Climate-Resilience of Power Grid

Organizer: Pramod Khargonekar

Time: 11:30 – 13:00, Friday, July 12, 2024

Location: Queen's Quay 1

Extreme weather events, such as heat waves, cold waves, wildfires, and storms, are increased in intensity, frequency and duration and can have significant impacts on human health, infrastructure (such as power grid) and the environment. Power grids are undergoing massive transformation through large-scale integration of renewable energy resources, and distributed energy resources, while having to be more resilient during extreme weather events. Control and learning methods, not only have contributed to the operation and planning practices of power grids as we



Pramod
Khargonekar

know them today, but also can play even a bigger role in shaping the decarbonized and resilient grid of the future. This session will bring together a group of diverse experts to discuss the opportunities for and challenges of developing and integrating advanced control and learning technologies in the operation and planning of power grid.

MathWorks Lunch: Asynchronous Engineering Instruction and Increased Teaching Impact

Organizer: **Melda Ulusoy, Craig Buhr, Christopher Lum**

Time: 12:00 – 13:15, Friday, July 12, 2024

Location: Pier 2

This presentation will discuss various methodologies, challenges, and lessons learned related to teaching an engineering curriculum in an asynchronous fashion (aka a ‘flipped classroom’). This format has demonstrated significant benefits such as increased student engagement, greater flexibility in learning, and broadened impact/reach but simultaneously presents unique challenges such as additional instructor overhead and effort. Presenter will discuss how to encapsulate information and use social media platforms such as YouTube to build an online teaching presence that can be leveraged by students both inside and outside your home university. The discussion will also highlight how MATLAB and Simulink facilitate the teaching of various engineering topics such as controls, flight mechanics, and simulation. It will also discuss the application of these concepts/tools to industry problems. This session strives to provide educators with tools and processes to increase their teaching impact and enable knowledge sharing across a global population.



Melda Ulusoy



Craig Buhr

STUDENT PROGRAMS

STUDENT BEST PAPER AWARD SESSION

All five finalist papers (see below) will be presented during a special session on Wednesday, July 10, 15:30 – 17:30, in Pier 9. The winner will be selected by the Best Student Paper Awards Committee and will be announced at the AACC Awards Ceremony on Thursday, July 11, 11:45 – 12:45, Frontenac Ballroom.

STUDENT BEST PAPER AWARD FINALISTS

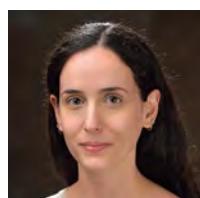
The 2024 ACC is pleased to continue the tradition of the Student Best Paper Award. All primary, first-listed authors of a regular contributed paper who were students at the time of submission were eligible. To be considered for the award, the paper was nominated by the student's advisor in October 2023. The nominated papers were reviewed through the usual conference review process and by the Best Student Award Committee. Based on these reviews, the following five papers were selected as finalists for the Student Best Paper Award competition.



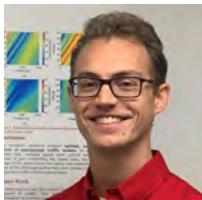
Michael Tang (Student Author), Miroslav Krstic, Jorge I. Poveda. *On Fixed-Time Stability for a Class of Singularly Perturbed Systems Using Composite Lyapunov Functions*, FrB21.4



Shida Jiang (Student Author), Junzhe Shi, Manashita Borah, Scott Moura. *Weaknesses and Improvements of the Extended Kalman Filter for Battery State-Of-Charge and State-Of-Health Estimation*, WeC06.4



Charis Stamouli (Student Author), Evangelos Chatzipantazis, George J. Pappas. *Structural Risk Minimization for Learning Nonlinear Dynamics*, ThC04.5



Brian Block (Student Author), Stephanie Stockar. *LQ Control of Traffic Flow Models Via Variable Speed Limits*, FrB07.4



Duong Thuy An Nguyen (Student Author), Mattia Bianchi, Florian Dörfler, Duong Tung Nguyen, Angelia Nedich. *Nash Equilibrium Seeking Over Digraphs with Row-Stochastic Matrices and Network-Independent Step-Sizes*. ThC02.1

STUDENT TRAVEL GRANTS

The 2024 American Control Conference Organizing Committee offered partial support to students traveling to the 2024 ACC in Toronto.

The following two conditions were required for support:

- The applicant must have been enrolled as a student at the 2024 ACC paper submission deadline (September 30, 2023), and
- The applicant must register for the conference and present a paper.

The application deadline was February 18, 2024.

The ACC 2024 Organizing Committee thanks the National Science Foundation, American Automatic Control Council, Institute of Electrical and Electronics Engineers (IEEE), the American Society for Mechanical Engineers (ASME), Society for Industrial and Applied Mathematics (SIAM) and others for their support of student activities.

SPECIAL SESSIONS FOR STUDENTS

Please see details in the *Special Sessions* section above for the following events:

- **Early Career Welcome Breakfast**, 7:30 – 8:30 Wednesday, July 10, 2024, Pier 2
- **Student Networking Session**, 17:30 – 19:30 Wednesday, July 10, 2024, Metro W
- **Student Breakfast (Part I): Security and Privacy of the Next-Generation Cyber-Physical Systems**, 7:30 – 8:30 Thursday, July 11, 2024, Dockside 1

- **Student Breakfast (Part II): Security and Privacy of the Next-Generation Cyber-Physical Systems, 7:30 – 8:30, Friday, July 12, 2024, Dockside 1**

SELF-DRIVING CAR STUDENT COMPETITION

Location: Regatta Room

Students were encouraged to participate in the Self-Driving Car Student Competition, powered by Quanser, during the 2024 American Control Conference. The competition provides an excellent opportunity for students from around the globe to acquire leading-edge knowledge and develop critical problem-solving skills while also attracting and nurturing next-gen researchers. The competition committee has configured the self-driving challenge to highlight critical Control Systems concepts that will focus on real-time decisions, and feedback control systems that will result in fast and precise driving performance.



The competition was conducted in three stages:

STAGE 1 Virtual Design and Submission

STAGE 2 Algorithm Validation on Physical Vehicles

STAGE 3 On-site Demonstration and Competition

The tasks include but are not limited to: time to complete the path (circuit), accuracy of driving, timely reactions to stop signs and traffic lights, as well as avoidance of obstacles.

July 10, Practice Day, Full day event

- The student teams take this opportunity to practice in the actual competition environment.

July 11, Competition Day, Full day event (Regatta Room)

- 10:00 – 11:30 Team races
- **12:30 – 13:30 Championship and Award Ceremony**

TUTORIAL SESSIONS

Tutorial sessions address the development and/or application of state-of-the-art control approaches and theory to real-world engineering applications. We are pleased to offer the following tutorial sessions at ACC 2024:

WeB08 - Advanced Methods in Diagnostics and Prognostics

Organizers: Ivan Castillo, The Dow Chemical Company
Zhenyu Wang, Dow Chemical
Imad Makki, Ford Motor Company

Time/Location: 13:30 – 15:00, Wednesday, July 10, 2024, Bay

Time	Title	Authors/Presenters
13:30-14:15 WeB08.1	Advanced Methods in Diagnostics and Prognostics	Fabian Mohr, Weike Sun, Richard D. Braatz
14:15-14:30 WeB08.2	Cycle Life Prediction for Lithium-Ion Batteries: Machine Learning and More	Joachim Schaeffer, Giacomo Galuppini, Jinwook Rhyu, Patrick A. Asinger, Robin Droop, Rolf Findeisen, Richard D. Braatz
14:30-14:45 WeB08.3	Prognostics for Chemical Processes	Ivan Castillo, Zhenyu Wang, Leo Chiang
14:45-15:00 WeB08.4	Predictive Analytics for Chemical Processes	Joel Paulson

Fault diagnostics (FD, aka fault detection and identification, FDI) are critical for increasing the reliability and safety of dynamic systems. Fault detection's main function is to determine whether there are faults or abnormal conditions in the system. The performance of fault detection systems can be evaluated based on fault detection sensitivity and the capability of detection with lower rates of false alarms. The purpose of fault identification is to identify the type of fault (i.e., sensor, actuator, or process), distinguish single and multiple faults, and estimate the size of the fault. FD/FDI systems are useful to monitor process performance and quickly identify the root cause of the issue that ultimately maintains the stability of the system. Fault prognostics aims to predict faults before they occur. The goal of fault prediction is to estimate how soon and how likely the fault will occur. A diverse range of FDI and fault prognostics methodologies can be found in the literature that can be classified into three main categories: first-principles, data-driven, and hybrid approaches. Diagnostics and prognostics have seen increasing applications across different industries, including automotive, batteries and chemical. As each industry deals with different systems (e.g., reactors vs. batteries,

generators vs vehicles), the challenges for each area have their own unique facets in terms of scales, complexity, uncertainty, understanding of physics of failure and data quantity and quality, etc. As a result, the development and deployment of diagnostics and prognostics varies across applications. With success stories shared from different areas, this session provides an exciting opportunity for practitioners to gain broad and deep insights about the landscape of diagnostics and prognostics and inspire them to leverage the success from other areas.

This tutorial session will provide the state-of-art methods involving diagnostics and prognostics especially in batteries, energy, and chemical industry. Perspectives of challenges and future development of diagnostics and prognostics, from both academia and industry, will be covered as well.

ThB08 - Process Control Evolution and Challenges in Nuclear Power Plants

Organizer: Kevin Yu, Ontario Power Generation

Time/Location: 13:30 – 15:00, Thursday, July 11, 2024, Bay

Time	Title	Authors/Presenters
13:30-14:15 ThB08.1	Process Control Evolution and Challenges in Nuclear Power Plants	Kevin Yu, Mark Knutson
14:15-15:00 ThB08.2	Load-Following Control of Nuclear Power Plants in the Age of Small Modular Reactors	Zhibo Zhang, Jin Jiang

This tutorial paper is to present the evolution of the methodology that has guided performance optimization and the design techniques that ensure the robustness of control systems in the nuclear power plants at Ontario Power Generation Inc. The evolution is a true implementation of the design principles that have been pioneered by Canadian nuclear professionals over the past half century and reflects continuous learning, one of the core values in our safety culture, so that we can perform tasks with rigor and certainty. The paper will discuss failure mode and effects analysis by sharing some lessons we learned from our digitalization of some components and equipment. Human factors engineering is a design technique we use to reduce human errors when operators are part of process control loops. While this paper will focus on plant process control systems, our two sister papers will be dedicated to turbine governor control and the coordination between the energy generated from nuclear power plants and the demand from the electrical grid in the context of the Small Modular Reactor.

Workshops

The ACC will offer workshops addressing current and future topics in automatic control from experts in academia, national laboratories, and industry. The workshops at ACC 2024 will take place prior to the conference on July 8 and 9, with lengths varying from full workshops to half-day workshops.

MONDAY WORKSHOPS

W13: Computation for Real World Control Systems

Organizer: Daniel Abramovitch

Time: Monday Afternoon, July 8, 2024

Location: Dockside 3

Computation is an essential component of implementing any real-world control system, but the details of how to make this work are often either left to the individual contributors to figure out or handed off to turn-key vendors. This workshop intends to provide insights, methods, and concrete examples into three major pieces of this subject. First, the workshop will present recent tutorial material (ACC 2023) from the author on real-time computing issues for control systems. This material explains the principal factors affecting the four computing chains inside a feedback system. After this overview, the workshop will spend time on an often-neglected area of computation for control system measurements, whether they be used in the control loop operation or in the system identification used in model building for control. Finally, the workshop will hone in on specific programming methods and components in the controller itself, describing efficient implementation methods and structures. Together these three thrusts should equip the participant with tools that they can apply almost immediately in their work. While the technology of computation constantly changes, the principles that lead any one of those signal chains to be a limiting factor remain the same.

TUESDAY WORKSHOPS

W01: Model-Based Process Control Using First-Principles Models

Organizer: R. Russell Rhinehart

Time: 8:30 – 17:30, Tuesday, July 9, 2024, One full day

Location: Pier 8

This full-day workshop has two objectives: 1) For those in research related to control methods the workshop will reveal successful techniques and issues that need to be incorporated in model-based controllers. 2) For those considering implementing first-principles models for control, it will be a practical how-to guide.

W02: Data-Based: the Past and Future of Control?

Organizers: Raman Goyal and Suman Chakravorty

Time: 8:30 – 17:30, Tuesday, July 9, 2024, One full day

Room: Pier 3

Data-based control has a long history in the Control community, tracing back to seminal work in adaptive control and system identification. However, much of this past work concentrated, for good reason, on linear time-invariant (LTI) problems. With the rapid advances of Reinforcement Learning (RL) in the past decade, owing partly to the vast increase in computing power, data-based control is enjoying a renaissance and seems poised to advance control synthesis to a slew of new applications that are non-LTI.

W03: Optimal Control in Julia with JuMP and InfiniteOpt

Organizer: Joshua Pulsipher

Time: 8:30 – 17:30, Tuesday, July 9, 2024 One full day

Room: Dockside 9

This workshop is a tutorial on how to model complex nonlinear, continuous-time optimal control problems via InfiniteOpt.jl and JuMP.jl. Leveraging a unifying abstraction for infinite-dimensional optimization (InfiniteOpt) problems, InfiniteOpt.jl is a Julia-based open-source software package that builds upon JuMP.jl to provide an intuitive symbolic modeling environment for many problem classes in dynamic, PDE constrained, and stochastic optimization. Moreover, its extensibility allows researchers to make their cutting-edge techniques accessible to a wide audience of individuals. All these aspects make InfiniteOpt.jl a powerful tool for tackling advanced optimal control problems.

W04: Coupled Transportation and Power Networks: New Challenges and Opportunities for Systems, Control, and Learning

Organizers: **Junjie Qin and Sivaranjani Seetharaman**

Time: Tuesday, July 9, 2024, Half day - afternoon

Room: Dockside 5

As the electrification of transportation becomes a crucial component of sustainable mobility in the future, cities across the globe have set ambitious goals to promote the use of electric vehicles. The increasing penetration of electric vehicles (EVs) altered not only the travel patterns of private car users and fleet operators over the transportation network, but also the power consumption patterns over the distribution power networks, resulting in a tighter coupling between the transportation and power systems.

W05: Physics-informed Machine Learning for Modeling, Control, and Optimization

Organizers: **Thomas Beckers, Jan Drgona, Madelyn Shapiro, Draguna Vrabie, Rolf Findeisen, Sandra Hirche**

Time: 8:30 – 17:30, Tuesday, July 9, 2024, One full day

Room: Pier 5

In recent years, there has been an explosion of research on the intersection of machine learning and classical engineering domains. Machine learning is increasingly being used in the development of novel data-driven approaches for modeling and control of dynamical systems, traditionally dominated by physics-based models and scientific computing solvers. On the other hand, engineering and scientific computing principles are changing the machine learning landscape from purely black-box into domain-aware methods by incorporating more structure and prior knowledge into their model architectures and loss functions.

W06: Advanced Battery Management: Recent Advances and Future Trends

Organizers: **Huazhen Fang, Xinfan Lin, Scott Moura, Simona Onori, Ziyou Song**

Time: 8:30 – 17:30, Tuesday, July 9, 2024, One full day

Room: Dockside 9

Battery energy storage systems are emerging as the backbone of numerous industrial and civilian applications, serving as pivotal components in transitioning the world toward a clean energy era. Their performance and safety critically rely on advanced battery management techniques, which have garnered significant attention from the research community, particularly in the systems and control domain, over the past decade. These concerted efforts have resulted in remarkable progress, harnessing control theory to enable sophisticated, high-performing battery systems across a wide array of applications.

W07: Advances in Cybermedical Systems: Recent Results on the Modeling and Control of Biological Systems for Medical Applications

Organizers: **Amor Menezes and Ali Mesbah**

Time: 8:30 – 17:30, Tuesday, July 9, 2024, One full day

Room: Pier 2

Foundational 21st-century control theory advances have helped realize practical cyberphysical systems, captured biological system dynamics both mechanistically and phenomenologically, and developed biosystem regulation at multiple interaction scales, from molecules to organisms. At the intersection of these advances lies the field of cybermedical systems. Cybermedical systems are physical or biological constructs that incorporate automated monitoring, manipulation, and testing of biological systems with programmed knowledge and artificial Intelligence, to achieve a goal of improved human health.

W08: Practical Methods for Real World Control Systems

Organizers: **Daniel Abramovitch, Sean Andersson, Craig Buhr**

Time: 8:30 – 17:30, Tuesday, July 9, 2024, One full day

Room: Dockside 1

A question one should ask of any advanced algorithm is, “How do we make that work in a real system?” A question one should ask of any industrial control system is, “How do we apply better algorithms to this problem?” The two questions are dual sides of the same “bridging the gap” problem that has hounded control for decades. This workshop will examine practical methods that address this problem from both sides: ways to implement advanced algorithms on real systems and ways to improve industrial control using advanced methods.

W09: A Systems Perspective on Automotive Cybersecurity

Organizers: **Mohammad Pirani, Walter Lucia, Ehsan Nekouei, Bruno Sinopoli, Karl Henrik Johansson**

Time: 8:30 – 17:30, Tuesday, July 9, 2024, One full day

Room: Dockside 4

Advancements in embedded systems, sensor technologies, communication devices, and artificial intelligence have resulted in vehicles that are pervasively monitored by dozens of digital computing units coordinated via internal vehicular communication networks. While this evolution in vehicle connectivity has propelled major advancements in driving efficiency, it has also introduced a new range of potential risks, including the unwanted access of third parties with malicious motives which can endanger driving safety. For instance, it has been experimentally demonstrated that bypassing the security mechanisms of a vehicle is not difficult for attackers. Moreover, attackers can also completely erase any evidence of their presence.

W10: Confluence of Learning and Control Approaches in Multi-Agent Systems

Organizers: **Aditya Dave, Logan E. Beaver, Heeseung Bang, Andreas A. Malikopoulos**

Time: 8:30 – 17:30, Tuesday, July 9, 2024, One full day

Room: Pier 9

As the world grows increasingly well connected, multi-agent systems have encompassed many critical applications such as cooperative robots, networked control systems, power systems, autonomous vehicles, mobility markets, smart cities, economic institutions, and online social networks. Typically, a multi-agent system comprises many decision-makers that must either learn to act or compute coordinated actions to achieve the design objective. A key feature of such systems is the need for decentralized decision-making arising from different factors such as restricted communication, computational limits, and requirements of resilience against the failure of any subgroup of agents. Under these conditions, traditional centralized approaches for both optimal control and reinforcement learning are rendered unsuitable. Thus, studying the confluence of the different approaches to learning and control in multi-agent systems has emerged as a crucial area of research and development.

W11: Challenges in Control for the Future of Mobility

Organizers: **Gioele Zardini, Carlo Cenedese, Emilio Frazzoli, John Lygeros**

Time: 8:30 – 17:30, Tuesday, July 9, 2024, One full day

Room: Dockside 6

Increasing urbanization and exacerbation of sustainability goals threaten the operational efficiency of current transportation systems and confront cities with complex choices with huge impacts on future generations. At the same time, the rise of private, profit-maximizing Mobility Service Providers leveraging public resources, such as ride-hailing companies, entangles current regulation schemes. This calls for tools to study such complex socio-technical problems. In past years, optimization and control played an important role when solving decision-making problems in this space.

W12: Cooperative Output Regulation of Heterogeneous Multi-agent Systems

Organizers: **Jie Huang, Changran He, Yamin Yan,
Selahattin Burak Sarsilmaz, Ahmet Taha Koru**

Time: Half day – afternoon, Tuesday, July 9, 2024
Room: Pier 7

In cooperative control of multi-agent systems, one of the fundamental problems is to design a distributed control law such that the output of every agent asymptotically tracks a class of references and asymptotically rejects a class of disturbances while preserving the closed-loop stability. The term ‘cooperative output regulation’ was coined in the 2010s to refer to this problem. It offers a unifying framework that considers heterogeneity in multi-agent systems, paves the way for a capability of tracking and rejecting a large class of signals, and contains typical cooperative control problems such as leader-following and formation as subcases. The main difficulty here lies in the lack of central authority. In other words, each agent can share information with only their neighbors. From a control theory viewpoint, how should distributed controllers (i.e., local interactions between the agents and control protocols) be structured to ensure that the cooperative output regulation is undertaken?

Bystander Intervention Workshop (Free Registration)

Organizers: **Kelley Barsanti, Jay Farrell, Blair Schneider%**
Time: 9:00 – 12:00 and 14:00 – 17:00 (offered twice),
Tuesday, July 9, 2024
Room: Dockside 3

The purpose of this interactive workshop is to build awareness and understanding of exclusionary behaviors and to teach and practice effective bystander intervention in engineering academic and professional settings, as pathways to building culture and climate that promote equity and inclusion. The workshop includes an interactive PowerPoint presentation and breakout groups in which you will discuss and practice bystander intervention approaches in scenarios focused on common academic environments (e.g., faculty meetings and conferences) that are based on actual events. The skills developed in this workshop have usefulness in all aspects of life and work, including faculty and student interactions.

NSF CEAN is a partnership between Bourns College of Engineering (UC Riverside), NSF ADVANCEGeo, and UC College of Engineering Deans Council.

LATE-BREAKING NEWS POSTER SESSION

Thursday, July 11, 11:00-11:45, Metro, Harbour and Frontenac Ballrooms

Number	Poster title	Authors
ThPo1.1	Intelligent System of the Grinding Robot for Spiral Welded Pipe	Ayalew, Getachew Demeissie
ThPo1.2	Advanced Bi-Layer Control System for Continuous Pharmaceutical Manufacturing Pilot-Plant	Singh, Ravendra
ThPo1.3	D-Stability for Discrete Time Closed-Loops Subject to Signal-To-Noise Ratio Constraints	Rojas, Alejandro J.; Barbosa, Karina A.
ThPo1.4	Sampling theorem for exact identification of continuous-time nonlinear systems based on the Koopman operator	Zeng, Zhexuan; Yue, Zuogong; Mauroy, Alexandre; Goncalves, Jorge; Yuan, Ye
ThPo1.5	Latest Results on 24/7 Implementation of Neural Network Based Signal Control for Nimitz Highway in Honolulu	Wang, Hong; Wang, Yiwei; Wang, Chieh (Ross); Shao, Yunli; Zhang, Guohui; Subramaniyan, Arun Bala
ThPo1.6	Data-Driven Controls of a Flapping Wing Unmanned Aerial Vehicle Inspired by Monarch Butterfly	K. C., Tejaswi; Lee, Taeyoung
ThPo1.7	A Simulation Preorder for Koopman-Like Lifted Control Systems	Aspeel, Antoine; Ozay, Necmiye
ThPo1.8	A Direct and Execution-Time-Certified Box-QP Algorithm for Input-Constrained MPC	Wu, Liang; Braatz, Richard D.
ThPo1.9	Improving Positioning Accuracy Using Particle Filter with Enhanced IMU Velocity Estimation	Pisarski, Dominik; Faraj, Rami; Jankowski, Łukasz; Konowrocki, Robert; Poplawski, Blazej
ThPo1.10	A Ball Launching Mechanism for Real-Time Control Education	Moallem, Mehrdad; Mohagheghi, Afagh
ThPo1.11	Deep Monocular Relative 6D Pose Estimation for Ship-Based Autonomous UAV	Wickramasuriya, Maneesha; Lee, Taeyoung; Snyder, Murray

Number	Poster title	Authors
ThPo1.12	Uniform Exponential Stability in Finite-Difference Model Reduction for Magnetizable Piezoelectric Beams with Non-Collocated Observers	Rasaq, Uthman; Khalilullah, Sk Md Ibrahim; Walterman, Jacob; Ozer, Ahmet Ozkan
ThPo1.13	FPGA-Accelerated Particle Filter for High-Speed Target Localization in Edge Computing Devices	Kim, Daeyeon; Kim, Nayeon; Lee, Heoncheol; Choi, Wonseok; Jeong, Bora; Cho, Youngki
ThPo1.14	Reinforcement Learning Enables Extreme Vehicle Lateral Maneuvers	Yechiel, Oded; Suplin, Vladimir
ThPo1.15	Unlocking Floating Offshore Wind Potential: Layout Modification for Power Maximization	Niu, Yue; Nagamune, Ryozo
ThPo1.16	Enhancing Nonlinear Chemical Process Monitoring with Neural Component Analysis Based Singular Spectrum Analysis (SSA-NCA)	Ndunda, Enock; Krishnannair, Syamala
ThPo1.17	A Superstructure Design for Sustainable Hydrogen Byproduct Production and CO ₂ Emission Mitigation	Khaligh, Vahid; Ghezelbash, Azam; Niaz, Haider; Liu, Jay
ThPo1.18	Dynamic Extended-Output Observer Design for an Adaptive Vertical Farm Quadcopter	Chnib, Echrak; Bagnerini, Patrizia; Gaggero, Mauro; Zemouche, Ali
ThPo1.19	Deep Reinforcement Learning Based Tracking Control of van de Vusse Reactor	Ankalugari, Rahul Yadav; M U, Abuthahir; Magbool Jan, Nabil; Joseph, Ajin George
ThPo1.20	Temperature Estimation in Lithium-Ion Batteries through Cascaded Electrochemical-Thermal Models	Ferreira, Patryck; Tang, Shuxia
ThPo1.21	TUM CONTROL: Open Source Controller-Vehicle in Loop Simulation Framework for ultra-Rapid prototyping in Python	Zarrouki, Baha; Betz, Johannes

Number	Poster title	Authors
ThPo1.22	Deep Reinforcement Learning Driven Adaptive Stochastic NMPC Reduces Conservatism, Enhances Feasibility and Improves Closed-Loop Performance	Zarrouki, Baha; Wang, Chenyang; Betz, Johannes
ThPo1.23	Safe Deep Reinforcement Learning (RL) Agent Adapts the Cost Function Weights of a Weights-Varying MPC (WMPC)	Zarrouki, Baha; Spanakakis, Marios; Betz, Johannes
ThPo1.24	Noncontact Magnetic Manipulation Using Permanent Magnets	Ekanayake, Lahiru; Weerasekara Mudiyanselage, Janaka Madhusankha; Basnet, Dhiraj; Komae, Arash
ThPo1.25	Algebraic Prescribed-Time KKL Observer for Autonomous Nonlinear Systems	Marani, Yasmine; N'Doye, Ibrahima; Laleg-Kirati, Taous-Meriem
ThPo1.26	Uncertainty Quantification in Physiological Modeling Using Bayesian Variational Autoencoders	Estiri, Elham; Mirinejad, Hossein
ThPo1.27	Reinforcement Learning and Nonlinear Integrated Controller for Guaranteed Local Stability	Nan, Shiqi; Chen, Chih-Chiang; Qian, Chunjiang
ThPo1.28	Benchmarking Surrogate Embedding Strategies for Model Predictive Control	Elorza Casas, Carlos Andres; Pulsipher, Joshua; Ricardez-Sandoval, Luis
ThPo1.29	Properties of Immersions for Systems with Multiple Limit Sets with Implications to Learning Koopman Embeddings	Liu, Zexiang; Ozay, Necmiye; Sontag, Eduardo
ThPo1.30	Particle Swarm Optimization for Training Quadrotor PID Controller	Rodriguez, Eric; Dong, Wenjie; Lu, Qi
ThPo1.31	On Control-Sync Technique for Multi-Task System Operation	Fateh, Fariba; Mirafzal, Behrooz
ThPo1.32	Staggered Steering of Wheeled-Legged Biped Robot	Montufar, Sergio; Qian, William

Number	Poster title	Authors
ThPo1.33	Information-Based Anomaly Detection for Autonomous Agents	McKee, Sasha M; Haddadin, Osama; Leang, Kam K.
ThPo1.34	Estimating the Lateral Stability Region of the Vehicle Using the Koopman Spectrum	Kumar, Alok; Umathe, Bhagyashree; Vaidya, Umesh; Kelkar, Atul
ThPo1.35	Self Organized Neural Network for Swarm Robots	Han, Zhifeng; Walton, Claire
ThPo1.36	Deep Neural Network In-Proximity Effect Detection and Collision Avoidance for Aerial Vehicles	M Anderson, Jacob; Leang, Kam K.
ThPo1.37	Distribution-Matching Deployment: A Stein Variational Gradient Approach to Optimal Multisensor Placement	Ghimire, Donipolo; Kia, Solmaz S.
ThPo1.38	Real Application of Deep Reinforcement Learning for multi-agent Cooperation in Distributed Model-Based Predictive Control.	Aponte Rengifo, Oscar Emilio; Francisco, Mario; Vega Cruz, Pastora
ThPo1.39	Improving Drone Control: Achieving Strong Stability and Adaptability Using Online Reinforcement Learning	Avila, Ethan; Jaber, Halah; Frye, Michael
ThPo1.40	Parameter Design of P-PI Controller for Motion Control Systems Using Limited Pole Placement Methd	Urakawa, Yoshiyuki; Ngamlamai, Sirichai
ThPo1.41	Cyber-Attack Detection by Using a Discrete-Time Model-Based Unknown Input Observer	Nguyen, Quang Huy; Sadki, Osama; Rafaralahy, Hugues; Haddad, Madjid; Zemouche, Ali
ThPo1.42	Closed-Loop Battery Manufacturing Process Control via End-of-Line Formation Features	Weng, Andrew; Less, Greg; Siegel, Jason B.; Stefanopoulou, Anna G.
ThPo1.43	Integrating Dynamic Risk Assessment with Model Predictive Control for Enhanced Safety and Operational Efficiency	Akundi, Sahithi Srijana; Liu, Yuanxing; Braniff, Austin; Dantas, Beatriz; Niknezhad, Shayan Sean; Tian, Yuhe; Khan, Faisal; Pistikopoulos, Efstratios N.

DAILY OVERVIEW OF EVENTS/ACTIVITIES

MONDAY OVERVIEW

Time	Key Events
Afternoon	Workshop 13. Please see the <i>Workshops</i> section for more information on the Monday workshops.

TUESDAY OVERVIEW

Time	Key Events
8:30 – 17:30	Workshops 1-3, 5-11, and AACC Bystander Training Workshop. Please see the <i>Workshops</i> section for more information on the Tuesday full-day workshops.
Afternoon	Workshop 4 and 12. Please see the <i>Workshops</i> section for more information on the Tuesday half-day workshops.
18:30 – 20:30	Opening Reception, Harbour Ballroom

WEDNESDAY OVERVIEW

Time	Key Events
07:30 – 08:30	Special Session: Early Career Welcome Breakfast (Pier 2)
08:15 – 08:30	2024 ACC Opening Remarks (Metro E/C)
08:30 – 09:30	Plenary Session (see <i>Plenary Sessions</i> , Metro E/C) “Control of Uncrewed Vehicle Systems – from Unconventional Flyers to Maritime Autonomy”, Kingsley Fregene, Lockheed Martin, USA
09:30 – 10:00	Coffee Break (Dockside Foyer, Pier/Harbour Foyer, and Frontenac Area)
10:00 – 11:45	Morning Rapid Interactive (RI) Technical Sessions
10:00 – 11:30	Special Session: Family-friendly session – STEM-themed animated shorts and games (Dockside 1)
11:00 – 13:30	Special Sessions (see <i>Special Sessions and Student Programs</i>) <ul style="list-style-type: none">● National Science Foundation: An Overview of NSF Programs (11:00 am – 12:30 pm, Pier 2)● Elsevier: How to get published- first steps in getting your work published in journals (11:30 – 12:30, Queens Quay 1)

	<ul style="list-style-type: none"> • Tracking Control Problems with Open-Source Software in Julia and Python (11:30 – 13:00, Bay) • Social Justice and Control Theory -- Bridging engineering and equity (11:30 – 12:30, Dockside 2) • IEEE CSS Women in Control Luncheon (12:00 – 13:30, Pier 4 and 5)
13:30 – 15:00	Mid-Day Technical Sessions
15:00 – 15:30	Coffee Break (Dockside Foyer, Pier/Harbour Foyer, and Frontenac Area)
15:30 – 17:00	Late Afternoon Technical Sessions
15:30 – 17:00	Student Best Paper Award Session (Pier 9) – Please see Student Programs section for details
17:30 – 19:30	Special Session: Student networking event at ACC 2024 (17:30 – 19:30, Metro W)

THURSDAY OVERVIEW

Time	Key Events
07:30 – 08:30	Special Session: Student Breakfast (Part I) – Security and Privacy of the Next-Generation Cyber-Physical Systems (Dockside 1)
08:30 – 09:30	Plenary Session (see <i>Plenary Sessions</i> , Metro E/C) “A Control Systems Approach to Cell Fate Reprogramming”, Domitilla Del Vecchio, Massachusetts Institute of Technology, USA.
09:30 – 10:00	Coffee Break (Dockside Foyer, Pier/Harbour Foyer, and Frontenac Area)
10:00 – 11:00	Eckman Plenary Lecture (see <i>Plenary Sessions</i> , Metro E/C) “Hybrid Dynamical Seeking Systems: Model-Free Feedback Decision-Making and Control”, Jorge I. Poveda, University of California, San Diego, USA
11:00 – 11:45	Late-breaking News Poster Session (Metro, Harbour, and Frontenac Ballrooms)
11:45 – 12:45	Awards Ceremony (Frontenac Ballroom)

11:30 – 13:15	Special Sessions (see <i>Special Sessions and Student Programs</i>) <ul style="list-style-type: none">• Industry Lunch: MERL: Fundamental Research with Real-World Impact (12:00 – 13:15, Pier 2)• Fostering JEDI in the Controls Community (11:30 – 12:30, Queens Quay 1)• Industry session session: The Boeing Company (12:00 – 13:15, Queens Quay 2)• Getting funded by NSF: Proposal preparation and the merit review process (11:30 – 13:15, Bay)• How to make a STEM outreach film (11:30 – 12:30, Dockside 1)
13:30 – 15:00	Mid-Day Technical Sessions
15:00 – 15:30	Coffee Break (Dockside Foyer, Pier/Harbour Foyer, and Frontenac Area)
15:30 – 17:00	Late Afternoon Technical Sessions
18:30 – 21:30	Conference banquet at the Royal Ontario Museum

FRIDAY OVERVIEW

Time	Key Events
07:30 – 08:30	Special Session: Student Breakfast (Part II) – Security and Privacy of the Next-Generation Cyber-Physical Systems (Dockside 1)
08:30 – 09:30	Plenary Session (see <i>Plenary Sessions</i> , Metro E/C) “Automatic Control in the Era of Artificial Intelligence” Francesco Borrelli, University of California, Berkeley, USA
09:30 – 10:00	Coffee Break (Dockside Foyer, Pier/Harbour Foyer, and Frontenac Area)
10:00 – 11:45	Morning Rapid Interactive (RI) Technical Sessions
10:00 – 13:15	Special Sessions (see <i>Special Sessions</i>) <ul style="list-style-type: none"> ● Feedback screening of "Independence" (10:15 – 13:15, Dockside 1) ● Mathworks Lunch: Asynchronous Engineering Instruction and Increased Teaching Impact (12:00 – 13:15, Pier 2) ● Role of control on climate resilience (11:30 – 13:00, Queens Quay 1) ● Recent systems and control research in Canada (11:30 – 13:00, Queens Quay 2) ● Navigating the Landscape of Innovation: Insights from Industry and Consulting (11:30 – 12:30, Bay)
13:30 – 15:00	Mid-Day Technical Sessions
15:00 – 15:30	Coffee Break (Dockside Foyer, Pier/Harbour Foyer, and Frontenac Area)
15:30 – 17:00	Late Afternoon Technical Sessions
18:30 – 20:30	Closing Reception (Harbour Ballroom area)

2024 American Control Conference

TECHNICAL PROGRAM

Program at a Glance

08:30-09:30 WebP-1
Plenary Lecture
 Control of Uncrewed Vehicle Systems – from Unconventional Flyers to Maritime Autonomy
 Metro E/C

Track 1		Track 2		Track 3		Track 4	
10:00-11:03	WeA01	10:00-11:03	WeA02	10:00-11:03	WeA03	10:00-11:03	WeA04
Ri: Machine Learning in Control Metro E/C		Ri: Network and Multi-Agent Systems Harbour		Ri: Autonomous Robots and Systems Frontenac		Ri: Modeling, Estimation, and System Identification Metro W	
Track 1 13:30-15:00 WebC01 Metro E/C Machine Learning I	Track 2 13:30-15:00 WebC02 Metro E/C Autonomous Network Control Systems I	Track 3 13:30-15:00 WebC03 Frontenac Harbour	Track 4 13:30-15:00 WebC04 Metro E/C Autonomous Robots I and Identification I	Track 5 13:30-15:00 WebC05 Queens Pier 2	Track 6 13:30-15:00 WebC06 Queens Pier 2	Track 7 13:30-15:00 WebC07 Queens Pier 2	Track 8 13:30-15:00 WebC08 Queens Pier 2
Track 9 13:30-15:00 WebC09 Metro E/C Autonomous Robots II and Identification II	Track 10 13:30-15:00 WebC10 Queens Pier 2	Track 11 13:30-15:00 WebC11 Queens Pier 2	Track 12 13:30-15:00 WebC12 Queens Pier 2	Track 13 13:30-15:00 WebC13 Queens Pier 2	Track 14 13:30-15:00 WebC14 Queens Pier 2	Track 15 13:30-15:00 WebC15 Queens Pier 2	Track 16 13:30-15:00 WebC16 Queens Pier 2
Track 17 13:30-15:00 WebC17 Pier 3	Track 18 13:30-15:00 WebC18 Pier 3	Track 19 13:30-15:00 WebC19 Pier 3	Track 20 13:30-15:00 WebC20 Pier 3	Track 21 13:30-15:00 WebC21 Pier 3			
Track 22 13:30-15:00 WebC22 Linear Systems Filtering							

ACC 2024 Technical Program Thursday July 11 2024

08:30-09:30 ThE21 Plenary Lecture A Control Systems Approach to Cell Fate Reprogramming Metro E/C	10:00-11:00 ThE51 Eckran Planetary Lecture Hybrid Dynamical Seeking Systems: Model-Free Feedback Decision-Making and Control Metro E/C	11:00-11:45 ThP01 Late Breaking Poster Session Metro Harbour, Frontenac Ballrooms	Track 1 13:30-15:00 ThB01 ThB02 Harbour Optimization, Mechanisms I Agents-Bas ed Systems: Consensus; Games I; Distributed Compilation	Track 2 13:30-15:00 ThB03 ThB04 Frontenac Optimization, Mechanisms I Agents-Bas ed Systems: Consensus; Games I;	Track 3 13:30-15:00 ThB05 ThB06 Metro W Pier 2 Optimization III	Track 4 13:30-15:00 ThB07 ThB08 Queens Quay 1 Traffic Control II	Track 5 13:30-15:00 ThB09 ThB10 Bay Process Modelling III	Track 6 13:30-15:00 ThB11 ThB12 Dockside 1 Autonomous Control Systems I	Track 7 13:30-15:00 ThB13 ThB14 Richmond Predictive Control III	Track 8 13:30-15:00 ThB15 ThB16 Dockside 2 Adaptive Control II	Track 9 13:30-15:00 ThB17 ThB18 Yonge Quay 2 Power Systems and Electronics IV	Track 10 13:30-15:00 ThB19 ThB20 Wellington Set-Based Methods in Dynamic Systems and Control Systems I	Track 11 13:30-15:00 ThB21 ThB22 Pier 3 Reduced-Or der Modeling and Numerical Algorithms	Track 12 13:30-15:00 ThB23 ThB24 Frontenac Optimization Mechanisms I Agents-Bas ed Systems: Consensus; Games I;	Track 13 13:30-15:00 ThB25 ThB26 Metro W Nonlinear Systems Identification	Track 14 13:30-17:00 ThC01 ThC02 Harbour Optimization, Consensus; Games II; Networked Agents	Track 15 13:30-17:00 ThC03 ThC04 Frontenac Optimization Mechanisms I Agents-Bas ed Systems: Consensus; Games II;	Track 16 13:30-17:00 ThC05 ThC06 Pier 2 Optimization IV	Track 17 13:30-17:00 ThC07 ThC08 Richmond Predictive Control III	Track 18 13:30-17:00 ThC09 ThC10 Dockside 2 Multi-Agent Spacecraft Control	Track 19 13:30-17:00 ThC11 ThC12 Dockside 3 Autonomous Control III	Track 20 13:30-17:00 ThC13 ThC14 Yonge Quay 2 Power Systems and Electronics IV	Track 21 13:30-17:00 ThC15 ThC16 Dockside 4 Dynamics Estimation and Control of Wave Energy Converters
15:30-17:00 ThC01 ThC02 Harbour Optimization, Consensus; Games II; Networked Agents	15:30-17:00 ThC03 ThC04 Frontenac Optimization Mechanisms I Agents-Bas ed Systems: Consensus; Games II;	15:30-17:00 ThC05 ThC06 Metro W Nonlinear Systems Identification	15:30-17:00 ThC07 ThC08 Queens Quay 1 Power Systems and Electronics IV	15:30-17:00 ThC09 ThC10 Bay Process Control	15:30-17:00 ThC11 ThC12 Dockside 2 Adaptive Control III	15:30-17:00 ThC13 ThC14 Richmond Predictive Control III	15:30-17:00 ThC15 ThC16 Dockside 4 Dynamics Estimation and Control of Wave Energy Converters	15:30-17:00 ThC17 ThC18 Pier 3 Fault Detection and Monitoring of Energy Storage Systems for Increased Safety and Cycle	15:30-17:00 ThC19 ThC20 Pier 8 Observers for Linear Systems II	15:30-17:00 ThC21 ThC22 Pier 3 Fault Detection and Monitoring of Energy Storage Systems for Increased Safety and Cycle													
15:30-17:00 ThC22 ThC23 Harbour Optimization, Consensus; Games II; Networked Agents	15:30-17:00 ThC24 ThC25 Frontenac Optimization Mechanisms I Agents-Bas ed Systems: Consensus; Games II;	15:30-17:00 ThC26 ThC27 Pier 2 Optimization IV	15:30-17:00 ThC28 ThC29 Queens Quay 1 Power Systems and Electronics IV	15:30-17:00 ThC30 ThC31 Bay Process Control	15:30-17:00 ThC32 ThC33 Dockside 2 Adaptive Control III	15:30-17:00 ThC34 ThC35 Dockside 3 Autonomous Control III	15:30-17:00 ThC36 ThC37 Yonge Quay 2 Power Systems and Electronics IV	15:30-17:00 ThC38 ThC39 Dockside 4 Dynamics Estimation and Control of Wave Energy Converters	15:30-17:00 ThC40 ThC41 Pier 3 Fault Detection and Monitoring of Energy Storage Systems for Increased Safety and Cycle	15:30-17:00 ThC42 ThC43 Pier 3 Fault Detection and Monitoring of Energy Storage Systems for Increased Safety and Cycle													

2024 American Control Conference

TECHNICAL PROGRAM

Detailed Program Listing

**Technical Program for Wednesday July
10, 2024**

WeP1	Metro E/C
Control of Uncrewed Vehicle Systems – from Unconventional Flyers to Maritime Autonomy (Plenary Session)	

Chair: Grover, Martha Georgia Institute of Technology
Co-Chair: Leang, Kam K. University of Utah

08:30-09:30 WeP1.1

Control of Uncrewed Vehicle Systems – from Unconventional Flyers to Maritime Autonomy, pp. 1-1.

Fregene, Kingsley C.

WeA01	Metro E/C
RI: Machine Learning in Control (RI Session)	

Chair: Shahbakhti, Mahdi University of Alberta
Co-Chair: Yoon, Se Young (Pablo) University of New Hampshire

10:00-10:03 WeA01.1

A Physics-Informed Machine Learning Approach to Predict Soil Water Content for Agricultural Decision-Making, pp. 2-7.

Bagheri, Amirsalar; Patrignani, Andres; Ghanbarian, Behzad; Babaei Pourkargar, Davood

10:03-10:06 WeA01.2

Transfer Learning for Dynamical Systems Models Via Autoencoders and GANs, pp. 8-14.

Damiani, Angelo; Viera López, Gustavo; Manganini, Giorgio; Metelli, Alberto Maria; Restelli, Marcello

10:06-10:09 WeA01.3

Concurrent Learning and Lyapunov-Based Updates of Deep Neural Networks for Euler-Lagrange Dynamic Systems, pp. 15-20.

Basyal, Sujata; Ting, Jonathan; Mishra, Kislaya; Allen, Brendon C.

10:09-10:12 WeA01.4

Model Free Difference Feedback Control of

Stochastic Systems, pp. 21-26.

Zaheer, Muhammad Hamad; Yoon, Se Young (Pablo)

10:12-10:15 WeA01.5

Control-Based Graph Embeddings with Data Augmentation for Contrastive Learning, pp. 27-32.

Ahmad, Obaid Ullah; Said, Anwar; Shabbir, Mudassir; Koutsoukos, Xenofon; Abbas, Waseem

10:15-10:18 WeA01.6

Distributed Reinforcement Learning for Swarm Systems with Reward Machines, pp. 33-38.

Meshkat Alsdadat, Shayan; Baharisangari, Nasim; Paliwal, Yash; Xu, Zhe

10:18-10:21 WeA01.7

Integrating Machine Learning in Process Control with LSTMc: A Case Study in Batch Crystallization, pp. 39-44.

Sitapure, Niranjan; Kwon, Joseph

10:21-10:24 WeA01.8

Learning-Based Model Predictive Control of an Ammonia Synthesis Reactor, pp. 45-50.

Oliveira Cabral, Thiago; Bagheri, Amirsalar; Babaei Pourkargar, Davood

10:24-10:27 WeA01.9

Explainable Optimal Solutions Using Fuzzy Inference, pp. 51-55.

Deneke, Tewodros Lemma; Dunia, Ricardo; Baldea, Michael

10:27-10:30 WeA01.10

Solving Two-Player General-Sum Game between Swarms, pp. 56-61.

Ghimire, Mukesh; Zhang, Lei; Zhang, Wenlong; Ren, Yi; Xu, Zhe

10:30-10:33 WeA01.11

Empowering Hybrid Models with Attention-Based Time-Series Transformers: A Case Study in Batch Crystallization, pp. 62-67.

Sitapure, Niranjan; Kwon, Joseph

10:33-10:36 WeA01.12

An Example of Synthetic Data Generation for Control Systems Using Generative Adversarial Networks: Zermelo Minimum-Time Navigation, pp. 68-73.

	WeA02	Harbour
	RI: Network and Multi-Agent Systems (RI Session)	
10:36-10:39	WeA01.13	Chair: Kumar, Gautam Co-Chair: Yuan, University of Tennessee Yukun
	<i>Safe Reinforcement Learning Using Model Predictive Control with Probabilistic Control Barrier Function</i> , pp. 74-79.	San Jose State University at Chattanooga
Shen, Xun; Wachi, Akifumi; Hashimoto, Wataru; Hashimoto, Kazumune; Takai, Shigemasa		
10:39-10:42	WeA01.14	
	<i>Min-Max Optimization under Delays</i> , pp. 80-85.	
Adibi, Arman; Mitra, Aritra; Hassani, Hamed		Nolan, Nicholas; Laub, Michael; Del Vecchio, Domitilla
10:42-10:45	WeA01.15	
	<i>Developing an Efficient Model for a SOFC System Using Self-Supervised Convolutional Autoencoder and Stateful LSTM Network</i> , pp. 86-91.	
Tofighi, Mohamadali; Salehi, Zeynab; Smith, Daniel; Ali, Kharazmi; Amir, Hanifi Yazdi; Koch, Charles Robert; Shahbakhti, Mahdi		Zhang, Ziqiao; Wu, Wencen; Zhang, Fumin
10:45-10:48	WeA01.16	
	<i>Data-Driven Nonlinear System Identification of a Throttle Valve Using Koopman Representation</i> , pp. 92-97.	
Bongiovanni, Nicolas; Mavkov, Bojan; Martins, Renato; Allibert, Guillaume		Ajagekar, Akshay; Decardi-Nelson, Benjamin; You, Fengqi
10:48-10:51	WeA01.17	
	<i>An Effective Hyperparameter Tuning Method for Ising Machines in Practical Use</i> , pp. 98-103.	
Kakuko, Norihiro; Parizy, Matthieu		Bayiz, Yigit Ege; Topcu, Ufuk
10:51-10:54	WeA01.18	
	<i>Data-Efficient Uncertainty-Guided Model-Based Reinforcement Learning with Unscented Kalman Bayesian Neural Networks</i> , pp. 104-110.	
Wu, Xinyang; Wedernikow, Elisabeth; Huber, Marco		Sun, Lingfeng; Hung, Pin-Yun; Wang, Changhao; Tomizuka, Masayoshi; Xu, Zhuo
10:54-10:57	WeA01.19	
	<i>Fast Long-Term Multi-Scenario Prediction for Maneuver Planning at Unsignalized Intersections</i> , pp. 111-116.	
Mertens, Max Bastian; Ruof, Jona; Strohbeck, Jan; Buchholz, Michael		Amini, Arash; Bayiz, Yigit Ege; Topcu, Ufuk
10:18-10:21	WeA02.7	
	<i>Controllability-Constrained Deep Network Models for Enhanced Control of Dynamical Systems</i> , pp. 159-166.	
		Sharma, Suruchi; Makarenko, Volodymyr; Kumar, Gautam; Tiomkin, Stas

10:21-10:24	WeA02.8	
A Mixing-Accelerated Primal-Dual Proximal Algorithm for Distributed Nonconvex Optimization, pp. 167-172.		
Ou, Zichong; Qiu, Chenyang; Wang, Dandan; Lu, Jie		
10:24-10:27	WeA02.9	
Consensus Control with Safety Guarantee: An Application to the Kinematic Bicycle Model, pp. 173-179.		
Niu, Kaicheng; Abdallah, Chaouki T.; Hayajneh, Mohammad		
10:27-10:30	WeA02.10	
An Auxiliary Graph for Clock Rigidity Analysis, pp. 180-185.		
Wen, Ruixin; Schoof, Eric; Chapman, Airlie		
10:30-10:33	WeA02.11	
Distributed Least-Squares Optimization Solvers with Differential Privacy, pp. 186-191.		
Liu, Weijia; Wang, Lei; Guo, Fanghong; Wu, Zheng-Guang; Su, Hongye		
10:33-10:36	WeA02.12	
Leveraging Untrustworthy Commands for Multi-Robot Coordination in Unpredictable Environments: A Bandit Submodular Maximization Approach, pp. 192-199.		
Xu, Zirui; Lin, Xiaofeng; Tzoumas, Vasileios		
10:36-10:39	WeA02.13	
Controlled Sensing for Communication-Efficient Filtering and Smoothing in POMDPs, pp. 200-207.		
Liu, Changrong; Molloy, Timothy L.; Nair, Girish N.		
10:39-10:42	WeA02.14	
Distributed Model Predictive Control of Integrated Process Networks Based on an Adaptive Community Detection Approach, pp. 208-213.		
Ebrahimi, AmirMohammad; Babaei Pourkargar, Davood		
10:42-10:45	WeA02.15	
Fairness-Aware Electric Taxi Fleet Coordination under Short-Term Power System Failures, pp. 214-219.		
Yuan, Yukun; Ding, Zihan; Lin, Shan		
10:45-10:48	WeA02.16	
A Geometric Approach to Resilient Distributed Consensus Accounting for State Imprecision and Adversarial Agents, pp. 220-225.		
Lee, Christopher; Abbas, Waseem		
10:48-10:51	WeA02.17	
Synchronize the Parafoil and the Vessel: A Hierarchical Distributed Nonlinear Model Predictive Control Approach, pp. 226-232.		
Wei, Zhenyu; Gao, Yan; Shao, Zhijiang		
10:51-10:54	WeA02.18	
Guarding a Target Area from a Heterogeneous Group of Cooperative Attackers, pp. 233-238.		
Lee, Yoonjae; Das, Goutam; Shishika, Daigo; Bakolas, Efstathios		
10:54-10:57	WeA02.19	
Heterogeneous Multi-Agent Reinforcement Learning Based on Adaptive Curiosity for Traffic Signal Control, pp. 239-244.		
Pan, Yue; Lei, Jinlong; Yi, Peng		
WeA03		Frontenac
RI: Autonomous Robots and Systems (RI Session)		
Chair: Leang, Kam K.	University of Utah	
Co-Chair: Beard,	Brigham Young	
Randal W.	Univ	
10:00-10:03	WeA03.1	
On XYZ-Motion Planning Using a Full Car Model, pp. 245-250.		
Chakraborty, Sayan; Jiang, Yu; Jiang, Zhong-Ping		
10:03-10:06	WeA03.2	
Temporally Robust Multi-Agent STL Motion Planning in Continuous Time, pp. 251-258.		
Verhagen, Joris; Lindemann, Lars; Tumova, Jana		
10:06-10:09	WeA03.3	
Structure from WiFi (SfW): RSSI-Based Geometric Mapping of Indoor Environments, pp. 259-264.		
Kim, Junseo; Aghyourli Zalat, Jill; Bahoo, Yeganeh; Saeedi, Sajad		
10:09-10:12	WeA03.4	

	<i>Tracking Control of Optical Beam Transceivers Using Mean Field Models</i> , pp. 265-271.	
N'Doye, Ibrahima; Laleg-Kirati, Taous-Meriem		
10:12-10:15	WeA03.5	
<i>Practical Considerations for Discrete-Time Implementations of Continuous-Time Control Barrier Function-Based Safety Filters</i> , pp. 272-278.		
Brunke, Lukas; Zhou, Siqi; Che, Mingxuan; Schoellig, Angela P		
10:15-10:18	WeA03.6	
<i>Model Predictive Control with Reference Path Planning for Multi-UAV Formation Control System</i> , pp. 279-284.		
Chen, YuWen; Chiang, Ming-Li; Kuo, Guo-Rong; Chuang, Che-Jung; Fu, Li-Chen		
10:18-10:21	WeA03.7	
<i>Interaction-Aware Decision-Making for Autonomous Vehicles in Forced Merging Scenario Leveraging Social Psychology Factors</i> , pp. 285-291.		
Li, Xiao; Liu, Kaiwen; Tseng, H. Eric; Girard, Anouck; Kolmanovsky, Ilya V.		
10:21-10:24	WeA03.8	
<i>An Optimal Control Framework for Influencing Human Driving Behavior in Mixed-Autonomy Traffic</i> , pp. 292-298.		
Chari, Anirudh; Chen, Rui; Grover, Jaskaran; Liu, Changliu		
10:24-10:27	WeA03.9	
<i>Data-Driven Monitoring with Mobile Sensors and Charging Stations Using Multi-Arm Bandits and Coordinated Motion Planners</i> , pp. 299-305.		
Nayak, Siddharth; Greiff, Marcus Carl; Raghunathan, Arvind; Di Cairano, Stefano; P. Vinod, Abraham		
10:27-10:30	WeA03.10	
<i>Coupled Sensor Configuration and Planning in Unknown Dynamic Environments with Context-Relevant Mutual Information-Based Sensor Placement</i> , pp. 306-311.		
Poudel, Prakash; Cowlagi, Raghvendra V.		
10:30-10:33	WeA03.11	
<i>Safe Stabilizing Control for Polygonal</i>		
	<i>Robots in Dynamic Elliptical Environments</i> , pp. 312-317.	
	Long, Kehan; Tran, Khoa; Leok, Melvin; Atanasov, Nikolay	
10:33-10:36	WeA03.12	
<i>Aircraft Approach Management Using Reachability and Dynamic Programming</i> , pp. 318-324.		
P. Vinod, Abraham; Yamazaki, Sachiyoshi; Chakrabarty, Ankush; Yoshikawa, Nobuyuki; Di Cairano, Stefano		
10:36-10:39	WeA03.13	
<i>Collision Cone Control Barrier Functions: Experimental Validation on UGVs for Kinematic Obstacle Avoidance</i> , pp. 325-331.		
Goswami, Bhavya Giri; Tayal, Manan; Rajgopal, Karthik; Jagtap, Pushpak; Nadubettu Yadukumar, Shishir		
10:39-10:42	WeA03.14	
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<i>Achieving and Maintaining Inverted Pose for Miniature Autonomous Blimps</i> , pp. 338-343.		
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10:45-10:48	WeA03.16	
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10:48-10:51	WeA03.17	
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Weaver, Catherine; Capobianco, Roberto; Wurman, Peter; Stone, Peter; Tomizuka, Masayoshi		
10:51-10:54	WeA03.18	
<i>Encouraging Inferable Behavior for Autonomy: Repeated Bimatrix Stackelberg Games with Observations</i> , pp. 360-366.		
Karabag, Mustafa O.; Smith, Sophia; Fridovich-Keil, David; Topcu, Ufuk		

10:54-10:57	WeA03.19	<i>Interconnections</i> , pp. 408-413. Farnam, Arash; Farsi, Milad; Ghorbani, Majid; L. Azad, Nasser; Crevecoeur, Guillaume
Where to Drop Sensors from Aerial Robots to Monitor a Surface-Level Phenomenon, pp. 367-374.		
Shek, Chak Lam; Shi, Guangyao; Asghar, Ahmad Bilal; Tokekar, Pratap		
10:57-11:00	WeA03.20	
Leveraging Computational Fluid Dynamics in UAV Motion Planning, pp. 375-381.		
Huang, Yunshen; Greiff, Marcus Carl; P. Vinod, Abraham; Di Cairano, Stefano		
WeA04	Metro W	
RI: Modeling, Estimation, and System Identification (RI Session)		
Chair: Zhang, Jun University of Nevada Reno		
Co-Chair: Powell, University of Utah Kody		
10:00-10:03	WeA04.1	
<i>Transformer Neural Networks with Spatiotemporal Attention for Predictive Control and Optimization of Industrial Processes</i> , pp. 382-387.		
Gallup, Ethan; Tuttle, Jacob; Immonen, Jake; Billings, Blake; Powell, Kody		
10:03-10:06	WeA04.2	
<i>A Transition System Abstraction Framework for Neural Network Dynamical System Models</i> , pp. 388-393.		
Yang, Yeqiang; Mo, Zihao; Tran, Hoang-Dung; Xiang, Weiming		
10:06-10:09	WeA04.3	
<i>A Data-Driven Method for Safety-Critical Control: Designing Control Barrier Functions from State Constraints</i> , pp. 394-401.		
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10:09-10:12	WeA04.4	
<i>Physics-Data-Hybrid Modeling of Tilt-Rotor Vertical Take-Off and Landing Aircraft</i> , pp. 402-407.		
Burton, Samantha; He, Tianyi; Su, Weihua		
10:12-10:15	WeA04.5	
<i>Disturbance Propagation in Vehicle Platoons: Symmetric Bidirectional</i>		
10:15-10:18	WeA04.6	
<i>Physically Motivated Heater Model for Precise Gas Temperature Control in Fuel Cell Stack Test Beds</i> , pp. 414-420.		
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10:18-10:21	WeA04.7	
<i>Dynamic Modeling and Stability Analysis of Balancing in Riderless Electric Scooters</i> , pp. 421-426.		
Lin, Yun-Hao; Jafari, Alireza; Liu, Yen-Chen		
10:21-10:24	WeA04.8	
<i>Identification of Multirotor Actuator Dynamics with RPM Feedback for Improved Control</i> , pp. 427-432.		
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10:24-10:27	WeA04.9	
<i>Spreading Dynamics of an SIQRS Epidemic Model and Quarantine Strategy Analysis</i> , pp. 433-438.		
Wang, Ruiyang; Wang, Siqing; Mei, Wenjun		
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<i>Dimensionality Reduction of Dynamics on Lie Groups Via Structure-Aware Canonical Correlation Analysis</i> , pp. 439-446.		
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10:30-10:33	WeA04.11	
<i>Moving past Point-Contacts: Extending the ALIP Model to Humanoids with Non-Trivial Feet Using Hierarchical, Full-Body Momentum Control</i> , pp. 447-453.		
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10:36-10:39	WeA04.13	

DiProber: Estimating Relays Capacities in Underloaded Anonymous Communication Networks, pp. 462-467.

Darir, Hussein; Dullerud, Geir E.;
Borisov, Nikita

10:39-10:42 WeA04.14

Optimal State Estimation in the Presence of Non-Gaussian Uncertainty Via Wasserstein Distance Minimization, pp. 468-473.

Prabhat, Himanshu; Bhattacharya,
Raktim

10:42-10:45 WeA04.15

Adaptive Health Monitoring of Second-Life Batteries, pp. 474-479.

Cui, Xiaofan; Khan, Muhammad Aadil;
Singh, Surinder; Sharma, Ratnesh;
Onori, Simona

10:45-10:48 WeA04.16

Simultaneous Parameter Estimation in Model-Free Control, pp. 480-485.

Waleed, Danial; Duffaut Espinosa, Luis
Augusto

10:48-10:51 WeA04.17

Deep Reinforcement Learning Based Distributed Active Joint Localization and Target Tracking, pp. 486-491.

Wang, Dongming; Su, Shaoshu; Ren,
Wei; Hao, Ce

10:51-10:54 WeA04.18

Observable GNSS-IMU Sliding Window Filtering Using Differential Flatness, pp. 492-497.

Johnson, Jacob Collin; Beard, Randal W.

10:54-10:57 WeA04.19

Sloppiness of Structured Systems with a Matrix Fraction Description, pp. 498-503.

Ma, Yunxiang; Zhou, Tong

WeB01 Metro E/C
Machine Learning I (Regular Session)

Chair: Shakeri, Heman University of
Virginia

Co-Chair:
Kamalapurkar,
Rushikesh Oklahoma State
University

13:30-13:45 WeB01.1

Dynamic Mode Decomposition of

Control-Affine Nonlinear Systems Using Discrete Control Liouville Operators, pp. 504-509.

Morrison, Zachary; Abudia, Moad;
Rosenfeld, Joel A.; Kamalapurkar,
Rushikesh

13:45-14:00 WeB01.2

Enhanced Joint Angle Estimation Using Support Vector Machine-Long Short-Term Memory Fusion with Electromyography Signals, pp. 510-515.

Wahid, MD Ferdous; Tafreshi, Reza

14:00-14:15 WeB01.3

Operator-Based Detecting, Learning, and Stabilizing Unstable Periodic Orbits of Chaotic Attractors, pp. 516-521.

Tavasoli, Ali; Shakeri, Heman

14:15-14:30 WeB01.4

Counterfactually-Guided Causal Reinforcement Learning with Reward Machines, pp. 522-527.

Baharisangari, Nasim; Paliwal, Yash; Xu, Zhe

14:30-14:45 WeB01.5

Machine Learning Modeling of Nonlinear Processes with Lyapunov Stability Guarantees, pp. 528-535.

Tan, Wallace; Xiao, Ming; Wu, Guoquan;
Wu, Zhe

14:45-15:00 WeB01.6

A Q-Learning Approach for Adherence-Aware Recommendations, pp. 536-541.

Faros, Ioannis; Dave, Aditya Deepak;
Malikopoulos, Andreas A.

WeB02 Harbour
Network Control Systems I (Regular Session)

Chair: Mousavi, Shima Sadat ETH Zurich

Co-Chair: Takaba, Kiyotsugu Ritsumeikan
University

13:30-13:45 WeB02.1

Event-Triggered Distributed Control of Multiagent Systems: A Performance Recovery Consideration, pp. 542-547.

Kurtoglu, Deniz; Yucelen, Tansel; Tran,

Dzung; Casbeer, David W.; Garcia, Eloy	Kim, Taewan; P. Vinod, Abraham; Di Cairano, Stefano
13:45-14:00 WeB02.2 <i>Multi-Agent Target Position Estimation Using Bearing-Only Measurements Via Spatial Excitation</i> , pp. 548-553.	14:15-14:30 WeB03.4 <i>Probabilistic Visibility-Aware Trajectory Planning for Target Tracking in Cluttered Environments</i> , pp. 594-600.
Hyeon, Soojeong; Shames, Iman; Shim, Hyunbo	Gao, Han; Wu, Pengying; Su, Yao; Zhou, Kangjie; Ma, Ji; Liu, Hangxin; Liu, Chang
14:00-14:15 WeB02.3 <i>Strong Structural Controllability of Linear Descriptor Systems</i> , pp. 554-559.	14:30-14:45 WeB03.5 <i>PyroTrack: Belief-Based Deep Reinforcement Learning Path Planning for Aerial Wildfire Monitoring in Partially Observable Environments</i> , pp. 601-607.
Mousavi, Shima Sadat; Bahrami, Somayyeh; Fekih, Afef	Khoshdel, Sahand; Luo, Qi; Afghah, Fatemeh
14:15-14:30 WeB02.4 <i>Cooperative Learning with Gaussian Processes for Euler-Lagrange Systems Tracking Control under Switching Topologies</i> , pp. 560-567.	14:45-15:00 WeB03.6 <i>Collision-Free Platooning of Mobile Robots through a Set-Theoretic Predictive Control Approach</i> , pp. 608-613.
Yang, Zewen; Dong, Songbo; Lederer, Armin; Dai, Xiaobing; Chen, Siyu; Sosnowski, Stefan; Hattab, Georges; Hirche, Sandra	Rajkumar, Suryaprakash; Tiriolo, Cristian; Lucia, Walter
14:30-14:45 WeB02.5 <i>Cloud-Mediated Self-Triggered Synchronization of Physically Coupled Linear Agents</i> , pp. 568-573.	WeB04 Metro W Estimation and Identification I (Regular Session)
Namba, Takumi; Takaba, Kiyotsugu	Chair: Ifqir, Sara CRISTAL Laboratory, Centrale Lille Institut Co-Chair: Khosravi, Mohammad Delft University of Technology
WeB03 Frontenac Autonomous Robots I (Regular Session)	13:30-13:45 WeB04.1 <i>A New Switched Interval Observer Design for Vehicle Lateral Dynamics Estimation</i> , pp. 614-619.
Chair: P. Vinod, Mitsubishi Electric Abraham Research Laboratories Co-Chair: Clemson University Afghah, Fatemeh	Ifqir, Sara; Ichalal, Dalil; Ait Oufroukh, Naima; Mammar, Said
13:30-13:45 WeB03.1 <i>Safety-Critical Control with Uncertainty Quantification Using Adaptive Conformal Prediction</i> , pp. 574-580.	13:45-14:00 WeB04.2 <i>Closed-Form Information-Theoretic Roughness Measures for Mixture Densities</i> , pp. 620-625.
Zhou, Hao; Zhang, Yanze; Luo, Wenhao	Hanebeck, Uwe D.; Frisch, Daniel; Rossel, Dominik
13:45-14:00 WeB03.2 <i>Cascaded Nonlinear Control Design for Highly Underactuated Balance Robots</i> , pp. 581-586.	14:00-14:15 WeB04.3 <i>Linear Time-Varying Parameter Estimation: Maximum a Posteriori Approach Via Semidefinite Programming</i> , pp. 626-631.
Han, Feng; Yi, Jingang	Vakili, Sasan; Khosravi, Mohammad; Mohajerin Esfahani, Peyman; Mazo Jr.,
14:00-14:15 WeB03.3 <i>Decoupled Trajectory Planning for Monitoring UAVs and Their UGV Carrier by Reachable Sets</i> , pp. 587-593.	

Manuel		
14:15-14:30	WeB04.4	
<i>MARG Sensor-Based Attitude Estimation on SO(3) under Unknown External Acceleration, pp. 632-637.</i>		
Shaaban, Ghadeer; Fourati, Hassen; Kibangou, Alain; Prieur, Christophe		
14:30-14:45	WeB04.5	
<i>Distributed Fact Checking: Learning Unreliability, pp. 638-643.</i>		
Verma, Ashwin; Mohajer, Soheil; Touri, Behrouz		
14:45-15:00	WeB04.6	
<i>Domain-Adaptation with Knowledge Accumulation through Parallel Stacked Autoencoders: Methodology and Application to Sulfur Recovery, pp. 644-649.</i>		
Mou, Tianhao; Liu, Jinfeng; Zou, Yuanyuan; Li, Shaoyuan; Xibilia, Maria Gabriella		
WeB05	Pier 2	
Optimization I (Regular Session)		
Chair: Poveda, Jorge I.	University of California, San Diego	
Co-Chair: Dong, Roy	University of Illinois at Urbana-Champaign	
13:30-13:45	WeB05.1	
<i>Tradeoffs between Convergence Speed and Noise Amplification in First-Order Optimization: The Role of Averaging, pp. 650-655.</i>		
Samuelson, Samantha; Jovanovic, Mihailo R.		
13:45-14:00	WeB05.2	
<i>Online Linear Quadratic Tracking with Regret Guarantees, pp. 656-661.</i>		
Karapetyan, Aren; Bolliger, Diego; Tsiamis, Anastasios; Balta, Efe C.; Lygeros, John		
14:00-14:15	WeB05.3	
<i>An Interconnected Systems Approach to Convergence Analysis of Discrete-Time Primal-Dual Algorithms, pp. 662-668.</i>		
Kelly, Spencer; Simpson-Porco, John W.		
14:15-14:30	WeB05.4	
<i>On Distributed Nonconvex Optimisation Via</i>		
		<i>Modified ADMM, pp. 669-674.</i>
		Mafakheri, Behnam; Manton, Jonathan H.; Shames, Iman
14:30-14:45	WeB05.5	
<i>Connection of Optimal Stopping Time to S-T Cut Problems on Trees, pp. 675-680.</i>		
Wang, Yijin; Ornik, Melkior; Dong, Roy		
14:45-15:00	WeB05.6	
<i>Decentralized Laplacian Gradient Flows with Vanishing Anchors for Resource Allocation Problems with Arbitrary Initialization, pp. 681-686.</i>		
		Barreiro-Gomez, Julian; Poveda, Jorge I.
WeB06		Queens Quay 1
Control of Large-Scale Battery Energy Storage Systems (Invited Session)		
Chair: Lin, Xinfan	University of California, Davis	
Co-Chair: Soudabkhsh, Damoon	Temple University	
Organizer: Zhang, Dong	University of Oklahoma	
Organizer: Soudabkhsh, Damoon	Temple University	
Organizer: Jain, Neera	Purdue University	
Organizer: Dey, Satadru	The Pennsylvania State University	
Organizer: Tang, Shuxia	Texas Tech University	
Organizer: Roy, Tanushree	Texas Tech University	
Organizer: Moura, Scott	University of California, Berkeley	
Organizer: Lin, Xinfan	University of California, Davis	
Organizer: De Castro, Ricardo	University of California, Merced	
Organizer: Song, Ziyou	University of Michigan, Ann Arbor	
Organizer: Fogelquist, Jackson	University of California, Davis	
13:30-13:45	WeB06.1	
<i>Optimal Power Management of Battery</i>		

Energy Storage Systems Via Ensemble Kalman Inversion (I), pp. 687-694.

Farakhor, Amir; Askari, Iman; Wu, Di; Fang, Huazhen

13:45-14:00 WeB06.2

Optimal Charging with Active Thermal Management for eVTOL Aircraft Battery Packs (I), pp. 695-700.

Goshtasbi, Alireza; Han, Sangwoo; Zhao, Ruxiu; Neubauer, Jeremy

14:00-14:15 WeB06.3

Depreciation Cost Is a Poor Proxy for Revenue Lost to Aging in Grid Storage Optimization (I), pp. 701-706.

Kumtepeli, Volkan; Hesse, Holger; Morstyn, Thomas; Nosratabadi, Seyyed Mostafa; Aunedi, Marko; Howey, David A.

14:15-14:30 WeB06.4

Optimal Sizing, Operation, and Efficiency Evaluation of Battery Swapping Station for Electric Heavy-Duty Trucks (I), pp. 707-712.

Wang, Ruiting; Ju, Yi; Allybokus, Zaid; Zeng, Wente; Obrecht, Nicolas; Moura, Scott

14:30-14:45 WeB06.5

Comparison between Battery Cell Level Dynamics and Pack Level Dynamics Using Equivalent Circuit Models (I), pp. 713-718.

Ross, Joseph Peter; Frost, Damien Francis; Chatzinikolaou, Efstratios; Duncan, Stephen; Howey, David A.

WeB07 Queens Quay 2

Safety of Advanced Driver Assistance Systems and Automated Driving Systems (Invited Session)

Chair: Rastgoftar, Hossein University of Arizona

Co-Chair: Nazari, Shima UC Davis

Organizer: Zhao, Junfeng Arizona State University

Organizer: Rastgoftar, Hossein University of Arizona

Organizer: Nazari, Shima UC Davis

13:30-13:45 WeB07.1

Energy-Critical Control Using Control Barrier Functions (I), pp. 719-724.

Alan, Anil; Ivanco, Andrej; Orosz, Gabor

13:45-14:00 WeB07.2

Safety-Guaranteed Learning-Based Flocking Control Design (I), pp. 725-730.

Liu, Mingzhe; Chen, Yan

14:00-14:15 WeB07.3

Adaptive Control of Vehicle Steering-By-Wire System with Varying-Degree Lyapunov Function and Deterministic Robust Control Augmentation (I), pp. 731-736.

Zhou, Xingyu; Ahn, Hyunjin; Kung, Yung-Chi; Shen, Heran; Wang, Junmin

14:15-14:30 WeB07.4

Teleoperated Steering Using Estimated Position and Orientation of Remote Ego Vehicle (I), pp. 737-742.

Sharma, Gaurav; Rajamani, Rajesh

14:30-14:45 WeB07.5

Safety-Critical Stabilization of Mixed Traffic by Pairs of CAVs (I), pp. 743-748.

Zhao, Chenguang; Molnar, Tamas G.; Yu, Huan

WeB08

Bay

Advanced Methods in Diagnostics and Prognostics (Tutorial Session)

Chair: Castillo, Ivan The Dow Chemical Company

Co-Chair: Wang, Zhenyu Dow Chemical

Organizer: Castillo, Ivan The Dow Chemical Company

Organizer: Wang, Zhenyu Dow Chemical

Organizer: Makki, Imdad Ford Motor Company

13:30-14:15 WeB08.1

Advanced Methods in Diagnostics and Prognostics (I), pp. 749-762.

Mohr, Fabian; Sun, WeiKe; Braatz, Richard D.

14:15-14:30 WeB08.2

Cycle Life Prediction for Lithium-Ion Batteries: Machine Learning and More (I), pp. 763-768.

Schaeffer, Joachim; Galuppini, Giacomo;

		<i>Three-Dimensional Nonlinear Impact Time Guidance Considering Field-Of-View Constraints</i> , pp. 803-808.
14:30-14:45	WeB08.3	Majumder, Kakoli; Kumar, Shashi Ranjan
<i>Prognostics for Chemical Processes (I)</i> , pp. 769-769.		
Castillo, Ivan; Wang, Zhenyu; Chiang, Leo		
14:45-15:00	WeB08.4	
<i>Predictive Analytics for Chemical Processes (I)</i> , pp. 770-770.		
Paulson, Joel		
WeB09	Dockside 1	
Aerospace Systems (Regular Session)		
Chair: Castillo, Pedro	Univ De Technologie De Compiegne	The University of Cincinnati
Co-Chair: Kumar, Shashi Ranjan	Indian Institute of Technology Bombay	University of Texas, San Antonio
13:30-13:45	WeB09.1	
<i>A Comparative Study of Machine Learning Techniques for Aircraft Loss of Control Prediction</i> , pp. 771-777.		
Khatri, Amit; Subbarao, Kamesh		
13:45-14:00	WeB09.2	
<i>Optimal Impact Angle Guidance Via First-Order Optimization under Nonconvex Constraints</i> , pp. 778-784.		
Park, Gyubin; Choi, Jiwoo; Jeong, Da Hoon; Kim, Jong-Han		
14:00-14:15	WeB09.3	
<i>Trajectory Tracking for Aerobatics Maneuvers in Quadrotors Vehicles</i> , pp. 785-790.		
Ibarra, Efrain; Castillo, Pedro		
14:15-14:30	WeB09.4	
<i>Capturing a Non-Cooperative Resident Space Object: A Control Barrier Function Approach</i> , pp. 791-796.		
Edwards, Sage; Isaly, Axton; Brewer, John Matthew; Dixon, Warren E.		
14:30-14:45	WeB09.5	
<i>Spiral-Based Guidance Strategy for Interception of Stationary Targets</i> , pp. 797-802.		
Mishra, Kushagra; Mukherjee, Dwaipayan; Kumar, Shashi Ranjan		
14:45-15:00	WeB09.6	
WeB10		
Dockside 2		
Control of Cyber-Physical Systems: Multidisciplinary Approaches in Robotics, Autonomy, Optimization, and Safety (Invited Session)		
Chair: Sinha, Abhinav	The University of Cincinnati	
Co-Chair: Cao, Yongcan	University of Texas, San Antonio	
Organizer: Sinha, Abhinav	The University of Cincinnati	
Organizer: Cao, Yongcan	University of Texas, San Antonio	
Organizer: Casbeer, David W.	Air Force Research Laboratory	
13:30-13:45	WeB10.1	
<i>Path Integral Control with Rollout Clustering and Dynamic Obstacles (I)</i> , pp. 809-814.		
Patrick, Steven; Bakolas, Efstathios		
13:45-14:00	WeB10.2	
<i>State-Constrained Adaptive Guidance for Three-Body Pursuit-Evasion Using Super Twisting Algorithm (I)</i> , pp. 815-820.		
Gurjar, Bhagyashri; Kumar, Shashi Ranjan; Mukherjee, Dwaipayan		
14:00-14:15	WeB10.3	
<i>LQ-OCP: Energy-Optimal Control for LQ Problems (I)</i> , pp. 821-826.		
Beaver, Logan E.		
14:15-14:30	WeB10.4	
<i>Semi-Autonomous Full 3D Robot Operation with Variable Autonomy through Gaussian Process Regression (I)</i> , pp. 827-832.		
Kitashiba, Atsushi; Oda, Ryo; Hatanaka, Takeshi		
14:30-14:45	WeB10.5	
<i>Multi Agent Pathfinding for Noise Restricted Hybrid Fuel Unmanned Aerial Vehicles (I)</i> , pp. 833-838.		
Scott, Drew; Manyam, Satyanarayana Gupta; Casbeer, David W.; Kumar, Manish; Weintraub, Isaac		

14:45-15:00	WeB10.6	Predictive Control for Nonlinear Systems I (Regular Session)
<i>Resilient Fleet Management for Energy-Aware Intra-Factory Logistics (I)</i> , pp. 839-844.		Chair: Huan, Xun University of Michigan Co-Chair: Shi, University of Victoria Yang
Goutham, Mithun; Stockar, Stephanie		
WeB11	Dockside 3	
Game Theory I (Regular Session)		
Chair: Ramazi, Pouria	Brock University	
Co-Chair: Brown, Philip N.	University of Colorado Colorado Springs	
13:30-14:15	WeB11.1	
<i>Topology of Nash Equilibrium Set with Quadratic Vector Payoff Functions</i> , pp. 845-850.		
Guo, Zehui; Hayakawa, Tomohisa		
14:15-15:00	WeB11.2	
<i>From Discrete to Continuous Best-Response Dynamics: Discrete Fluctuations Do Not Scale with Population Size</i> , pp. 851-856.		
Aghaeeyan, Azadeh; Ramazi, Pouria		
14:15-15:00	WeB11.3	
<i>On the Intrinsic Fragility of the Price of Anarchy</i> , pp. 857-862.		
Seaton, Joshua; Brown, Philip N.		
14:15-15:00	WeB11.4	
<i>A Robust Distributed Nash Equilibrium Seeking Algorithm for Aggregative Games under Byzantine Attacks</i> , pp. 863-868.		
Zhao, Jishu; Yi, Peng		
14:15-15:00	WeB11.5	
<i>Large-Scale Multi-Agent System Optimization with Fixed Final Density Constraints: An Imbalanced Mean-Field Game Theory</i> , pp. 869-874.		
Dey, Shawon; Xu, Hao		
14:15-15:00	WeB11.6	
<i>On the Optimal Cost and Asymptotic Stability in Two-Player Zero-Sum Set-Valued Hybrid Games</i> , pp. 875-880.		
J. Leudo, Santiago; Ferrante, Francesco; Sanfelice, Ricardo G.		
WeB12	Dockside 9	
13:30-13:45	WeB12.1	
<i>Eco-Driving for Connected and Automated Vehicles in Mixed Traffic Urban Environments with Signalized Intersections</i> , pp. 881-886.		
Ebrahimi, Alireza; Mosharfian, Sahand; Mohammadpour Velni, Javad		
13:45-14:00	WeB12.2	
<i>Data-Driven Model Predictive Control of a Nonlinear Ball-On-A-Wheel System</i> , pp. 887-892.		
Kruse, Niklas; Wache, Alexander; Aschemann, Harald; Starke, Jens		
14:00-14:15	WeB12.3	
<i>Deep Koopman-Based Control of Quality Variation in Multistage Manufacturing Systems</i> , pp. 893-898.		
Chen, Zhiyi; Maske, Harshal; Upadhyay, Devesh; Shui, Huanyi; Huan, Xun; Ni, Jun		
14:15-14:30	WeB12.4	
<i>Training and Generalization Errors for Underparameterized Neural Networks</i> , pp. 899-904.		
Martin Xavier, Daniel; Chamoin, Ludovic; Fribourg, Laurent		
14:30-14:45	WeB12.5	
<i>Tube MPC-Based Tracking Control of AUVs Using Contraction Metric</i> , pp. 905-910.		
Zhang, Kunwu; Shi, Yang		
14:45-15:00	WeB12.6	
<i>Learning-Based Distributed Model Predictive Control with State-Dependent Uncertainty Using Neural Network</i> , pp. 911-918.		
Tong, Junbo; Du, Shuhan; Fan, Wenhui		
WeB13	Richmond	
Constrained Control I (Regular Session)		
Chair: Liu, Changliu	Carnegie Mellon University	
Co-Chair: Danielson, Claus	University of New Mexico	
13:30-13:45	WeB13.1	

<i>Composing Control Barrier Functions for Complex Safety Specifications</i> , pp. 919-924.	
Molnar, Tamas G.; Ames, Aaron D.	
13:45-14:00	WeB13.2
<i>Minimum-Time Planar Paths with up to Two Constant Acceleration Inputs and \$L_2\$ Velocity and Acceleration Constraints</i> , pp. 925-930.	
Montano, Victor; Zhao, Haoran; Abdurahiman, Nihal; Navkar, Nikhil Vishwas; Becker, Aaron	
14:00-14:15	WeB13.3
<i>Data-Driven Synthesis of Configuration-Constrained Robust Invariant Sets for Linear Parameter-Varying Systems</i> , pp. 931-936.	
Mejari, Manas; Mulagaleti, Sampath Kumar; Bemporad, Alberto	
14:15-14:30	WeB13.4
<i>Safety Index Synthesis with State-Dependent Control Space</i> , pp. 937-942.	
Chen, Rui; Zhao, Weiye; Liu, Changliu	
14:30-14:45	WeB13.5
<i>Constraint Admissible Positive Invariant Sets for Vehicles in SE(3)</i> , pp. 943-948.	
Danielson, Claus; Brandt, Teo	
14:45-15:00	WeB13.6
<i>Safe Whole-Body Task Space Control for Humanoid Robots</i> , pp. 949-956.	
Paredes, Victor; Hereid, Ayonga	
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WeB14	Wellington
Modeling, Control and Estimation of Soft Material and Continuum Systems (Invited Session)	
Chair: Vikas, Vishesh	University of Alabama
Co-Chair: Chen, Zheng	University of Houston
Organizer: Vikas, Vishesh	University of Alabama
Organizer: Gilbert, Hunter B.	Louisiana State University
Organizer: Zhao, Jianguo	Colorado State University
Organizer: Tan, Xiaobo	Michigan State University
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13:30-13:45	WeB14.1
<i>Physics-Informed Online Estimation of Stiffness and Shape of Soft Robotic Manipulators (I)</i> , pp. 957-962.	
Fairchild, Preston; Mei, Yu; Tan, Xiaobo	
13:45-14:00	WeB14.2
<i>Morphological Computation by Exploiting Partial Feedback Linearizable Underactuated Soft-Bodied Systems (I)</i> , pp. 963-968.	
Haghshenas-Jaryani, Mahdi	
14:00-14:15	WeB14.3
<i>Modeling and Control of Dielectric Actuator Enabled Prosthetic Finger (I)</i> , pp. 969-974.	
Kaaya, Theophilus; Koc, Denizcan; Zhu, Qiang; Chen, Zheng	
14:15-14:30	WeB14.4
<i>Modeling and Inverse Compensation of the Non-Smooth Coiling-Induced Actuation in Twisted and Coiled String Actuators</i> , pp. 975-980.	
Konda, Revanth; Zhang, Jun	
14:30-14:45	WeB14.5
<i>Efficient Learning and Control of String-Type Artificial Muscle Driven Robotic Systems</i> , pp. 981-987.	
Tao, Jiyue; Rajendran, Sunil Kumar; Zhang, Yunsong; Zhang, Feitian; Zhao, Dexin; Shen, Tongsheng	
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WeB15	Yonge
Estimation and Control of Distributed Parameter Systems I (Invited Session)	
Chair: Demetriou, Michael A.	Worcester Polytechnic Institute
Co-Chair: Hu, Weiwei	University of Georgia
Organizer: Demetriou, Michael A.	Worcester Polytechnic Institute
Organizer: Hu, Weiwei	University of Georgia
13:30-13:45	WeB15.1
<i>Limit Cycle Generation in Van Der Pol Flavored PDE Setting (I)</i> , pp. 988-993.	
Aguilar, Luis T.; Orlov, Yury	
13:45-14:00	WeB15.2
<i>Rates of Convergence in a Class of Native</i>	

<i>Spaces for Reinforcement Learning and Control (I)</i> , pp. 994-999.		<i>Short-Term Wind Forecasting Using Surface Pressure Measurements (I)</i> , pp. 1024-1029.	
Boulard, Ali; Niu, Shengyuan; Paruchuri, Sai Tej; Kurdila, Andrew J.; Burns, John A; Schuster, Eugenio		Abotorabi, Seyedalireza; Leonardi, Stefano; Rotea, Mario; Zare, Armin	
14:00-14:15	WeB15.3	13:45-14:00	WeB16.2
<i>Distributed Dynamic Encirclement Control for First-Order Multi-Agent Systems with Communication Delay (I)</i> , pp. 1000-1005.		<i>Analysis of Extremum Seeking Control for Wind Turbine Torque Controller Optimization by Aerodynamic and Generator Power Objectives (I)</i> , pp. 1030-1037.	
Hasanzadeh, Milad; Tang, Shuxia		Mulders, Sebastiaan Paul; Gallo, Alexander J.; Rotea, Mario	
14:15-14:30	WeB15.4	14:00-14:15	WeB16.3
<i>Predictor-Based Prescribed-Time Output Feedback for a Parabolic PDE (I)</i> , pp. 1006-1011.		<i>Voltage Restoration in MVDC Shipboard Microgrids with Economic Nonlinear Model Predictive Control (I)</i> , pp. 1038-1043.	
Zekraoui, Salim; Espitia, Nicolas; Perruquetti, Wilfrid; Krstic, Miroslav		Putri, Saskia; Hosseiniour, Ali; Ge, Xiaoyu; Moazeni, Farrah; Khazaei, Javad	
14:30-14:45	WeB15.5	14:15-14:30	WeB16.4
<i>Practical Observers for Velocity Field Estimation of Normal Flow Equations (I)</i> , pp. 1012-1017.		<i>Reinforcement Learning Control for Enhancing Marine Hydrokinetic Turbine Energy Generation (I)</i> , pp. 1044-1050.	
Alessandri, Angelo; Bagnerini, Patrizia; Gaggero, Mauro; Mantelli, Luca		Barton, Samuel; Brekken, Ted; Cao, Yue	
14:45-15:00	WeB15.6	14:30-14:45	WeB16.5
<i>Distributed Flocking Control with Ellipsoidal Level Sets</i> , pp. 1018-1023.		<i>H Infinity Phase Locking Control for Wave Induced Wake Mixing (I)</i> , pp. 1051-1056.	
Hastedt, Philipp; Datar, Adwait; Kocev, Kliment; Werner, Herbert		van den Berg, Daniel; De Tavernier, Delphine; van Wingerden, Jan-Willem	
WeB16		14:45-15:00	WeB16.6
Wind Turbines and Wind Farms (Invited Session)			
Chair: Sinner, Michael	National Renewable Energy Laboratory	<i>Self-Learning Data-Driven Wind Farm Control Strategy Using Field Measurements (I)</i> , pp. 1057-1064.	
Co-Chair: Mulders, Sebastiaan Paul	Delft University of Technology	Hulsman, Paul; Howland, Michael; Göçmen, Tuhfe; Petrović, Vlaho; Kühn, Martin	
Organizer: Mulders, Sebastiaan Paul	Delft University of Technology		
Organizer: Sinner, Michael	National Renewable Energy Laboratory		
Organizer: Bay, Christopher	National Renewable Energy Laboratory		
Organizer: Fleming, Paul	National Renewable Energy Laboratory		
Organizer: van Wingerden, Jan-Willem	Delft University of Technology		
13:30-13:45	WeB16.1		
WeB17			
Cooperative Control (Regular Session)			
Chair: Chen, Lijun	University of Colorado at Boulder		
Co-Chair: Liu, Junwei	Southern University of Science and Technology		
13:30-13:45	WeB17.1		
<i>Fully Distributed Consensus of Multi-Agent Systems with Improved Minimum Inter-Event Times</i> , pp. 1065-1070.			
Su, Ruchao; Li, Xianwei; Li, Shaoyuan			

13:45-14:00	WeB17.2	<i>by Hurwitz Stable Matrices with Serious Implications to Safety Critical Systems</i> , pp. 1109-1114.	
<i>Dynamic Event-Triggered Control for Multi-Agent Consensus with Relative Output Feedback</i> , pp. 1071-1076.	Zhan, Sikang; Li, Xianwei		
14:00-14:15	WeB17.3	<i>Distributed Stability Conditions for Interconnected LTI Systems Based on Differential Interconnection Neutral Functions</i> , pp. 1115-1120.	
<i>Unbounded Cooperative Pursuit Using a Linearized Safe-Reachable Set</i> , pp. 1077-1082.	Ouyang, Zikai; Liu, Junwei; Lu, Haibo; Zhang, Wei	Kristović, Pietro; Jokic, Andrej	
14:15-14:30	WeB17.4	<i>Stabilization of Almost Periodic Piecewise Linear Systems with Norm-Bounded Uncertainty for Roll-To-Roll Dry Transfer Manufacturing Processes</i> , pp. 1121-1126.	
<i>ROMA-iQSS: An Objective Alignment Approach Via State-Based Value Learning and ROund-Robin MultiAgent Scheduling</i> , pp. 1083-1090.	Lin, Chi-Hui; Koh, Joewie J.; Roncone, Alessandro; Chen, Lijun	Martin, Christopher; Li, Wei; Chen, Dongmei	
14:30-14:45	WeB17.5	<i>A Dissipativity Framework for Input-To-State Stability with Positivity of Dynamical Systems with Interior Equilibria</i> , pp. 1127-1132.	
<i>MR.CAP: Multi-Robot Joint Control and Planning for Object Transport</i> , pp. 1091-1096.	Jaafar, Hussein Ali; Kao, Cheng-Hao; Saeedi, Sajad	Ito, Hiroshi	
14:45-15:00	WeB17.6	<i>Hybrid Feedback Control for Global and Optimal Safe Navigation</i> , pp. 1133-1138.	
<i>Distributed Dual-Layer Adaptive Event-Triggered Formation Tracking for Quadrotor UAVs</i> , pp. 1097-1102.	Chen, Tianxing; Zhang, Hongwei	Cheniouni, Ishak; Berkane, Soulaime; Tayebi, Abdelhamid	
WeB18 Dockside 6		WeB19 Pier 7	
Stability of Linear Systems (Regular Session)		Robust Control I (Regular Session)	
Chair: Yedavalli, Rama K.	Ohio State Univ	Chair: Ratnam, Elizabeth	The Australian National University
Co-Chair: Ito, Hiroshi	Kyushu Institute of Technology	Co-Chair: Liu, Jun	University of Waterloo
13:30-13:45	WeB18.1	13:30-13:45	WeB19.1
<i>Convex Stability of Interconnections-Free X Shaped Real Square Matrices: New Conditions Using Transformation Allergic Indices and Proper $X^{\{0\}}$ Definition</i> , pp. 1103-1108.	Yedavalli, Rama K.	<i>Robust Model Predictive Control for Networked Control Systems with Timing Perturbations</i> , pp. 1139-1145.	Wang, Renke; Yao, Ningshi
13:45-14:00	WeB18.2	13:45-14:00	WeB19.2
<i>Transformation Allergic Index Singularity: A Hidden Premature Instability Unrecognizable</i>		<i>Data-Driven Superstabilization of Linear Systems under Quantization</i> , pp. 1146-1151.	Miller, Jared; Zheng, Jian; Sznaier, Mario; Hixenbaugh, Chris
		14:00-14:15	WeB19.3
		<i>Achieving Optimal Performance with Data-Driven Frequency-Based Control Synthesis Methods</i> , pp. 1152-1157.	

Schuchert, Philippe; Karimi, Alireza	
14:15-14:30	WeB19.4
<i>Design and Stability of Angle Based Feedback Control in Power Systems: A Negative-Imaginary Approach</i> , pp. 1158-1163.	
Chen, Yijun; Petersen, Ian R.; Ratnam, Elizabeth	
14:30-14:45	WeB19.5
<i>Distributionally Robust Path Integral Control</i> , pp. 1164-1171.	
Park, Hyuk; Zhou, Duo; Hanasusanto, Grani A.; Tanaka, Takashi	
14:45-15:00	WeB19.6
<i>Safe Tracking Control of Discrete-Time Nonlinear Systems Using Backward Reachable Sets</i> , pp. 1172-1179.	
Serry, Mohamed; Yang, Liren; Ozay, Necmiye; Liu, Jun	
WeB20	Pier 8
Kalman Filtering (Regular Session)	
Chair: Molloy, Timothy L.	Australian National University
Co-Chair: Chen, Tongwen	University of Alberta
13:30-13:45	WeB20.1
<i>Data-Driven Stealthy Attacks on Remote State Estimation with Sliding-Window Anomaly Detectors</i> , pp. 1180-1185.	
Guo, Ziyi; Zhou, Jing; Chen, Tongwen	
13:45-14:00	WeB20.2
<i>State and Parameter Estimation of Non-Ideal Batch Reactors with Heel Masses</i> , pp. 1186-1191.	
Crouse, Steven; Prasad, Rupanjali; Rousseau, Ronald; Grover, Martha	
14:00-14:15	WeB20.3
<i>A Novel Variational Bayesian Adaptive Kalman Filter for Systems with Unknown State-Dependent Noise Covariance Matrices</i> , pp. 1192-1197.	
Uzzaman, Nahid; Bai, He	
14:15-14:30	WeB20.4
<i>Computationally Efficient Implementation of the Weighted Kalman Filter for Quadratic Systems</i> , pp. 1198-1203.	
Rotondo, Damiano; Witczak, Marcin; Seybold, Lothar	
14:30-14:45	WeB20.5
<i>Two-Channel Extended Kalman Filtering with Intermittent Measurements</i> , pp. 1204-1211.	
Maer, Vicu-Mihalis; Lendek, Zsofia; Pirje, Stefan; Tolic, Domagoj; Đuraš, Antun; Prka in, Vicko; Palunko, Ivana; Busoniu, Lucian	
14:45-15:00	WeB20.6
<i>Extended Kalman Filtering for Recursive Online Discrete-Time Inverse Optimal Control</i> , pp. 1212-1218.	
Zhao, Tian; Molloy, Timothy L.	
WeB21	Pier 3
Linear Systems (Regular Session)	
Chair: Drummond, Ross	University of Sheffield
Co-Chair: Jokic, Andrej	University of Zagreb
13:30-13:45	WeB21.1
<i>Data-Driven State-Feedback Controller Synthesis for Dissipativity: A Dualization-Based Approach</i> , pp. 1219-1224.	
Kristović, Pietro; Jokic, Andrej	
13:45-14:00	WeB21.2
<i>Formula for Estimating the Frequency Response of LTI Systems from Noisy Finite-Length Datasets</i> , pp. 1225-1230.	
Ossareh, Hamid; Dörfler, Florian	
14:00-14:15	WeB21.3
<i>Externally Positive Linear Systems from Transfer Function Properties</i> , pp. 1231-1236.	
Drummond, Ross; Turner, Matthew C.	
14:15-14:30	WeB21.4
<i>Can Model-Free Controllers for Complex Systems Stabilize and Provide Satisfactory Response?</i> , pp. 1237-1242.	
Narendra, Kumpati S.; George, Koshy	
14:30-14:45	WeB21.5
<i>On Formalisation of Martin Distance for Linear Dynamical Systems</i> , pp. 1243-1248.	
Sinha, Subhrajit; Nandanoori, Sai Pushpak; Huang, Bowen; Ramachandran, Thiagarajan; Bakker, Craig	

WeC01	Metro E/C
Machine Learning II (Regular Session)	
Chair: Xu, Zeyuan	National University of Singapore
Co-Chair: Jin, Ming	Virginia Tech
15:30-15:45	WeC01.1
<i>Is Data All That Matters? the Role of Control Frequency for Learning-Based Sampled-Data Control of Uncertain Systems</i> , pp. 1249-1255.	
Römer, Ralf; Brunke, Lukas; Zhou, Siqi; Schoellig, Angela P	
15:45-16:00	WeC01.2
<i>Federated Learning-Based Distributed Model Predictive Control of Nonlinear Systems</i> , pp. 1256-1262.	
Xu, Zeyuan; Wu, Zhe	
16:00-16:15	WeC01.3
<i>Optimization Solution Functions As Deterministic Policies for Offline Reinforcement Learning</i> , pp. 1263-1268.	
Khattar, Vanshaj; Jin, Ming	
16:15-16:30	WeC01.4
<i>A Practical Reinforcement Learning (RL) Controller Design for Nonlinear Systems</i> , pp. 1269-1274.	
Hassanpour, Hesam; Mhaskar, Prashant; Corbett, Brandon	
16:30-16:45	WeC01.5
<i>Promises of Deep Kernel Learning for Control Synthesis</i> , pp. 1275-1280.	
Reed, Robert; Laurenti, Luca; Lahijanian, Morteza	
WeC02	Harbour
Network Control Systems II (Regular Session)	
Chair: Rojas, Alejandro J.	Universidad De Concepción
Co-Chair: Davoodi, Mohammadreza	University of Georgia
15:30-15:45	WeC02.1
<i>Nonminimum Phase Zeros Effect on the Signal-To-Noise Ratio Channel Input</i>	
<i>Constraint in Continuous Time</i> , pp. 1281-1286.	
Rojas, Alejandro J.	
15:45-16:00	WeC02.2
<i>Multi-Event-Triggered Control with Reduced Packet Sizes for Quantized Discrete-Time Linear Systems</i> , pp. 1287-1292.	
Batmani, Yazdan; Karimi, Zahra; Davoodi, Mohammadreza	
16:00-16:15	WeC02.3
<i>Risk Assessment of Multi-Agent System under Denial-Of-Service Cyberattacks Using Reachable Set Synthesis</i> , pp. 1293-1298.	
Cho, Minhyun; Hwang, Sounghwan; Hwang, Inseok	
16:15-16:30	WeC02.4
<i>Second-Order Heterogeneous Multi-Agent Target Tracking without Relative Velocities</i> , pp. 1299-1304.	
Nino, Cristian F.; Patil, Omkar Sudhir; Dixon, Warren E.	
16:30-16:45	WeC02.5
<i>Output-Feedback Stabilization of Stochastically-Sampled Networked Control System under Packet Dropouts</i> , pp. 1305-1310.	
Basu, Himadri; Fiacchini, Mirko; Ferrante, Francesco; Gomes da Silva Jr, Joao Manoel	
WeC03	Frontenac
Autonomous Robots II (Regular Session)	
Chair: Seo, Joohwan	University of California, Berkeley
Co-Chair: Coogan, Samuel	Georgia Institute of Technology
15:30-15:45	WeC03.1
<i>Optimal Path Planning of a Solar-Powered Unmanned Ground Vehicle in an Unknown Solar Environment with Multi-Objective Optimization</i> , pp. 1311-1316.	
Strebe, Luke; Lee, Kooktae	
15:45-16:00	WeC03.2
<i>Cooperative 3-D Active Multi-Robot Multi-Target Tracking</i> , pp. 1317-1322.	
Xu, Jie; Zhu, Pengxiang; Ren, Wei	
16:00-16:15	WeC03.3

<i>Energy Optimal Obstacle Avoidance Motion Planning for Wheeled Mobile Robots</i> , pp. 1323-1328.		Satici, Aykut C; Peterson, Alex; Chiasson, John; Adams, Zachary
Kim, Youngjin; Singh, Tarunraj	WeC04.4	
16:15-16:30	WeC03.4	
<i>Motion Planning for Autonomous Vehicles: When Model Predictive Control Meets Ensemble Kalman Smoothing</i> , pp. 1329-1334.		<i>Two-Layer Diffusion Adaptive Filters Over Directed Markovian Switching Networks</i> , pp. 1367-1372.
Askari, Iman; Wang, Yebin; Deshpande, Vedang M.; Fang, Huazhen		Xie, Siyu; Gan, Die; Liu, Zhixin
16:30-16:45	WeC03.5	
<i>A Comparison between Lie Group and Lie Algebra Based Potential Functions for Geometric Impedance Control</i> , pp. 1335-1342.		<i>Outlier Accommodation for GNSS Precise Point Positioning Using Risk-Averse State Estimation</i> , pp. 1373-1379.
Seo, Joohwan; Potu Surya Prakash, Nikhil; Choi, Jongeun; Horowitz, Roberto		Hu, Wang; Uwineza, Jean-Bernard; Farrell, Jay A.
16:45-17:00	WeC03.6	
<i>Local-Global Interval MDPs for Efficient Motion Planning with Learnable Uncertainty</i> , pp. 1343-1349.		<i>Statistical Bounds on Identified QSR Dissipative Properties from Input-Output Data</i> , pp. 1380-1385.
Jiang, Jesse; Zhao, Ye; Coogan, Samuel		Anderson, Logan; Caverly, Ryan James; Lamperski, Andrew
WeC04		WeC05
Estimation and Identification II (Regular Session)		Pier 2
Chair: Anderson, Logan	University of Minnesota	Chair: Chen, Xu
Co-Chair: Arezki, Hasni	University of Genova (Italy) University of Lorraine (France)	University of Washington
15:30-15:45	WeC04.1	Co-Chair: Oliveira, Tiago Roux
<i>Nonlinear Observer Design for Vehicle Lateral Load Transfer Ratio Estimation</i> , pp. 1350-1354.		State University of Rio De Janeiro
Meng, Shengya; Meng, Fanwei; Zhang, Fan; Alma, Marouane; Haddad, Madjid; Zemouche, Ali		
15:45-16:00	WeC04.2	
<i>Simple but Useful Contributions to High-Gain Observer for Non-Triangular Systems</i> , pp. 1355-1360.		
Arezki, Hasni; Zemouche, Ali		
16:00-16:15	WeC04.3	
<i>Controlling UAVs by Sensing the Electric or the Magnetic Field Around Power Lines</i> , pp. 1361-1366.		
16:15-16:30	WeC04.4	
<i>Safe Online Convex Optimization with First-Order Feedback</i> , pp. 1404-1410.		Hutchinson, Spencer; Alizadeh,

Mahnoosh		
16:30-16:45	WeC05.5	
<i>Sparsity Via Sparse Group K-Max Regularization</i> , pp. 1411-1416.		
Tao, Qinghua; Xi, Xiangming; Xu, Jun; Suykens, J.A.K.		
16:45-17:00	WeC05.6	
<i>Optimal Loop Shaping and Disturbance Rejection Beyond the Nyquist Frequency Using a Forward Model Disturbance Observer and Convex Optimization Based Filter Design</i> , pp. 1417-1422.		
Chu, Thomas; Hu, Xiaohai; Chen, Xu		
WeC06	Queens Quay 1	
Modeling and State Estimation for Batteries (Invited Session)		
Chair: Song, Ziyou	University of Michigan, Ann Arbor	
Co-Chair: De Castro, Ricardo	University of California, Merced	
Organizer: Zhang, Dong	University of Oklahoma	
Organizer: Soudbaksh, Damoon	Temple University	
Organizer: Jain, Neera	Purdue University	
Organizer: Dey, Satadru	The Pennsylvania State University	
Organizer: Tang, Shuxia	Texas Tech University	
Organizer: Roy, Tanushree	Texas Tech University	
Organizer: Moura, Scott	University of California, Berkeley	
Organizer: Lin, Xinfan	University of California, Davis	
Organizer: De Castro, Ricardo	University of California, Merced	
Organizer: Song, Ziyu	University of Michigan, Ann Arbor	
Organizer: Fogelquist, Jackson	University of California, Davis	
15:30-15:45	WeC06.1	
<i>Bias-Compensated State Estimation Algorithm for LFP Batteries with Flat OCV-SOC Curves (I)</i> , pp. 1423-1428.		
Yi, Baozhao; Zhang, Jiawei; Song, Ziyu		
15:45-16:00	WeC06.2	
<i>Nonlinear Fractional Dynamics Integrated Physics-Informed Neural Network Model for LiFePO₄ Batteries in Electric Vehicles (I)</i> , pp. 1429-1434.		
Borah, Manashita; Jiang, Shida; Shi, Junzhe; Moura, Scott		
16:00-16:15	WeC06.3	
<i>Lightweight Electrochemical Hybrid Modeling Approach for Li-Ion Batteries Using Gaussian Process Regression (I)</i> , pp. 1435-1440.		
Fogelquist, Jackson; Lin, Xinfan		
16:15-16:30	WeC06.4	
<i>Weaknesses and Improvements of the Extended Kalman Filter for Battery State-Of-Charge and State-Of-Health Estimation (I)</i> , pp. 1441-1448.		
Jiang, Shida; Shi, Junzhe; Borah, Manashita; Moura, Scott		
16:30-16:45	WeC06.5	
<i>Interconnected Sigma-Point Kalman Filter Application for Electrochemical State Estimation of Lithium-Ion Batteries</i> , pp. 1449-1454.		
Kawakita de Souza, Aloisio Henrique; Plett, Gregory L.; Trimboli, Michael		
WeC07	Queens Quay 2	
Traffic Control I (Regular Session)		
Chair:	Cornell University	
Malikopoulos, Andreas A.		
Co-Chair:	University of Cyprus	
Timotheou, Stelios		
15:30-15:45	WeC07.1	
<i>Safe Optimal Interactions between Automated and Human-Driven Vehicles in Mixed Traffic with Event-Triggered Control Barrier Functions</i> , pp. 1455-1460.		
Li, Anni; Cassandras, Christos G.; Xiao, Wei		
15:45-16:00	WeC07.2	
<i>Parameter Estimation in Optimal Tolling for Traffic Networks under the Markovian Traffic Equilibrium</i> , pp. 1461-1467.		
Chiu, Chih-Yuan; Sastry, Shankar		

16:00-16:15	WeC07.3	<i>Detection of Valve Stiction in Industrial Control Loops through Continuous Wavelet Transformation with a CNN</i> , pp. 1512-1517.
Decentralized Optimal Merging Control for Mixed Traffic with Vehicle Inference, pp. 1468-1473.	Xiao, Wei; Cassandras, Christos G.	Gunnell, LaGrande; Perez, Krystian X; Castillo, Ivan; Hoogerwerf, Rob; Smith, Alexander; Peng, You; Hedengren, John
16:15-16:30	WeC07.4	16:30-16:45 WeC08.5
<i>Optimizing the Crossing Sequence in Autonomous Intersection Management with Travel Time and Energy Considerations</i> , pp. 1474-1479.	Hadjigeorgiou, Andreas; Timotheou, Stelios	<i>Disturbance Decoupled Functional Observers for Fault Estimation in Nonlinear Systems</i> , pp. 1518-1524.
16:30-16:45	WeC07.5	Venkateswaran, Sunjeev; Kravaris, Costas
<i>Global Stabilization of Nash Equilibrium for Mixed Traffic</i> , pp. 1480-1487.	Scruggs, Jeff; Lee, Richard; Yin, Yafeng	16:45-17:00 WeC08.6
16:45-17:00	WeC07.6	<i>Fully Distributed Unknown Input Observer Based Fault Detection for Interconnected Systems</i> , pp. 1525-1530.
<i>Routing in Mixed Transportation Systems for Mobility Equity</i> , pp. 1488-1493.	Bang, Heeseung; Dave, Aditya Deepak; Malikopoulos, Andreas A.	Liang, Dingguo; He, Zhichen; Zhao, Zhengen; Li, Wenlong; Yang, Ying
WeC08		WeC09 Dockside 1
Fault Diagnosis (Regular Session)		Flight Control (Regular Session)
Chair: Kravaris, Costas	Texas A&M University	Chair: Michieletto, Giulia
Co-Chair: Bollas, George	University of Connecticut	Co-Chair: Kidambi, Krishna Bhavithavya
15:30-15:45	WeC08.1	15:30-15:45 WeC09.1
<i>Fault Identification Enhancement with Reinforcement Learning (FIERL)</i> , pp. 1494-1499.		<i>Multi-Outer Loop Dynamic Inversion Control: An Application to a VTOL Free-Wing Aircraft</i> , pp. 1531-1536.
Sartor, Davide; Zaccaria, Valentina; Del Favero, Simone; Susto, Gian Antonio		Axten, Rachel; Khamvilai, Thanakorn; Johnson, Eric
15:45-16:00	WeC08.2	15:45-16:00 WeC09.2
<i>Fault Detection in Closed-Loop Systems Based on Inferential Sensors</i> , pp. 1500-1505.	Safikou, Efi; Bollas, George	<i>Multi-Agent Reinforcement Learning for the Low-Level Control of a Quadrotor UAV</i> , pp. 1537-1542.
16:00-16:15	WeC08.3	Yu, Beomyeol; Lee, Taeyoung
<i>Dual-Stream Cross-Modal Feature Fusion Based on Multi-Scale Attention for Industrial Fault Diagnosis</i> , pp. 1506-1511.	Lian, Penglong; Shang, Penghui; Zhang, Jiayang; Su, Zhiheng; Zou, Jianxiao; Fan, Shicai	16:00-16:15 WeC09.3
16:15-16:30	WeC08.4	<i>Hybrid Control Framework of UAVs under Varying Wind and Payload Conditions</i> , pp. 1543-1549.
		Coursey, Austin; Zhang, Allan; Quinones-Grueiro, Marcos; Biswas, Gautam
		16:15-16:30 WeC09.4
		<i>Trajectory Tracking for Tilted Hexarotors with Concurrent Attitude Regulation</i> , pp. 1550-1555.

Perin, Marco; Bertoni, Massimiliano;
Michieletto, Giulia; Oboe, Roberto;
Cenedese, Angelo

16:30-16:45 WeC09.5

A Hammerstein-Weiner Modification of Adaptive Autopilot for Parameter Drift Mitigation with Experimental Results, pp. 1556-1561.

Chee, Yin Yong; Oveissi, Parham; Shao, Siyuan; Lee, Joonghyun; Paredes Salazar, Juan Augusto; Bernstein, Dennis S.; Goel, Ankit

16:45-17:00 WeC09.6

Application of a Robust Nonlinear Control Strategy for Disturbance-Resilient Tilt-Rotor Quadcopter Trajectory Tracking, pp. 1562-1567.

Ijoga, Emmanuel Ogbanje; Kidambi, Krishna Bhavithavya; MacKunis, William

WeC10 Dockside 2

Adaptive Control I (Regular Session)

Chair: Cenedese, University of Padova Angelo

Co-Chair: Kiumarsi, Bahare Michigan State University

15:30-15:45 WeC10.1

Data-Driven Model Predictive Control of Airfoil Flow Separation, pp. 1568-1573.

Vander Schaaf, Jacob; Lu, Qizhi; Fidkowski, Krzysztof; Bernstein, Dennis S.

15:45-16:00 WeC10.2

Safe Reinforcement Learning Based on Off-Policy Approach for Nonlinear Discrete-Time Systems, pp. 1574-1579.

Jha, Mayank Shekhar; Kiumarsi, Bahare; Theilliol, Didier

16:00-16:15 WeC10.3

Enhancing Human Operator Performance with Long Short-Term Memory Networks in Adaptively Controlled Systems, pp. 1580-1585.

Uzun, Muhammed Yusuf; Inanc, Emirhan; Yildiz, Yildiray

16:15-16:30 WeC10.4

Newton Bases and Event-Triggered Adaptive Control in Native Spaces, pp. 1586-1591.

Powell, Nathan; Kurdila, Andrew J.;

Wang, Haoran; L'Afflitto, Andrea; Guo, Jia

16:30-16:45 WeC10.5

Adaptive Augmentation with Exponential Command Limiting for Aerial Vehicle Attitude Protection, pp. 1592-1597.

Sun, Donglei; Hovakimyan, Naira

16:45-17:00 WeC10.6

A Natural Indirect Adaptive Controller for a Satellite-Mounted Manipulator, pp. 1598-1603.

Giordano, Jacopo; Cenedese, Angelo; Serrani, Andrea

WeC11 Dockside 3

Game Theory II (Regular Session)

Chair: Brown, University of Colorado Philip N. Colorado Springs

Co-Chair: Sanjari, Queen's University Sina and Royal Military College

15:30-15:45 WeC11.1

Learning How to Strategically Disclose Information, pp. 1604-1609.

Velicheti, Raj Kirit; Bastopcu, Melih; Etesami, Rasoul; Basar, Tamer

15:45-16:00 WeC11.2

Nash Equilibrium for Multi-Player Regime Switching Stochastic Differential Games, pp. 1610-1615.

Wang, Mingrui; Chakraborty, Prakash

16:00-16:15 WeC11.3

Large Decentralized Continuous-Time Convex Stochastic Teams and Their Mean-Field Limits, pp. 1616-1621.

Sanjari, Sina; Saldi, Naci; Yuksel, Serdar

16:15-16:30 WeC11.4

Rationality and Connectivity in Stochastic Learning for Networked Coordination Games, pp. 1622-1627.

Zhang, Yifei; Vasconcelos, Marcos M.

16:30-16:45 WeC11.5

Information Design under Uncertainty for Vehicle-To-Vehicle Communication, pp. 1628-1633.

Gould, Brendan; Brown, Philip N.

16:45-17:00 WeC11.6

*Equilibrium Selection in Data Markets:
Multiple-Principal, Multiple-Agent Problems
with Non-Rivalrous Goods*, pp. 1634-1639.

Wadhwa, Samir; Dong, Roy

WeC12 Dockside 9
Predictive Control for Nonlinear Systems II (Regular Session)

Chair: Han, Kyungseok Kyungpook National University
Co-Chair: Mohammadpour, Mohammadpour Clemson University
Velni, Javad Velni, Javad

15:30-15:45 WeC12.1

Deep Neural Network NMPC for Computationally Tractable Optimal Power Management of Hybrid Electric Vehicles, pp. 1640-1645.

Park, Suyong; Nguyen, Duc Giap; Park, Jinrak; Kim, Dohee; Eo, Jeong Soo; Han, Kyungseok

15:45-16:00 WeC12.2

Neural Horizon Model Predictive Control -- Increasing Computational Efficiency with Neural Networks, pp. 1646-1651.

Alsmeier, Hendrik; Savchenko, Anton; Findeisen, Rolf

16:00-16:15 WeC12.3

Model Predictive Control Barrier Functions: Guaranteed Safety with Reduced Conservatism and Shortened Horizon, pp. 1652-1657.

Abdi, Hossein; Zhao, Pan; Hovakimyan, Naira; Ghabcheloo, Reza

16:30-16:45 WeC12.5

Learning-Based Safety Critical Model Predictive Control Using Stochastic Control Barrier Functions, pp. 1658-1663.

Nejatbakhsh Esfahani, Hossein; Ahmadi, Sajad; Mohammadpour Velni, Javad

16:45-17:00 WeC12.6

A Heuristic for Dynamic Output Predictive Control Design for Uncertain Nonlinear Systems, pp. 1664-1669.

Alamir, Mazen

WeC13 Richmond

Constrained Control II (Regular Session)

Chair: Nicotra, Marco M	University of Colorado Boulder
Co-Chair: Richards, Christopher	University of Louisville

15:30-15:45 WeC13.1

A Constrained Tracking Controller for Ramp and Sinusoidal Reference Signals Using Robust Positive Invariance, pp. 1670-1675.

Franca dos Santos, Geovana; Castelan, Eugenio B.; Lucia, Walter

15:45-16:00 WeC13.2

Control Barrier Function for Linearizable Systems with High Relative Degrees from Signal Temporal Logics: A Reference Governor Approach, pp. 1676-1681.

Liang, Kaier; Cai, Mingyu; Vasile, Cristian Ioan

16:00-16:15 WeC13.3

A Terminal Set Feasibility Governor for Nonlinear Model Predictive Control, pp. 1682-1688.

Skibik, Terrence; Nicotra, Marco M

16:15-16:30 WeC13.4

Safe Motion Planning for Serial-Chain Robotic Manipulators Via Invariant Sets, pp. 1689-1694.

Brandt, Teo; Fierro, Rafael; Danielson, Claus

16:30-16:45 WeC13.5

Anti-Windup Compensator Design for Guidance and Control of Quadrotors, pp. 1695-1700.

Shahbazzadeh, Majid; Richards, Christopher

16:45-17:00 WeC13.6

Modelling a Broad Class of Actuator Saturations Using Takagi-Sugeno Models with a Reduced Number of Local Models, pp. 1701-1706.

Bainier, Gustave; Marx, Benoit; Ponsart, Jean-Christophe

WeC14 Wellington

Advanced Control for Safe Process Operations (Invited Session)

Chair: Durand,	Wayne State
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Helen	University	Weiwei
Co-Chair: Tian, Yuhe	West Virginia University	WeC15.1
Organizer: Tian, Yuhe	West Virginia University	<i>Finite-Time Boundary Stabilization for LWR Traffic Flow Model (I)</i> , pp. 1738-1743.
Organizer: Durand, Helen	Wayne State University	Zhao, Hanxu; Zhan, Jingyuan; Zhang, Liguo
15:30-15:45	WeC14.1	15:45-16:00
<i>Dynamic Risk-Based Model Predictive Quality Control with Online Model Updating (I)</i> , pp. 1707-1712. Braniff, Austin; Tian, Yuhe		<i>Adaptive and Optimal Spatial PD Coupling in Synchronization Control of Networked Second-Order Infinite Dimensional Systems (I)</i> , pp. 1744-1750. Demetriou, Michael A.
15:45-16:00	WeC14.2	16:00-16:15
<i>Synthesis of Data-Driven Nonlinear State Observers Using Lipschitz-Bounded Neural Networks (I)</i> , pp. 1713-1719. Tang, Wentao		<i>Controllability and Optimal Control of Water Networks – a Comparison of Three Lumped Models (I)</i> , pp. 1751-1756. Baumann, Henry; Schaum, Alexander; Meurer, Thomas
16:00-16:15	WeC14.3	16:15-16:30
<i>Bootstrapped Gross Error Detection for Efficient and Fault-Tolerant Real-Time Optimization (I)</i> , pp. 1720-1725. Patron, Gabriel David; Ricardez-Sandoval, Luis		<i>Neural Operator Approximations of Backstepping Kernels for 2x2 Hyperbolic PDEs (I)</i> , pp. 1757-1763. Wang, Shanshan; Diagne, Mamadou; Krstic, Miroslav
16:15-16:30	WeC14.4	16:30-16:45
<i>A Set-Based Control Mode Selection Approach for Active Detection of False Data Injection Cyberattacks (I)</i> , pp. 1726-1731. Narasimhan, Shilpa; El-Farra, Nael H.; Ellis, Matthew		<i>Modeling and Detection of Cyber-Attacks on Highway Networks Using a 2D-LWR Model and Gaussian Processes (I)</i> , pp. 1764-1770. Kashyap, Abhishek; Chakravarthy, Animesh; Menon, Prathyush P
16:30-16:45	WeC14.5	16:45-17:00
<i>Lyapunov-Based Model Predictive Control Using Operable Adaptive Sparse Identification of Systems (OASIS) (I)</i> , pp. 1732-1737. Bhadriraju, Bhavana; Kwon, Joseph; Khan, Faisal		<i>Distributed Biconnectivity Achievement and Preservation in Multi-Agent Systems</i> , pp. 1771-1776. Restrepo, Esteban; Robuffo Giordano, Paolo

WeC15		Yonge
Estimation and Control of Distributed Parameter Systems II (Invited Session)		
Chair: Hu, Weiwei	University of Georgia	
Co-Chair: Demetriou, Michael A.	Worcester Polytechnic Institute	
Organizer: Demetriou, Michael A.	Worcester Polytechnic Institute	
Organizer: Hu,	University of Georgia	

WeC16		Dockside 4
Smart Grid (Regular Session)		
Chair: Barooah, Prabir	Indian Institute of Technology, Guwahati	
Co-Chair: Caiazzo, Bianca	University of Naples Federico II	
15:30-15:45	WeC16.1	
<i>Resilient Decentralized Control of Power Buffers in DC Microgrids</i> , pp. 1777-1782.		
		Qian, Yangyang; Zhou, Siyu; Lin, Zongli;

Wan, Yan; Shamash, Yacov		
15:45-16:00	WeC16.2	
<i>Prescribed-Time Consensus Control for the Voltage Restoration in Inverter-Based Islanded Microgrids</i> , pp. 1783-1788.		
Caiazzo, Bianca; Lui, Dario Giuseppe; Petrillo, Alberto; Leccese, Sara; Santini, Stefania; Andreotti, Amedeo		
16:00-16:15	WeC16.3	
<i>Competitive Equilibrium in Microgrids with Dynamic Loads</i> , pp. 1789-1794.		
Salehi, Zeinab; Chen, Yijun; Petersen, Ian R.; Ratnam, Elizabeth; Shi, Guodong		
16:15-16:30	WeC16.4	
<i>Comments on Characterizing Demand Flexibility to Provide Power Grid Services</i> , pp. 1795-1800.		
Barooah, Prabir		
16:30-16:45	WeC16.5	
<i>Robust Microgrid Energy Management System through a Scenario Approach</i> , pp. 1801-1806.		
Del Duca, Alessandro; Ruiz, Fredy; Scattolini, Riccardo		
WeC17	Dockside 5	
Distributed Control I (Regular Session)		
Chair: Sarsilmaz, Selahattin Burak	Utah State University	
Co-Chair: Jensen, Emily	University of California, Berkeley	
15:30-15:45	WeC17.1	
<i>Trade-Off between Privacy and Accuracy in Resilient Vector Consensus</i> , pp. 1807-1812.		
Liu, Bing; Zhao, Chengcheng		
15:45-16:00	WeC17.2	
<i>Scalable Reinforcement Learning for Linear-Quadratic Control of Networks</i> , pp. 1813-1818.		
Olsson, Johan; Zhang, Runyu; Tegling, Emma; Li, Na		
16:00-16:15	WeC17.3	
<i>Joint Design of Estimation and Control for Multi-Agent Systems with Bearing Measurements</i> , pp. 1819-1824.		
Fang, Xu; Li, Xiaolei; Xie, Lihua		
16:15-16:30	WeC17.4	
<i>A Fully Distributed, Air-Ground Coordinated Coverage Control for Multi-Robot Systems with Limited Sensing Range</i> , pp. 1825-1830.		
Zhang, Hang; Zheng, Ronghao; Zhang, Senlin; Liu, Meiqin		
16:30-16:45	WeC17.5	
<i>Cooperative Output Regulation with Disturbance Decoupling</i> , pp. 1831-1836.		
Sarsilmaz, Selahattin Burak; Gul, Kursad Metehan; Acikmese, Behcet		
WeC18	Dockside 6	
Stability of Nonlinear Systems I (Regular Session)		
Chair: Liu, Xinzh	University of Waterloo	
Co-Chair: Umathe,	Clemson University	
Bhagyashree		
15:30-15:45	WeC18.1	
<i>Global Exponential Stability or Contraction of an Unforced System Do Not Imply Entrainment to Periodic Inputs</i> , pp. 1837-1842.		
Duvall, Alon; Sontag, Eduardo		
15:45-16:00	WeC18.2	
<i>Adaptive Meshes and Contraction Condition Certification for Nonlinear Control Synthesis Using Machine Learning</i> , pp. 1843-1848.		
Wei, Lai; McCloy, Ryan Josef; Bao, Jie		
16:00-16:15	WeC18.3	
<i>Spectral Koopman Method for Identifying Stability Boundary</i> , pp. 1849-1854.		
Umathe, Bhagyashree; Vaidya, Umesh		
16:15-16:30	WeC18.4	
<i>A Neural-Lyapunov-Based Adaptive Resilient Cruise Control of Platoons Subject to Cyber-Attacks on Leaders</i> , pp. 1855-1860.		
Khoshnevisan, Ladan; Liu, Xinzh		
16:30-16:45	WeC18.5	
<i>Dynamic Output-Feedback Switching Control for Discrete-Time LPV Switched Systems</i> , pp. 1861-1866.		
Souza, Andressa; Oliveira, Ricardo C. L. F.; Peres, Pedro L. D.		
16:45-17:00	WeC18.6	
<i>Guaranteed Stabilization and Safety of</i>		

Nonlinear Systems Via Sliding Mode Control, pp. 1867-1872.

Ding, Fan; Ke, Jin; Jin, Wanxin; He, Jianping; Duan, Xiaoming

WeC19 Pier 7
Robust Control II (Regular Session)

Chair: Yong, Sze Zheng
Northeastern University
Co-Chair: Caverly, Ryan James
University of Minnesota

15:30-15:45 WeC19.1

Robust Adaptive MPC Using Uncertainty Compensation, pp. 1873-1878.

Tao, Ran; Zhao, Pan; Kolmanovsky, Ilya V.; Hovakimyan, Naira

15:45-16:00 WeC19.2

Data-Driven Control Synthesis Using Koopman Operator: A Robust Approach, pp. 1879-1884.

Eyboglu, Mert; Powell, Nathan; Karimi, Alireza

16:00-16:15 WeC19.3

State Feedback Synthesis for Robust Performance with Probabilistic Parametric Uncertainty, pp. 1885-1890.

Caverly, Ryan James; Bageshwar, Vibhor

16:15-16:30 WeC19.4

Optimal Design of Disturbance Attenuation Feedback Controllers for Linear Dynamical Systems, pp. 1891-1896.

Mannini, Davide; Strässer, Robin; Rawlings, James B.

16:30-16:45 WeC19.5

Closed Loop Intent-Expressive Trajectory Planning and Intent Estimation, pp. 1897-1903.

Gah, Elikplim; Yong, Sze Zheng

16:45-17:00 WeC19.6

A Generalized Accelerated Gradient Optimization Method, pp. 1904-1908.

Wu, Alex (Xinting); Petersen, Ian R.; Ugrinovskii, Valery; Shames, Iman

WeC20 Pier 8
Filtering (Regular Session)

Chair: Georgiou, Tryphon T.
University of California, Irvine
Co-Chair: Ozay, Necmiye
Univ. of Michigan

15:30-15:45 WeC20.1

A Projection Filter Algorithm for Stochastic Systems with Correlated Noise and State-Dependent Measurement Covariance, pp. 1909-1914.

Fuady Emzir, Muhammad; Chedad, Lahouari

15:45-16:00 WeC20.2

Can Transformers Learn Optimal Filtering for Unknown Systems?, pp. 1915-1920.

Du, Zhe; Balim, Haldun; Oymak, Samet; Ozay, Necmiye

16:00-16:15 WeC20.3

Computational Optimal Transport and Filtering on Riemannian Manifolds, pp. 1921-1926.

Grange, Daniel; Al-Jarrah, Mohammad; Baptista, Ricardo; Taghvaei, Amirhossein; Georgiou, Tryphon T.; Tannenbaum, Allen

16:15-16:30 WeC20.4

H Filter Design for Discrete-Time LPV Systems, pp. 1927-1932.

Kang, Dongyeop; Park, Chanun

16:30-16:45 WeC20.5

Differential Privacy in Nonlinear Dynamical Systems with Tracking Performance Guarantees, pp. 1933-1939.

Chowdhury, Dhrubajit; Goyal, Raman; Rane, Shantanu

16:45-17:00 WeC20.6

Optimal Control for Discrete-Time Systems under Bounded Disturbances, pp. 1940-1945.

Dogadin, Egor; Peregudin, Alexey; Shirokih, Dmitriy

WeC21 Pier 3
Parameter Identification for Battery Systems (Invited Session)

Chair: Zhang, Dong
University of Oklahoma

Co-Chair: Roy, Tanushree
Texas Tech University

Organizer: Zhang,
University of

Dong	Oklahoma	16:30-16:45	WeC21.5
Organizer: Soudbaksh, Damoon	Temple University	<i>Sensitivity Analysis of Lithium-Ion Battery SoH Indicators: An Analytical Study (I)</i> , pp. 1971-1976.	
Organizer: Jain, Neera	Purdue University	Sepasiahooyi, Sara; Tang, Shuxia	
Organizer: Dey, Satadru	The Pennsylvania State University		16:45-17:00 WeC21.6
Organizer: Tang, Shuxia	Texas Tech University	<i>Parameter Estimation of Solid-Electrolyte-Interphase Based Ageing in the Doyle-Fuller-Newman Model Framework</i> , pp. 1977-1982.	
Organizer: Roy, Tanushree	Texas Tech University	Ie Roux, Francis Anne; Bergveld, Hendrik Johannes; Donkers, M.C.F.	
Organizer: Moura, Scott	University of California, Berkeley		
Organizer: Lin, Xinfan	University of California, Davis		
Organizer: De Castro, Ricardo	University of California, Merced		
Organizer: Song, Ziyou	University of Michigan, Ann Arbor		
Organizer: Fogelquist, Jackson	University of California, Davis		
15:30-15:45	WeC21.1		
<i>System Identification for Lithium-Ion Batteries with Nonlinear Coupled Electro-Thermal Dynamics Via Bayesian Optimization (I)</i> , pp. 1946-1951.			
Tu, Hao; Lin, Xinfan; Wang, Yebin; Fang, Huazhen			
15:45-16:00	WeC21.2		
<i>Investigating Identification Input Designs for Modelling Lithium-Ion Batteries with Hysteresis Using LPV Framework (I)</i> , pp. 1952-1958.			
Sheikh, Abdul Muiz Ahmad; Bergveld, Hendrik Johannes; Donkers, M.C.F.			
16:00-16:15	WeC21.3		
<i>Physics-Informed Neural Network for Discovering Systems with Unmeasurable States with Application to Lithium-Ion Batteries (I)</i> , pp. 1959-1964.			
Kajiura, Yuichi; Espin, Jorge Esteban; Zhang, Dong			
16:15-16:30	WeC21.4		
<i>Degradation Modes Identification of Lithium-Ion Batteries Based on Flexible Discharge Data</i> , pp. 1965-1970.			
Wang, Shuquan; Gao, Feng; Zhang, Yusen			

A Direct and Execution-Time-Certified Box-QP Algorithm for Input-Constrained MPC, pp. 1991-1991.

Wu, Liang; Braatz, Richard D.

ThP1	Metro E/C	
A Control Systems Approach to Cell Fate Reprogramming (Plenary Session)		
Chair: Grover, Martha Co-Chair: Leang, Kam K.		
08:30-09:30	Georgia Institute of Technology University of Utah	ThP1.1
<i>A Control Systems Approach to Cell Fate Reprogramming</i> , pp. 1983-1983. Del Vecchio, Domitilla		
ThE1		
Hybrid Dynamical Seeking Systems: Model-Free Feedback Decision-Making and Control (Eckman Plenary Session)		
Chair: Murray, Richard M.	Caltech	
10:00-11:00	ThE1.1	
<i>Hybrid Dynamical Seeking Systems: Model-Free Feedback Decision-Making and Control</i> , pp. 1984-1984. Poveda, Jorge I.		
ThPo1		
Metro E/C, Metro W, Harbour, Frontenac		
Late-Breaking News Poster (Poster Session)		
11:00-11:45	ThPo1.1	
<i>Intelligent System of the Grinding Robot for Spiral Welded Pipe</i> , pp. 1985-1985. Ayalew, Getachew Demeissie		
11:00-11:45	ThPo1.2	
<i>Advanced Bi-Layer Control System for Continuous Pharmaceutical Manufacturing Pilot-Plant*</i> . Singh, Ravendra		
11:00-11:45	ThPo1.3	
<i>D-Stability for Discrete Time Closed-Loops Subject to Signal-To-Noise Ratio Constraints</i> , pp. 1986-1986. Rojas, Alejandro J.; Barbosa, Karina A.		
11:00-11:45	ThPo1.4	
<i>Sampling Theorem for Exact Identification of Continuous-Time Nonlinear Systems Based on the Koopman Operator</i> , pp. 1987-1987. Zeng, Zhixuan; Yue, Zuguang; Mauroy, Alexandre; Goncalves, Jorge; Yuan, Ye		
11:00-11:45	ThPo1.5	
<i>Latest Results on 24/7 Implementation of Neural Network Based Signal Control for Nimitz Highway in Honolulu</i> , pp. 1988-1988. Wang, Hong; Wang, Yiwei; Wang, Chieh (Ross); Shao, Yunli; Zhang, Guohui; Subramaniyan, Arun Bala		
11:00-11:45	ThPo1.6	
<i>Data-Driven Controls of a Flapping Wing Unmanned Aerial Vehicle Inspired by Monarch Butterfly</i> , pp. 1989-1989. K. C., Tejaswi; Lee, Taeyoung		
11:00-11:45	ThPo1.7	
<i>A Simulation Preorder for Koopman-Like Lifted Control Systems</i> , pp. 1990-1990. Aspeel, Antoine; Ozay, Necmiye		
11:00-11:45	ThPo1.8	
ThPo1.9		
<i>Improving Positioning Accuracy Using Particle Filter with Enhanced IMU Velocity Estimation</i> , pp. 1992-1992. Pisarski, Dominik; Faraj, Rami; Jankowski, Łukasz; Konowrocki, Robert; Poplawski, Blazej		
ThPo1.10		
<i>A Ball Launching Mechanism for Real-Time Control Education</i> , pp. 1993-1993. Moallem, Mehrdad; Mohagheghi, Afagh		
ThPo1.11		
<i>Deep Monocular Relative 6D Pose Estimation for Ship-Based Autonomous UAV</i> , pp. 1994-1994. Wickramasuriya, Maneesha; Lee, Taeyoung; Snyder, Murray		
ThPo1.12		
<i>Uniform Exponential Stability in Finite-Difference Model Reduction for Magnetizable Piezoelectric Beams with Non-Collocated Observers</i> , pp. 1995-1995. Rasaq, Uthman; Khalilullah, Sk Md Ibrahim; Walterman, Jacob; Ozer, Ahmet Ozkan		

		<i>Electrochemical-Thermal Models</i> , pp. 2003-2003.
11:00-11:45	ThPo1.13	Ferreira, Patryck; Tang, Shuxia
11:00-11:45	ThPo1.14	<i>TUM CONTROL: Open Source Controller-Vehicle in Loop Simulation Framework for ultra-Rapid prototyping in Python</i> , pp. 2004-2004.
11:00-11:45	ThPo1.15	Kim, Daeyeon; Kim, Nayeon; Lee, Heoncheol; Choi, Wonseok; Jeong, Bora; Cho, Youngki
11:00-11:45	ThPo1.16	Yechiel, Oded; Suplin, Vladimir
11:00-11:45	ThPo1.17	<i>Unlocking Floating Offshore Wind Potential: Layout Modification for Power Maximization</i> , pp. 1998-1998.
11:00-11:45	ThPo1.18	Niu, Yue; Nagamune, Ryozo
11:00-11:45	ThPo1.19	<i>Enhancing Nonlinear Chemical Process Monitoring with Neural Component Analysis Based Singular Spectrum Analysis (SSA-NCA)</i> , pp. 1999-1999.
11:00-11:45	ThPo1.20	Ndunda, Enock; Krishnannair, Syamala
11:00-11:45	ThPo1.21	Khaligh, Vahid; Ghezelbash, Azam; Niaz, Haider; Liu, Jay
11:00-11:45	ThPo1.22	Zarrouki, Baha; Wang, Chenyang; Betz, Johannes
11:00-11:45	ThPo1.23	<i>Safe Deep Reinforcement Learning (RL) Agent Adapts the Cost Function Weights of a Weights-Varying MPC (WMPC)</i> , pp. 2006-2006.
11:00-11:45	ThPo1.24	Zarrouki, Baha; Spanakakis, Marios; Betz, Johannes
11:00-11:45	ThPo1.25	<i>Noncontact Magnetic Manipulation Using Permanent Magnets</i> , pp. 2007-2007.
11:00-11:45	ThPo1.26	Ekanayake, Lahiru; Weerasekara Mudiyanselage, Janaka Madhusankha; Basnet, Dhiraj; Komae, Arash
11:00-11:45	ThPo1.27	<i>Algebraic Prescribed-Time KKL Observer for Autonomous Nonlinear Systems</i> , pp. 2008-2008.
11:00-11:45	ThPo1.28	Marani, Yasmine; N'Doye, Ibrahima; Laleg-Kirati, Taous-Meriem
11:00-11:45	ThPo1.29	<i>Uncertainty Quantification in Physiological Modeling Using Bayesian Variational Autoencoders</i> , pp. 2009-2009.
11:00-11:45	ThPo1.30	Estiri, Elham; Mirinejad, Hossein
11:00-11:45	ThPo1.31	<i>Reinforcement Learning and Nonlinear Integrated Controller for Guaranteed Local Stability</i> , pp. 2010-2010.
11:00-11:45	ThPo1.32	Nan, Shiqi; Chen, Chih-Chiang; Qian, Chunjiang

Benchmarking Surrogate Embedding Strategies for Model Predictive Control, pp. 2011-2011.

Elorza Casas, Carlos Andres; Pulsipher, Joshua; Ricardez-Sandoval, Luis

11:00-11:45 ThPo1.29

Properties of Immersions for Systems with Multiple Limit Sets with Implications to Learning Koopman Embeddings, pp. 2012-2012.

Liu, Zexiang; Ozay, Necmiye; Sontag, Eduardo

11:00-11:45 ThPo1.30

Particle Swarm Optimization for Training Quadrotor PID Controller, pp. 2013-2013.

Rodriguez, Eric; Dong, Wenjie; Lu, Qi

11:00-11:45 ThPo1.31

*On Control-Sync Technique for Multi-Task System Operation**.

Fateh, Fariba; Mirafzal, Behrooz

11:00-11:45 ThPo1.32

Staggered Steering of Wheeled-Legged Biped Robot, pp. 2014-2014.

Montufar, Sergio; Qian, William

11:00-11:45 ThPo1.33

Information-Based Anomaly Detection for Autonomous Agents, pp. 2015-2015.

McKee, Sasha M; Haddadin, Osama; Leang, Kam K.

11:00-11:45 ThPo1.34

Estimating the Lateral Stability Region of the Vehicle Using the Koopman Spectrum, pp. 2016-2016.

Kumar, Alok; Umathe, Bhagyashree; Vaidya, Umesh; Kelkar, Atul

11:00-11:45 ThPo1.35

*Self Organized Neural Network for Swarm Robots**.

Han, Zhifeng; Walton, Claire

11:00-11:45 ThPo1.36

Deep Neural Network In-Proximity Effect Detection and Collision Avoidance for Aerial Vehicles, pp. 2017-2017.

M Anderson, Jacob; Leang, Kam K.

11:00-11:45 ThPo1.37

Distribution-Matching Deployment: A Stein

Variational Gradient Approach to Optimal Multisensor Placement, pp. 2018-2018.

Ghimire, Donipolo; Kia, Solmaz S.

11:00-11:45 ThPo1.38

*Real Application of Deep Reinforcement Learning for Multi-Agent Cooperation in Distributed Model-Based Predictive Control**.

Aponte Rengifo, Oscar Emilio; Francisco, Mario; Vega Cruz, Pastora

11:00-11:45 ThPo1.39

Improving Drone Control: Achieving Strong Stability and Adaptability Using Online Reinforcement Learning, pp. 2019-2019.

Avila, Ethan; Jaber, Halah; Frye, Michael

11:00-11:45 ThPo1.40

Parameter Design of P-PI Controller for Motion Control Systems Using Limited Pole Placement Methd, pp. 2020-2020.

Urakawa, Yoshiyuki; Ngamilamai, Sirichai

11:00-11:45 ThPo1.41

Cyber-Attack Detection by Using a Discrete-Time Model-Based Unknown Input Observer, pp. 2021-2021.

Nguyen, Quang Huy; Sadki, Osama; Rafaralahy, Hugues; Haddad, Madjid; Zemouche, Ali

11:00-11:45 ThPo1.42

*Closed-Loop Battery Manufacturing Process Control Via End-Of-Line Formation Features**.

Weng, Andrew; Less, Greg; Siegel, Jason B.; Stefanopoulou, Anna G.

11:00-11:45 ThPo1.43

Integrating Dynamic Risk Assessment with Model Predictive Control for Enhanced Safety and Operational Efficiency, pp. 2022-2022.

Akundi, Sahithi Srijana; Liu, Yuanxing; Braniff, Austin; Dantas, Beatriz; Niknezhad, Shayan Sean; Tian, Yuhe; Khan, Faisal; Pistikopoulos, Efstratios N.

ThB01 Metro E/C
Agents-Based Systems I (Regular Session)

Chair: Rai, Ayush Purdue University
Co-Chair: Quijano, Universidad De Los Nicancor Andes

13:30-13:45 ThB01.1

Optimal Distribution of UAVs in Crop Spraying Considering Energy Consumption, pp. 2023-2028.

Archila Cruz, Oscar Fabian; Quijano, Nicanor; Martinez-Piazuelo, Juan

13:45-14:00 ThB01.2

Formation Shape Control with Minimal Global Rigidity, pp. 2029-2034.

Sahebsara, Farid; de Queiroz, Marcio

14:00-14:15 ThB01.3

Observer-Based Consensus Strategy for Linear Multi-Agent Systems under Double Event-Triggering Conditions, pp. 2035-2040.

Ding, Haochen; Xin, Ming

14:15-14:30 ThB01.4

Global Attitude Alignment for Multi-Agent Systems on SO(3) without Angular Velocity Measurements, pp. 2041-2046.

Boughellaba, Mouaad; Tayebi, Abdelhamid

14:30-14:45 ThB01.5

Distributed Algorithm for Edge Agreement Over Nonlinear Constraints, pp. 2047-2052.

Rai, Ayush; Mou, Shaoshuai

14:45-15:00 ThB01.6

Two-Player Task Negotiation Based on Trust, pp. 2053-2059.

Kim, Donghae; Akella, Maruthi

ThB02 Harbour
Optimization, Consensus, and Games I: Constraints and Distributed Computation (Invited Session)

Chair: Gil, Stephanie	Harvard University
Co-Chair: Akgun, Orhan Eren	Harvard University
Organizer: Akgun, Orhan Eren	Harvard University
Organizer: Nedich, Angelia	Arizona State University
Organizer: Gil, Stephanie	Harvard University
Organizer: Dayi, Arif Kerem	Harvard University

13:30-13:45 ThB02.1

Contractivity of Distributed Optimization and

Nash Seeking Dynamics (I), pp. 2060-2065.

Gokhale, Anand; Davydov, Alexander; Bullo, Francesco

13:45-14:00 ThB02.2

Distributed Conjugate Gradient Method Via Conjugate Direction Tracking (I), pp. 2066-2073.

Shorinwa, Ola; Schwager, Mac

14:00-14:15 ThB02.3

Algorithms for Finding Compatible Constraints in Receding-Horizon Control of Dynamical Systems (I), pp. 2074-2081.

Parwana, Hardik; Wang, Ruiyang; Panagou, Dimitra

14:15-14:30 ThB02.4

Projected Push-Pull for Distributed Constrained Optimization Over Time-Varying Directed Graphs (I), pp. 2082-2089.

Akgun, Orhan Eren; Dayi, Arif Kerem; Gil, Stephanie; Nedich, Angelia

14:30-14:45 ThB02.5

Finite-Time Analysis of Asynchronous Multi-Agent TD Learning (I), pp. 2090-2097.

Dal Fabbro, Nicolò; Adibi, Arman; Mitra, Aritra; Pappas, George J.

14:45-15:00 ThB02.6

Decentralized and Equitable Optimal Transport (I), pp. 2098-2103.

Lau, Ivan; Ma, Shiqian; Uribe, Cesar A.

ThB03 Frontenac
Mechatronics I (Invited Session)

Chair: Shan, Jinjun	York University
Co-Chair: Al Janaideh, Mohammad	University of Guelph
Organizer: Al Janaideh, Mohammad	University of Guelph
Organizer: Rakotondrabe, Micky	ENIT Tarbes, INPT, University of Toulouse

13:30-13:45 ThB03.1

Particle Filtering on Lie Group for Mobile Robot Localization with Range-Bearing Measurements (I), pp. 2104-2109.

Zhang, Shuo; Shan, Jinjun; Liu, Yibo

13:45-14:00	ThB03.2	<i>Evaluation Based on an Autocovariance Least Squares Tuned Optimal Estimate</i> , pp. 2146-2151. Hinson, Kimber; Morgansen, Kristi A.
14:00-14:15	ThB03.3	<i>A Control Lyapunov Function-Based Approach for Particle Nanomanipulation Via Optical Tweezers (I)</i> , pp. 2116-2121. Golgoon, Melika; Mohammadi, Alireza; Spong, Mark W.
14:15-14:30	ThB03.4	<i>Towards Computationally Efficient NMPC Design with Stability Guarantee for Learning-Based Dynamic Models: A Case Study of UAVs (I)</i> , pp. 2122-2127. Gomaa, Mahmoud A. K.; De Silva, Oscar; Jayasiri, Awantha; Mann, George K. I.
14:30-14:45	ThB03.5	<i>Preliminary Results on Generalized Transmissibility Operators (I)</i> , pp. 2128-2133. Aljanaideh, Khaled; Al Janaideh, Mohammad
14:45-15:00	ThB03.6	<i>Decoupling and Tracking Control for Offshore Crane System Effect by Unknown Roll/Heave Wave Motions Disturbances (I)</i> , pp. 2134-2139. Al Saaideh, Mohammad; Al-Solihat, Mohammed Khair; Al-Rawashdeh, Yazan Mohammad; Aljanaideh, Khaled; Al Janaideh, Mohammad
ThB04		Metro W
Estimation and Identification III (Regular Session)		
Chair: Lahijanian, University of Colorado Morteza Boulder		
Co-Chair: Hinson, The Boeing Company Kimber		
13:30-13:45	ThB04.1	<i>Formal Abstraction of General Stochastic Systems Via Noise Partitioning</i> , pp. 2140-2145. Skovbekk, John; Laurenti, Luca; Frew, Eric W.; Lahijanian, Morteza
13:45-14:00	ThB04.2	<i>A Flexible Wing Model Uncertainty</i>
14:00-14:15	ThB04.3	<i>Adaptive Pre-Processing Linear Output Regulation with Non-Vanishing Measurements</i> , pp. 2152-2157. Han, Qi; Wang, Lei; Marconi, Lorenzo; Liu, Zhitao; Su, Hongye
14:15-14:30	ThB04.4	<i>Identification of Discrete Event Systems by Signal Interpreted Petri Nets</i> , pp. 2158-2163. Köhler, Andreas; Zhang, Ping
14:30-14:45	ThB04.5	<i>Using Databases to Implement Algorithms: Estimation of Allan Variance Using B+ Tree Data Structure</i> , pp. 2164-2169. Maddipatla, Srivenkata Satya Prasad; Pakala, Rinish; Haeri, Hossein; Chen, Cindy; Jerath, Kshitij; Brennan, Sean
14:45-15:00	ThB04.6	<i>Multiple Model Optimization-Based Estimators Using Horizon Scenario Tree (I)</i> , pp. 2170-2175. Elsayed, Mahmoud N.; De Silva, Oscar; Jayasiri, Awantha; Mann, George K. I.; Gosine, Raymond G.
ThB05		Pier 2
Optimization III (Regular Session)		
Chair: Yousefian, Farzad		Rutgers University
Co-Chair: Dai, Ran		Purdue University
13:30-13:45	ThB05.1	<i>Adaptive Low-Rank Tensor Approximation Based on Mixed-Integer Representations</i> , pp. 2176-2181. Xu, Zhi; Chaoying, Pei; Dai, Ran
13:45-14:00	ThB05.2	<i>Distributed Gradient Tracking Methods with Guarantees for Computing a Solution to Stochastic MPECs</i> , pp. 2182-2187. Ebrahimi, Mohammadjavad; Shanbhag, Uday V.; Yousefian, Farzad
14:00-14:15	ThB05.3	<i>Mutual Learning in Optimization - Part II</i> , pp. 2188-2189.

2188-2193.	Ziyou Organizer: Fogelquist, Jackson	Michigan, Ann Arbor University of California, Davis
14:15-14:30 ThB05.4 <i>First-Order Dynamic Optimization for Streaming Convex Costs</i> , pp. 2194-2199. Rostami, Mohammadreza; Moradian, Hossein; Kia, Solmaz S.	Chen, Youyi; Kwak, Kyoung Hyun; Jung, Dohoy; Kim, Youngki	ThB06.1 <i>Data-Driven Koopman Model of an Integrated HVAC and Battery Cooling System in Electric Vehicles (I)</i> , pp. 2212-2217.
14:30-14:45 ThB05.5 <i>Efficient Computation of Weapon-Target Assignments Using Abstraction</i> , pp. 2200-2205. Elliott, D. Sawyer; Vatsan, Maansi	Ouyang, Quan; Ghaeminezhad, Nourallah; Li, Yang; Wik, Torsten; Zou, Changfu	ThB06.2 <i>Hypergraph-Based Unified Model Development for Active Battery Equalization Systems (I)</i> , pp. 2218-2223.
14:45-15:00 ThB05.6 <i>Achieving Optimal Complexity Guarantees for a Class of Bilevel Convex Optimization Problems</i> , pp. 2206-2211. Samadi, Sepideh; Burbano Lombana, Daniel; Yousefian, Farzad	Espin, Jorge Esteban; Zhang, Dong; Toti, Daniele; Pozzi, Andrea	ThB06.3 <i>Deep-MPC: A DAGGER-Driven Imitation Learning Strategy for Optimal Constrained Battery Charging (I)</i> , pp. 2224-2229.
ThB06 Queens Quay 1 Modeling and Control of Energy Storage and Conversion Systems (Invited Session) Chair: Zhang, Dong Co-Chair: Fogelquist, Jackson Organizer: Zhang, Dong Organizer: Soudbahksh, Damoon Organizer: Jain, Neera Organizer: Dey, Satadru Organizer: Tang, Shuxia Organizer: Roy, Tanushree Organizer: Moura, Scott Organizer: Lin, Xinfan Organizer: De Castro, Ricardo Organizer: Song,	University of Oklahoma University of California, Davis University of Oklahoma Temple University Purdue University The Pennsylvania State University Texas Tech University Texas Tech University University of California, Berkeley University of California, Davis University of California, Merced University of	University of Oklahoma University of California, Davis University of Oklahoma Temple University Purdue University The Pennsylvania State University Texas Tech University Texas Tech University University of California, Berkeley University of California, Davis University of California, Merced University of
14:15-14:30 ThB06.4 <i>Data-Driven Model Predictive Control of Battery Storage Units</i> , pp. 2230-2235. Lipka, Johannes Bernd; Hans, Christian Andreas	14:30-14:45 ThB06.5 <i>Koopman Operator-Based Detection-Isolation of Cyberattack: A Case Study on Electric Vehicle Charging (I)</i> , pp. 2236-2241. Ghosh, Sanchita; Roy, Tanushree	14:45-15:00 ThB06.6 <i>Hydrogen Underground Storage for Grid Resilience: A Dynamic Simulation and Optimization Study</i> , pp. 2242-2247. Chen, Yunzhi; Hill, Daniel; Billings, Blake; Hedengren, John; Powell, Kody
ThB07 Queens Quay 2 Traffic Control II (Regular Session) Chair: Vehlhaber, Finn Niklas Co-Chair: Malikopoulos, Andreas A.	Eindhoven University of Technology Cornell University	

13:30-13:45	ThB07.1	<i>Nuclear Power Plants (I)</i> , pp. 2285-2296. Yu, Kevin; Knutson, Mark
Alpha-Fair Routing in Urban Air Mobility with Risk-Aware Constraints, pp. 2248-2253.		
Yu, Yue; Gao, Zhenyu; Li, Hui Qing; Wei, Qinshuang; Clarke, John-Paul; Topcu, Ufuk		
13:45-14:00	ThB07.2	
<i>Potential-Based Controller for Efficient Flow of Connected and Automated Vehicles</i> , pp. 2254-2259.		
Tzortzoglou, Filippos; Theodosis, Dionysios; Dave, Aditya Deepak; Malikopoulos, Andreas A.		
14:00-14:15	ThB07.3	
<i>Sequential Truck Platoon Formation in Mixed Traffic Using Multiple Spring Mass Damper Systems</i> , pp. 2260-2265.		
Narasimhan, Mukundhan; Du, Lili; Washburn, Scott		
14:15-14:30	ThB07.4	
<i>Smoothing Mixed Traffic with Robust Data-Driven Predictive Control for Connected and Autonomous Vehicles</i> , pp. 2266-2272.		
Shang, Xu; Wang, Jiawei; Zheng, Yang		
14:30-14:45	ThB07.5	
<i>Hybrid Model Predictive Control for Virtual Coupling of Heavy-Haul Trains</i> , pp. 2273-2278.		
Hou, Zhinan; You, Keyou		
14:45-15:00	ThB07.6	
<i>Electric Aircraft Assignment, Routing, and Charge Scheduling Considering the Availability of Renewable Energy</i> , pp. 2279-2284.		
Vehlhaber, Finn Niklas; Salazar, Mauro		
ThB08		Bay
Process Control Evolution and Challenges in Nuclear Power Plants (Tutorial Session)		
Chair: Yu, Kevin	Ontario Power Generation	
Co-Chair: Knutson, Mark	Ontario Power Generation	
Organizer: Yu, Kevin	Ontario Power Generation	
13:30-14:15	ThB08.1	
<i>Process Control Evolution and Challenges in</i>		
ThB09		Dockside 1
Autonomy, Learning, and Optimization for Spacecraft (Invited Session)		
Chair: Petersen, Chris	University of Florida	
Co-Chair: Soderlund, Alexander	The Ohio State University	
Organizer: Phillips, Sean	Air Force Research Laboratory	
Organizer: Soderlund, Alexander	The Ohio State University	
Organizer: Petersen, Chris	University of Florida	
13:30-13:45	ThB09.1	
<i>Guaranteed Safe Satellite Guidance and Navigation Using Reachability Based Switching Controllers (I)</i> , pp. 2298-2303.		
Miller, Kristina; Phillips, Sean; Mitra, Sayan		
13:45-14:00	ThB09.2	
<i>Multi-Thread Learning and Adaptation for Spacecraft Attitude Control (I)</i> , pp. 2304-2310.		
Hoobler, Richard; Akella, Maruthi		
14:00-14:15	ThB09.3	
<i>Blameless and Optimal Control under Prioritized Safety Constraints (I)</i> , pp. 2311-2317.		
Pavlasek, Natalia; Li, Hui Qing; Acikmese, Behcet; Oishi, Meeko; Danielson, Claus		
14:15-14:30	ThB09.4	
<i>Chance-Constrained Control for Safe Spacecraft Autonomy: Convex Programming Approach (I)</i> , pp. 2318-2324.		
Oguri, Kenshiro		
14:30-14:45	ThB09.5	
<i>An Error Estimation and Mesh Refinement</i>		

<i>Method Applied to Optimal Libration Point Orbit Transfers (I)</i> , pp. 2325-2330.	14:45-15:00	ThB10.6
Haman, George III Victor; Rao, Anil V.		
14:45-15:00	ThB09.6	
<i>Shielded Deep Reinforcement Learning for Complex Spacecraft Tasking (I)</i> , pp. 2331-2337.		
Reed, Robert; Schaub, Hanspeter; Lahijanian, Morteza		
ThB10	Dockside 2	
Adaptive Control II (Regular Session)		
Chair: Westwick, David	Schulich School of Engineering, University of Calgary	Chair: Muradore, Riccardo
Co-Chair: Kamalapurkar, Rushikesh	Oklahoma State University	Co-Chair: Paternain, Santiago
13:30-13:45	ThB10.1	13:30-13:45
<i>Fractional-Order Integral Neural-Adaptive Update and Feedback Laws</i> , pp. 2338-2343.		<i>Distributed Safe Stabilization Control for Interconnected Time-Delay Systems</i> , pp. 2374-2379.
Doctolero, Samuel; Westwick, David		Pan, Zhuo-Rui; Ren, Wei; Sun, Xi-Ming
13:45-14:00	ThB10.2	13:45-14:00
<i>Retrospective Cost-Based Extremum Seeking Control with Vanishing Perturbation for Online Output Minimization</i> , pp. 2344-2349.		<i>Interval Signal Temporal Logic from Natural Inclusion Functions</i> , pp. 2380-2385.
Paredes Salazar, Juan Augusto; Portella Delgado, Jhon Manuel; Bernstein, Dennis S.; Goel, Ankit		Baird, Luke; Harapanahalli, Akash; Coogan, Samuel
14:00-14:15	ThB10.3	14:00-14:15
<i>Adaptive Output-Feedback Model Predictive Control of Hammerstein Systems with Unknown Linear Dynamics</i> , pp. 2350-2355.		<i>Allocation of Control Authority between Dynamic Inversion and Reinforcement Learning for Autonomous Helicopter Aerial Refueling</i> , pp. 2386-2392.
Kamaldar, Mohammadreza; Bernstein, Dennis S.		Jayarathne, Damsara; Paternain, Santiago; Mishra, Sandipan
14:15-14:30	ThB10.4	14:15-14:30
<i>An Adaptive Optimal Control Approach to Monocular Depth Observability Maximization</i> , pp. 2356-2361.		<i>A Twin-Delayed Deep Deterministic Policy Gradient Approach for UAV Formation Control</i> , pp. 2393-2398.
Ogri, Tochukwu Elijah; Qureshi, Muzaffar; Bell, Zachary I.; Waters, Kristy; Kamalapurkar, Rushikesh		Zhang, Yintao; Zhang, Youmin; Yu, Ziquan; Li, Jin; Qin, Qiaomeng; Gao, Chenxi
14:30-14:45	ThB10.5	14:30-14:45
<i>Dynamic Adaptation Gains for Nonlinear Systems with Unmatched Uncertainties</i> , pp. 2362-2367.		<i>Towards Aircraft Autonomy Using a POMDP-Based Planner</i> , pp. 2399-2404.
Lopez, Brett; Slotine, Jean-Jacques		Trotti, Francesco; Farinelli, Alessandro; Muradore, Riccardo
14:45-15:00	ThB11.6	
<i>A Submodular Approach to Controlled Islanding for Multi-Agent Network Stability</i> , pp. 2405-2411.		

ThB12	Dockside 9
Predictive Control for Linear Systems I (Regular Session)	
Chair: Liu, Jinfeng Co-Chair: Yong, Sze Zheng	University of Alberta Northeastern University
13:30-13:45	ThB12.1
<i>Control Barrier Functions for Linear Continuous-Time Input-Delay Systems with Limited-Horizon Previewable Disturbances, pp. 2412-2419.</i>	
Pati, Tarun; Hwang, Seunghoon; Yong, Sze Zheng	
13:45-14:00	ThB12.2
<i>Distributed Source Seeking for a Periodic Signal Using an Improved Gaussian Process-Based Model Predictive Control, pp. 2420-2425.</i>	
Gao, Xinzhou; Shu, Zhan	
14:00-14:15	ThB12.3
<i>Homothetic Tube Model Predictive Control with Multi-Step Predictors, pp. 2426-2431.</i>	
Saccani, Danilo; Ferrari-Trecate, Giancarlo; Zeilinger, Melanie N.; Köhler, Johannes	
14:15-14:30	ThB12.4
<i>On Terminal Set and Cost for Stability-Aware MPC for Sampled-Data Linear Systems with Continuous-Time Constraint: A Lifting Approach, pp. 2432-2439.</i>	
Kim, Junsoo; Park, Gyunghoon	
14:30-14:45	ThB12.5
<i>Time Robust Model Predictive Control for Heterogeneous Multi-Agent Systems under Global Temporal Logic Tasks, pp. 2440-2445.</i>	
Yang, Tiange; Zou, Yuanyuan; Liu, Jinfeng; Jia, Tianyu; Li, Shaoyuan	
14:45-15:00	ThB12.6
<i>Efficient Online Update of Model Predictive Control in Embedded Systems Using First-Order Methods, pp. 2446-2451.</i>	
Gracia, Victor; Krupa, Pablo; Alamo, Teodoro; Limon, Daniel	

ThB13	Richmond
Constrained Control III (Regular Session)	
Chair: Namerikawa, Toru	Keio University
Co-Chair: Bakolas, Efstrathios	The University of Texas at Austin
13:30-13:45	ThB13.1
<i>A Performance-Based Model Recovery Anti-Windup Design for Linear Systems Subject to Actuator Saturation, pp. 2452-2457.</i>	
Lai, Wenxin; Li, Yuanlong; Lin, Zongli	
13:45-14:00	ThB13.2
<i>On the Equivalence between Prescribed Performance Control and Control Barrier Functions, pp. 2458-2463.</i>	
Namerikawa, Ryo; Wiltz, Adrian; Mehdifar, Farhad; Namerikawa, Toru; Dimarogonas, Dimos V.	
14:00-14:15	ThB13.3
<i>Global Finite Time Stabilization of SISO Hurwitz Linear Systems Subject to Actuator Saturation: The Case of Real Eigenvalues, pp. 2464-2469.</i>	
Hou, Tan; Li, Yuanlong; Lin, Zongli	
14:15-14:30	ThB13.4
<i>Disturbance Observer-Based Robust Integral Control Barrier Functions for Nonlinear Systems with High Relative Degree, pp. 2470-2475.</i>	
Zinage, Vrushabh; Chandra, Rohan; Bakolas, Efstrathios	
14:30-14:45	ThB13.5
<i>Constrained Synchronization of Drive and Response Chaotic Systems with Parametric Uncertainty Using Barrier Lyapunov Function, pp. 2476-2481.</i>	
Singh, Shubham; Jain, Anoop	
ThB14	Wellington
Set-Based Methods in Dynamic Systems and Control (Invited Session)	
Chair: Coogan, Samuel	Georgia Institute of Technology
Co-Chair: Pangborn, Herschel	The Pennsylvania State University
Organizer: Koeln,	University of Texas at

<p>Justin Organizer: Pangborn, Herschel</p> <p>Organizer: Jain, Neera</p> <p>Organizer: Ruths, Justin</p> <p>Organizer: Bird, Trevor, J.</p> <p>Organizer: Siefert, Jacob</p>	<p>Dallas</p> <p>The Pennsylvania State University</p> <p>Purdue University</p> <p>University of Texas at Dallas</p> <p>PC Krause and Associates</p> <p>Pennsylvania State University</p>		<p>Yonge</p> <p>Estimation and Control of Distributed Parameter Systems III (Invited Session)</p> <p>Chair: Hu, Weiwei University of Georgia</p> <p>Co-Chair: Demetriou, Michael A. Worcester Polytechnic Institute</p> <p>Organizer: Demetriou, Michael A. Worcester Polytechnic Institute</p> <p>Organizer: Hu, Weiwei University of Georgia</p>
13:30-13:45	ThB14.1	13:30-13:45	ThB15.1
	<i>Opportunistic Safety Outside the Maximal Controlled Invariant Set (I), pp. 2482-2487.</i> Liu, Zexiang; Chen, Hao; Gao, Yulong; Ozay, Necmiye		<i>Scalable Computation of H-Infinity Energy Functions for Polynomial Drift Nonlinear Systems (I), pp. 2521-2526.</i> Corbin, Nicholas; Kramer, Boris
13:45-14:00	ThB14.2	13:45-14:00	ThB15.2
	<i>Robust Model Predictive Control with Temporally-Uncertain Disturbance Preview Information (I), pp. 2488-2493.</i> Gostin, David; Koeln, Justin		<i>Adaptive Observer Design for a Multi-State Reparable System (I), pp. 2527-2532.</i> Hu, Weiwei; Demetriou, Michael A.
14:00-14:15	ThB14.3	14:00-14:15	ThB15.3
	<i>Learning of Energy Primitives for Electrified Aircraft (I), pp. 2494-2500.</i> Smith, Reid; Hencey, Brandon; Parry, Adam; Alleyne, Andrew G.		<i>Safe Control of Hyperbolic PDE-ODE Cascades (I), pp. 2533-2538.</i> Wang, Ji; Krstic, Miroslav
14:15-14:30	ThB14.4	14:15-14:30	ThB15.4
	<i>Efficient and Guaranteed Hamilton-Jacobi Reachability Via Self-Contained Subsystem Decomposition and Admissible Control Sets (I), pp. 2501-2506.</i> He, Chong; Gong, Zheng; Chen, Mo; Herbert, Sylvia		<i>Spaces of Exact Boundary Controllability of a Schrodinger Equation with an Internal Point Mass (I), pp. 2539-2544.</i> Hansen, Scott
14:30-14:45	ThB14.5	14:30-14:45	ThB15.5
	<i>Forward Invariance in Neural Network Controlled Systems (I), pp. 2507-2512.</i> Harapanahalli, Akash; Jafarpour, Saber; Coogan, Samuel		<i>Safety Factor Profile Regulation Via Self-Triggered Model Predictive Control in the EAST Tokamak (I), pp. 2545-2550.</i> Wang, Zibo; Paruchuri, Sai Tej; Yang, Lixing; Schuster, Eugenio
14:45-15:00	ThB14.6		
	<i>ZonoLAB: A MATLAB Toolbox for Set-Based Control Systems Analysis Using Hybrid Zonotopes (I), pp. 2513-2520.</i> Koeln, Justin; Bird, Trevor, J.; Siefert, Jacob; Ruths, Justin; Pangborn, Herschel; Jain, Neera		
<p>ThB16</p> <p>Control Co-Design for Energy Systems (Invited Session)</p> <p>Chair: Russell, Kayla University of Illinois at Urbana-Champaign</p> <p>Co-Chair: Sharma, Himanshu Pacific Northwest National Laboratory</p> <p>Organizer: Vermillion, Christopher University of Michigan</p>	<p>Dockside 4</p>		

Organizer: Sharma, Himanshu	Pacific Northwest National Laboratory	<i>Measurements</i> , pp. 2592-2597. Marshall, Walden; Bamieh, Bassam; Jensen, Emily
13:30-13:45	ThB16.1	
<i>Control Co-Design of Automotive Vapor Compression Systems (I)</i> , pp. 2551-2557. Russell, Kayla; Alleyne, Andrew G.		
13:45-14:00	ThB16.2	
<i>Control Co-Design of a Ducted Hydrokinetic Turbine (I)</i> , pp. 2558-2563. Naik, Kartik Praful; Liao, Yingqian; Jiang, Boxi; Martins, Joaquim R.R.A.; Sun, Jing		
14:00-14:15	ThB16.3	
<i>A Set-Based Approach for Robust Control Co-Design (I)</i> , pp. 2564-2571. Bird, Trevor, J.; Siefert, Jacob; Pangborn, Herschel; Jain, Neera		
14:15-14:30	ThB16.4	
<i>Site-Dependent Solutions of Wave Energy Converter Farms with Surrogate Models, Control Co-Design, and Layout Optimization (I)</i> , pp. 2572-2579. Azad, Saeed; Herber, Daniel R.; Khanal, Suraj; Jia, Gaofeng		
14:30-14:45	ThB16.5	
<i>Multi-Objective Control Co-Design Using Graph Based Optimization for Offshore Wind Farm Grid Integration (I)</i> , pp. 2580-2585. Sharma, Himanshu; Wang, Wei; Huang, Bowen; Ramachandran, Thiagarajan; Adetola, Veronica		
ThB17 Dockside 5		
Distributed Control II (Regular Session)		
Chair: Cichella, Venanzio	University of Iowa	
Co-Chair: Jensen, Emily	University of California, Berkeley	
13:30-13:45	ThB17.1	
<i>Coordinated Path Following of UAVs Over Time-Varying Digraphs Connected in an Integral Sense</i> , pp. 2586-2591. Kang, Hyungssoo; Kaminer, Isaac; Cichella, Venanzio; Hovakimyan, Naira		
13:45-14:00	ThB17.2	
<i>A Convex Parameterization of Controllers Constrained to Use Only Relative</i>		
ThB18 Dockside 6		
Stability of Nonlinear Systems II (Regular Session)		
Chair: Lee, Donghwan	KAIST	
Co-Chair: Chen, Chih-Chiang	National Cheng Kung University	
13:30-13:45	ThB18.1	
<i>Stabilization for a Class of Positive Bilinear Systems</i> , pp. 2624-2629. Kawano, Yu; Cucuzzella, Michele		
13:45-14:00	ThB18.2	
<i>Local Stability Analysis and Estimation of Domains of Attraction for Discrete-Time Takagi-Sugeno Fuzzy Systems Via Fuzzy-Modeled Membership Functions</i> , pp. 2630-2635. Marinho, Yara Quilles; Lee, Donghwan; Oliveira, Ricardo C. L. F.; Peres, Pedro L. D.		

14:00-14:15	ThB18.3	Pandya, Ravi; Wei, Tianhao; Liu, Changliu
LMI Design Procedure for Incremental Input/Output-To-State Stability in Nonlinear Systems, pp. 2636-2641.		
Arezki, Hasni; Zemouche, Ali; Alessandri, Angelo; Bagnerini, Patrizia		
14:15-14:30	ThB18.4	
Bounded Output Feedback Control of Planar Systems with Unknown Nonlinear Structures and Application to Output Consensus, pp. 2642-2647.		
Chen, Chih-Chiang; He, Shuaipeng; Qian, Chunjiang		
14:30-14:45	ThB18.5	
Global Uniform Ultimate Boundedness of Semi-Passive Systems Interconnected Over Directed Graphs, pp. 2648-2653.		
Lazri, Anes; Maghenem, Mohamed Adlene; Panteley, Elena; Loria, Antonio		
ThB19	Pier 7	
Uncertain Systems I (Regular Session)		
Chair: Halder, Abhishek	Iowa State University	
Co-Chair: Liu, Changliu	Carnegie Mellon University	
13:30-13:45	ThB19.1	
Safety-Certified Data-Driven Model Predictive Control for Linear Systems, pp. 2654-2659.		
Khaledi, Marjan; Tooranjipour, Pouria; Kiumarsi, Bahare		
13:45-14:00	ThB19.2	
Output Feedback Position Tracking Control of Marine Vessels Subject to Periodic Disturbances, pp. 2660-2665.		
Kurtoglu, Deniz; Tatlicioglu, Enver; Zergeroglu, Erkan		
14:00-14:15	ThB19.3	
Command Governor Mechanism for Uncertain Multi-Agent Systems with Actuator Dynamics, pp. 2666-2671.		
Kurttisi, Atahan; Dogan, Kadriye; Sarioglu, N. Eren; Deniz, Meryem		
14:15-14:30	ThB19.4	
Multimodal Safe Control for Human-Robot Interaction, pp. 2672-2678.		
14:30-14:45	ThB19.5	
Exact Computation of LTI Reach Set from Integrator Reach Set with Bounded Input, pp. 2679-2684.		
Haddad, Shadi; Khodary, Pansie; Halder, Abhishek		
14:45-15:00	ThB19.6	
Optimal Capture Strategy Design Based on Reinforcement Learning in the Pursuit-Evasion Game with Unknown Dynamics, pp. 2685-2690.		
Jia, Yupeng; Dong, Yi		
ThB20	Pier 8	
Sensors and Sensing Systems (Regular Session)		
Chair: Chhabra, Robin	Carleton University	
Co-Chair: Bopardikar, Shaunak D.	Michigan State University	
13:30-13:45	ThB20.1	
Real-Time Sensor-Based Feedback Control for Obstacle Avoidance in Unknown Environments, pp. 2691-2696.		
Smaili, Lyes; Berkane, Soulaime		
13:45-14:00	ThB20.2	
Sequential Sensor Fusion for Slip Estimation in Mobile Robots, pp. 2697-2702.		
Zarei-Jalalabadi, Mahboubeh; Chhabra, Robin		
14:00-14:15	ThB20.3	
Average Consensus with Error Correction, pp. 2703-2708.		
Benalcazar, Diego R.; Magnusson, Sindri; Enyioha, Chinwendu		
14:15-14:30	ThB20.4	
Matrix Concentration Inequalities for Sensor Selection, pp. 2709-2714.		
Calle, Christopher I.; Bopardikar, Shaunak D.		
14:30-14:45	ThB20.5	
A Low Rank Approach to Minimize Sensor-To-Actuator Communication in Finite Horizon Output Feedback, pp. 2715-2720.		
Aspeel, Antoine; Nylof, Jakob; Li, Jing		

Shuang (Lisa); Ozay, Necmiye

ThB21	Pier 3
Reduced-Order Modeling and Numerical Algorithms (Regular Session)	
Chair: Goel, Ankit	University of Maryland Baltimore County
Co-Chair: Portella Delgado, Jhon Manuel	University of Maryland Baltimore County
13:30-13:45	ThB21.1
<i>Multi-Timescale System Separation Via Data-Driven Identification within a Singular Perturbation Framework, pp. 2721-2727.</i>	
Park, Seho; Pangborn, Herschel	
13:45-14:00	ThB21.2
<i>Efficient Local Validation of Partially Ordered Models Via Bayesian Directed Sampling, pp. 2728-2733.</i>	
Kellan, Moose; Murray, Richard M.	
14:00-14:15	ThB21.3
<i>Metropolis-Adjusted Langevin Algorithm with SPSA-Approximated Gradients, pp. 2734-2739.</i>	
Sun, Shiqing; Spall, James C.	
14:15-14:30	ThB21.4
<i>An Adaptation of the AAA-Interpolation Algorithm for Model Reduction of MIMO Systems, pp. 2740-2745.</i>	
Jonas, Jared; Bamieh, Bassam	
14:30-14:45	ThB21.5
<i>Computing Invariant Zeros of a Linear System Using State-Space Realization, pp. 2746-2751.</i>	
Portella Delgado, Jhon Manuel; Goel, Ankit	
ThC01	Metro E/C
Agents-Based Systems II (Regular Session)	
Chair: Cenedese, Angelo	University of Padova
Co-Chair: Simaan, Marwan A.	University of Central Florida
15:30-15:45	ThC01.1
<i>An Active-Sensing Approach for Bearing-Based Target Localization, pp.</i>	

2752-2757.	
Pozzan, Beniamino; Michieletto, Giulia; Mesbahi, Mehran; Cenedese, Angelo	
15:45-16:00	ThC01.2
<i>Optimal Evasion from a Sensing-Limited Pursuer, pp. 2758-2765.</i>	
Maity, Dipankar; Von Moll, Alexander; Shishika, Daigo; Dorothy, Michael	
16:00-16:15	ThC01.3
<i>Multi-Agent Trajectory Planning with NUV Priors, pp. 2766-2771.</i>	
van Erp, Bart; Bagaev, Dmitry; Podusenko, Albert; Senoz, Ismail; de Vries, Bert	
16:15-16:30	ThC01.4
<i>Evolution of Opinions under Social Pressure on Random Graphs, pp. 2772-2777.</i>	
Tang, Jennifer; Ajorlou, Amir; Jadbabaie, Ali	
16:30-16:45	ThC01.5
<i>Resilient Consensus State Observer for Nonlinear Systems and against Attacks, pp. 2778-2783.</i>	
Qu, Zhihua; Simaan, Marwan A.	
16:45-17:00	ThC01.6
<i>Decentralised Collaborative Iterative Learning Control for Multi-Agent Systems Point-To-Point Channel Tracking, pp. 2784-2789.</i>	
Chen, Shangcheng; Freeman, Christopher T.	
ThC02	Harbour
Optimization, Consensus, and Games II: Networked Agents (Invited Session)	
Chair: Gil, Stephanie	Harvard University
Co-Chair: Akgun, Orhan Eren	Harvard University
Organizer: Akgun, Orhan Eren	Harvard University
Organizer: Nedich, Angelia	Arizona State University
Organizer: Gil, Stephanie	Harvard University
Organizer: Dayi, Arif Kerem	Harvard University

15:30-15:45	ThC02.1	Dai, Min; Lee, Jaemin; Ames, Aaron D.
<i>Nash Equilibrium Seeking Over Digraphs with Row-Stochastic Matrices and Network-Independent Step-Sizes (I)</i> , pp. 2790-2795.		
Nguyen, Duong; Bianchi, Mattia; Dörfler, Florian; Nguyen, Duong; Nedich, Angelia		
15:45-16:00	ThC02.2	15:45-16:00 ThC03.2
<i>Estimating True Beliefs from Declared Opinions (I)</i> , pp. 2796-2801.		<i>Quadrupedal Locomotion Control on Inclined Surfaces Using Collocation Method</i> , pp. 2838-2843.
Tang, Jennifer; Adler, Aviv; Ajorlou, Amir; Jadbabaie, Ali		Salagame, Adarsh; Gianello, Maria Victoria; Wang, Chenghao; Venkatesh Krishnamurthy, Kaushik; Pitraoda, Shreyansh; Rajput, Rohit Hiraman; Sihite, Eric; Leeser, Miriam; Ramezani, Alireza
16:00-16:15	ThC02.3	16:00-16:15 ThC03.3
<i>Network Preference Dynamics Using Lattice Theory (I)</i> , pp. 2802-2808.		<i>Adaptive Manoeuvring Control for Planar Snake Robots in Uncertain Friction Environments</i> , pp. 2844-2850.
Riess, Hans; Henselman-Petrusek, Gregory; Munger, Michael; Ghrist, Robert; Bell, Zachary; Zavlanos, Michael M.		Chitikena, Hareesh; Gravdahl, Irja; Pettersen, Kristin Y.; Mohammadi, Alireza; Sanfilippo, Filippo; Stavdahl, Øyvind; Ma, Shu-Gen
16:15-16:30	ThC02.4	16:15-16:30 ThC03.4
<i>Heterogeneous Distributed Subgradient (I)</i> , pp. 2809-2815.		<i>Nonlinear Motion Control of a Multirotor Slung Load System: Experimental Results</i> , pp. 2851-2857.
Lin, Yixuan; Gamarra, Marco; Liu, Ji		Jiang, Zifei; Yu, Yanwen; Lynch, Alan Francis
16:30-16:45	ThC02.5	16:30-16:45 ThC03.5
<i>Distributed Optimization-Based State Estimation of Nonlinear Dynamical Systems (I)</i> , pp. 2816-2821.		<i>Comparative Analysis of Multiple Deep Reinforcement Learning Approaches for Collision-Free Path-Planning of a 3-DoF-Robot</i> , pp. 2858-2864.
Wang, Lili; Sundaram, Shreyas; LeGrand, Keith		Weishaupt, Sven; Husmann, Ricus; Aschemann, Harald; Schlenther, Nils; Oehlschlaegel, Thimo; Steinbrecher, Christian
16:45-17:00	ThC02.6	16:45-17:00 ThC03.6
<i>The Role of Confidence for Trust-Based Resilient Consensus</i> , pp. 2822-2829.		<i>RL-PGO: Reinforcement Learning-Based Planar Pose-Graph Optimization</i> , pp. 2865-2870.
Ballotta, Luca; Yemini, Michal		Kourtzanidis, Nikolaos; Saeedi, Sajad
ThC03		Frontenac
Robotics I (Regular Session)		
Chair:	University of Rostock	
Aschemann, Harald		
Co-Chair: Sanfilippo, Filippo	University of Southeast Norway (USN), Faculty of Technology, Natural Sciences and Maritime Sciences	
15:30-15:45	ThC03.1	ThC04 Metro W
<i>Multi-Domain Walking with Reduced-Order Models of Locomotion</i> , pp. 2830-2837.		Nonlinear Systems Identification (Regular Session)
		Chair: Paruchuri, Sai Tej
		Co-Chair: Allen, Brendon C.
15:30-15:45	ThC04.1	15:30-15:45 ThC04.1
		<i>Invariance and Approximation of Koopman</i>

<i>Operators in Native Spaces</i> , pp. 2871-2878.		
Powell, Nathan; Paruchuri, Sai Tej; Niu, Shengyuan; Bouland, Ali; Kurdila, Andrew J.		
15:45-16:00	ThC04.2	
<i>Sparse Identification of Nonlinear Dynamics with Side Information (SINDy-SI)</i> , pp. 2879-2884.		
Machado, Gabriel Freitas; Jones, Morgan		
16:00-16:15	ThC04.3	
<i>Augmentation of a Lyapunov-Based Deep Neural Network Controller with Concurrent Learning for Control-Affine Nonlinear Systems</i> , pp. 2885-2890.		
Basyal, Sujata; Ting, Jonathan; Mishra, Kislaya; Allen, Brendon C.		
16:15-16:30	ThC04.4	
<i>Output-Only Identification of Lur'e Systems with Hysteretic Feedback Nonlinearities</i> , pp. 2891-2896.		
Richards, Riley J.; Yang, Yulong; Paredes Salazar, Juan Augusto; Bernstein, Dennis S.		
16:30-16:45	ThC04.5	
<i>Structural Risk Minimization for Learning Nonlinear Dynamics</i> , pp. 2897-2904.		
Stamouli, Charis; Chatzipantazis, Evangelos; Pappas, George J.		
16:45-17:00	ThC04.6	
<i>Iterative ESO-Based Data-Driven Active Disturbance Rejection Learning Control of Czochralski Silicon Single Crystal Growth Process</i> , pp. 2905-2910.		
Ren, Junchao; Liu, Ding; Wan, Yin; Shi, Shuyan; Liu, Yuyu		
ThC05	Pier 2	
Optimization IV (Regular Session)		
Chair: Yilmaz, Cemal Tugrul	UC San Diego	
Co-Chair: Yousefian, Farzad	Rutgers University	
15:30-15:45	ThC05.1	
<i>System Design Approach for Control of Differentially Private Dynamical Systems</i> , pp. 2911-2917.		
Goyal, Raman; Chowdhury, Dhrubajit; Rane, Shantanu		
15:45-16:00		ThC05.2
<i>Controlling the Exploitation/exploration Trade-Off in Global Optimization: A Set Membership Approach</i> , pp. 2918-2923.		
Alborghetti, Mattia; Montecchio, Giulio; Sabug, Lorenzo Jr.; Fagiano, Lorenzo; Ruiz, Fredy		
16:00-16:15		ThC05.3
<i>Online Regulation of Dynamical Systems to Solutions of Constrained Optimization Problems</i> , pp. 2924-2929.		
Chen, Yiting; Cothren, Lilaokeawawa; Cortes, Jorge; Dall'Anese, Emiliano		
16:15-16:30		ThC05.4
<i>Data-Driven Bayesian Nonparametric Wasserstein Distributionally Robust Optimization</i> , pp. 2930-2935.		
Ma, Xutao; Ning, Chao		
16:30-16:45		ThC05.5
<i>Perfect Tracking of Time-Varying Optimum by Extremum Seeking</i> , pp. 2936-2943.		
Yilmaz, Cemal Tugrul; Diagne, Mamadou; Krstic, Miroslav		
ThC06		Queens Quay 1
Power Systems and Electronics (Regular Session)		
Chair: Sira-Ramirez, Hebertt	CINVESTAV	
Co-Chair: Norman, Kevin	Texas Tech University	
15:30-15:45		ThC06.1
<i>Control of Parallel Solar-Battery Systems Enabled by a Theta-Converter Topology</i> , pp. 2944-2949.		
Norman, Kevin; Ren, Beibei; Zhong, Qing-Chang		
15:45-16:00		ThC06.2
<i>ESO-Based Resonant Internal Model Molding Scheme with Application to Current Control of LCL-Type Grid-Tied Inverters</i> , pp. 2950-2957.		
Bao, Zhengyang; Ye, Yongqiang; Xiong, Yongkang; Zhao, Qiangsong		
16:00-16:15		ThC06.3
<i>Control Designs for Critical-Contingency</i>		

<i>Responsible Grid-Following Inverters and Seamless Transitions to and from Grid-Forming Modes</i> , pp. 2958-2963.	Yue-Ming Chen; Lee, Hyeonjik; Link, Brian
Park, Jaesang; Askarian, Alireza; Salapaka, Srinivasa M.	
16:15-16:30 ThC06.4	
<i>The Role of Solar Market Mechanisms in Distributed Panel Investment</i> , pp. 2964-2970.	Shiledar, Ankur; Gupta, Shobhit; Spano, Matteo; Villani, Manfredi; Canova, Marcello; Rizzoni, Giorgio
Davoudi, Mehdi; Qin, Junjie; Lin, Xiaojun	
16:30-16:45 ThC06.5	
<i>Sliding Mode Control of Switched Hamiltonian Systems</i> , pp. 2971-2976.	Joint Optimization of Charging Infrastructure Placement and Operational Schedules for a Fleet of Battery Electric Trucks (I), pp. 2998-2994.
Sira-Ramirez, Hebertt; Gómez-León, Brian Camilo; Aguilar-Orduña, Mario Andrés	Bertucci, Juan Pablo; Hofman, Theo; Salazar, Mauro
16:45-17:00 ThC06.6	
<i>On the ADRC Control of Dynamically Feedback Linearizable Systems: A Cascade Buck-Buck DC-DC Converter Example</i> , pp. 2977-2982.	16:00-16:15 ThC07.3
Gómez-León, Brian Camilo; Aguilar-Orduña, Mario Andrés; Sira-Ramirez, Hebertt; Garrido-Moctezuma, Ruben	<i>Joint Optimization of Charging Infrastructure Placement and Operational Schedules for a Fleet of Battery Electric Trucks (I)</i> , pp. 2995-3000.
	Bertucci, Juan Pablo; Hofman, Theo; Salazar, Mauro
16:15-16:30 ThC07.4	
<i>A Driver-Centric Long-Trip Schedule Optimizer for Battery Electric Vehicles (I)</i> , pp. 3001-3006.	Su, Zifei; Chen, Ping'en
16:30-16:45 ThC07.5	
<i>Location-Routing Problem for Electric Delivery Vehicles with Mobile Charging Trailers (I)</i> , pp. 3007-3012.	Innis, Cody; Chen, Ping'en
ThC07 Queens Quay 2	ThC08 Bay
Control Solutions for Enhancing the Efficiency and Adoption of Electric Vehicles (Invited Session)	Process Control (Regular Session)
Chair: Nazari, Shima	UC Davis
Co-Chair: Kwak, Kyoung Hyun	University of Michigan - Dearborn
Organizer: Rajakumar Deshpande, Shreshta	Southwest Research Institute
Organizer: Kim, Youngki	University of Michigan - Dearborn
Organizer: Gupta, Shobhit	General Motors
Organizer: Nazari, Shima	UC Davis
15:30-15:45 ThC07.1	
<i>Parametric Modeling for Personalized Braking of Electric Vehicles in Full-Stop Scenarios (I)</i> , pp. 2983-2988.	15:30-15:45 ThC08.1
Kwak, Kyoung Hyun; Kim, Youngki; Holmer, Justin; Kim, Heeseong; Chen,	<i>Energy Scheduling and Control of Grid-Interactive Communities with Physically Consistent Deep Learning</i> , pp. 3013-3018.
	Xiao, Tianqi; You, Fengqi
15:45-16:00 ThC08.2	
<i>Linear Model Predictive Control for Two-Dimensional Transport-Reaction Processes</i> , pp. 3019-3024.	
	Akbarnezhad, Mahdis; Ozorio Cassol, Guilherme; Koch, Charles Robert; Dubljevic, Stevan
16:00-16:15 ThC08.3	

Data-Driven Economic Predictive Control of Wastewater Treatment Process with Input-Output Koopman Operator, pp. 3025-3030.

Han, Minghao; Yao, Jingshi; Adrian Wing-Keung, Law; Yin, Xunyan

16:15-16:30 ThC08.4

Simulation-Based Approach for Optimal Control of a Stefan Problem, pp. 3031-3036.

Srisuma, Prakrit; Barbastathis, George; Braatz, Richard D.

16:30-16:45 ThC08.5

Experimental Validation of a Fractional Order Autotuner for a Two Rotor Aerodynamical System, pp. 3037-3042.

Muresan, Cristina-Ioana; Mihai, Marcián; Hegedus, Erwin; Kozma, Elisabeta; Birs, Isabela

16:45-17:00 ThC08.6

Machine Learning-Based Estimation and Accommodation of Multiple Sensor Faults in Sampled-Data Process Systems, pp. 3043-3048.

Gajjar, Aatam; El-Farra, Nael H.

ThC09 Dockside 1
Multi-Agent Spacecraft Control (Invited Session)

Chair: Phillips, Sean Air Force Research Laboratory

Co-Chair: Soderlund, Alexander The Ohio State University

Organizer: Petersen, Chris University of Florida

Organizer: Soderlund, Alexander The Ohio State University

Organizer: Phillips, Sean Air Force Research Laboratory

15:30-15:45 ThC09.1

Rigid Body Attitude Cluster Consensus Control on Weighted Cooperative-Competitive Networks (I), pp. 3049-3054.

Butcher, Eric; Maadani, Mohammad

15:45-16:00 ThC09.2

An Autonomous Satellite Collision Avoidance

and Adversary Evasion Path Planning Algorithm for the Space Environment (I), pp. 3055-3061.

Mehlman, Cameron; Falco, Gregory

16:00-16:15 ThC09.3

Distributed Nonlinear Filtering Using Triangular Transport Maps (I), pp. 3062-3067.

Grange, Daniel; Baptista, Ricardo; Taghvaei, Amirhossein; Tannenbaum, Allen; Phillips, Sean

16:15-16:30 ThC09.4

Solar-Drag Spacecraft Formation Control with Particle Swarm Optimization-Based Guardian Maps, pp. 3068-3073.

Chihabi, Yazan; Ulrich, Steve

16:30-16:45 ThC09.5

Time Shift Governor for Constrained Control of Spacecraft Orbit and Attitude Relative Motion in Bicircular Restricted Four-Body Problem, pp. 3074-3080.

Kim, Taehyeun; Kolmanovsky, Ilya V.; Girard, Anouck

16:45-17:00 ThC09.6

Mass Flow Control Design for a Reusable Liquid Propelled Rocket Engine Using Contraction Theory, pp. 3081-3087.

Gibart, Jules; Piet-Lahanier, Helene; Farago, Francois

ThC10 Dockside 2
Adaptive Control III (Regular Session)

Chair: L'Afflitto, Andrea Virginia Tech

Co-Chair: Garcia Carrillo, Luis New Mexico State University

15:30-15:45 ThC10.1

Uncalibrated Adaptive Robot Visual Servoing on Image Space with Parameter Convergence, pp. 3088-3093.

Li, Zhiwen; Lai, Beixian; Li, Weibing; Zhang, Jun; Pan, Yongping

15:45-16:00 ThC10.2

A Dual-Loop Sliding-Mode Scheme for Uncertain Nonlinear Systems, pp. 3094-3099.

Zhong, Hongli; Zhong, Zhixiong; Huan, Zhijie; Lam, Hak-Keung

16:00-16:15	ThC10.3	<i>Data-Driven Control</i> , pp. 3130-3137.
<i>Real-Time Implementation of a Spiking Neural Network-Based Control: An Application for the Ball and Plate System</i> , pp. 3100-3105.		Thorpe, Adam; Neary, Cyrus; Djemou, Franck; Oishi, Meeko; Topcu, Ufuk
Chavez Arana, Diego; Garcia Alcantara, Omar Alejandro; Rubio Scola, Ignacio; Espinoza Quesada, Eduardo Steed; Garcia Carrillo, Luis Rodolfo; Sornborger, Andrew T.		
16:15-16:30	ThC10.4	
<i>A Note on the Estimation of Von Neumann and Relative Entropy Via Quantum State Observers</i> , pp. 3106-3111.		
Balas, Mark; Griffith, Tristan; Gehlot, Vinod		Yang, Yanhua; Mei, Jie; Ma, Guangfu
16:30-16:45	ThC10.5	
<i>MRAC with Adaptive Uncertainty Bounds Via Operator-Valued Reproducing Kernels</i> , pp. 3112-3117.		
Wang, Haoran; Scurlock, Brian; Powell, Nathan; L'Afflitto, Andrea; Kurdila, Andrew J.		Haraldsen, Aurora; Wiig, Martin Syre; Ames, Aaron D.; Pettersen, Kristin Y.
16:45-17:00	ThC10.6	
<i>Adaptive Real-Time Numerical Differentiation with Variable-Rate Forgetting and Exponential Resetting</i> , pp. 3118-3123.		
Verma, Shashank; Lai, Brian; Bernstein, Dennis S.		Wang, Chongzhi; Shao, Haibin; Li, Dewei
ThC11	Dockside 3	ThC12 Dockside 9
Autonomous Systems II (Regular Session)		Predictive Control for Linear Systems II
Chair: Thorpe, Adam	University of Texas at Austin	(Regular Session)
Co-Chair: Oishi, Meeko	University of New Mexico	Chair: Santos, Tito Federal University of Luís Maia Bahia
15:30-15:45	ThC11.1	Co-Chair: Shen, Chao Carleton University
<i>Spiking Neural Network-Based Control of an Unmanned Aerial System Implemented on a Customized Neural Flight Simulation Environment</i> , pp. 3124-3129.		
Garcia Alcantara, Omar Alejandro; Chavez Arana, Diego; Espinoza Quesada, Eduardo Steed; Rubio Scola, Ignacio; Garcia Carrillo, Luis Rodolfo; Sornborger, Andrew T.		15:30-15:45 ThC12.1
15:45-16:00	ThC11.2	<i>Contingency Model Predictive Control for Bipedal Locomotion on Moving Surfaces with a Linear Inverted Pendulum Model</i> , pp. 3166-3171.
<i>Physics-Informed Kernel Embeddings: Integrating Prior System Knowledge with</i>		Chen, Kuo; Huang, Xinyan; Chen, Xunjie; Yi, Jingang
		15:45-16:00 ThC12.2
		<i>MPC Based Linear Equivalence with Control Barrier Functions for VTOL-UAVs</i> , pp. 3172-3177.
		Ali, Ali Mohamed; Hashim, Hashim A; Shen, Chao
		16:00-16:15 ThC12.3
		<i>Data-Driven Predictive Control Using Closed-Loop Data: An Instrumental Variable Approach</i> , pp. 3178-3183.

Wang, Yibo; Qiu, Yiwen; Sader, Malika; Huang, Dexian; Shang, Chao	Adam; Jain, Neera
16:15-16:30 ThC12.4 <i>Data-Driven Min-Max MPC for Linear Systems</i> , pp. 3184-3189. Xie, Yifan; Berberich, Julian; Allgöwer, Frank	16:30-16:45 ThC13.5 <i>Balancing for Nonlinear Differential-Algebraic Control Systems</i> , pp. 3231-3236. Sarkar, Arijit; Kawano, Yu; Scherpen, Jacquelin M.A.
16:30-16:45 ThC12.5 <i>Analytical Reference Compensation for Tracking Dynamic Target Signals with Linear Robust MPC Strategies</i> , pp. 3190-3195. Santos, Tito Luís Maia; Pereira, Bruno	16:45-17:00 ThC13.6 <i>Optimal Steady-State Regulation Using an Internal Model and State Feedback</i> , pp. 3237-3244. Hafez, Mohamed Ashraf; Broucke, Mireille E.
16:45-17:00 ThC12.6 <i>An Encrypted Model Predictive Control Strategy for Resilience Operations</i> , pp. 3196-3201. Franze, Giuseppe; Puig, Vicenc; Tedesco, Francesco	ThC14 Wellington Risk-Aware Design and Control (Invited Session)
ThC13 Richmond Advanced Methods in Control (Regular Session) Chair: Kawano, Yu Hiroshima University Co-Chair: Univ. of Toronto Broucke, Mireille E.	Chair: Chapman, Margaret P University of Toronto Co-Chair: Mottee, Nader Lehigh University Organizer: Liu, Guangyi Lehigh University Organizer: Chapman, Margaret P University of Toronto Organizer: Mohajerin Esfahani, Peyman TU Delft Organizer: Mottee, Nader Lehigh University
15:30-15:45 ThC13.1 <i>Distributed Secret Securing in Discrete-Event Systems</i> , pp. 3202-3207. Matsui, Shoma; Cai, Kai; Rudie, Karen	15:30-15:45 ThC14.1 <i>Risk-Constrained Reinforcement Learning for Inverter-Dominated Power System Controls</i> (I), pp. 3245-3250. Kwon, Kyung-bin; Mukherjee, Sayak; Vu, Thanh Long; Zhu, Hao
15:45-16:00 ThC13.2 <i>Polynomial Lyapunov Functions and Invariant Sets from a New Hierarchy of Quadratic Lyapunov Functions for LTV Systems</i> , pp. 3208-3214. Abdelraouf, Hassan; Feron, Eric; Shamma, Jeff S.	15:45-16:00 ThC14.2 <i>Regret and Conservatism of Distributionally Robust Constrained Stochastic Model Predictive Control</i> (I), pp. 3251-3257. Pfefferkorn, Maik; Renganathan, Venkatraman; Findeisen, Rolf
16:00-16:15 ThC13.3 <i>Assuring Safety of Vision-Based Swarm Formation Control</i> , pp. 3215-3222. Hsieh, Chiao; Koh, Yubin; Li, Yangge; Mitra, Sayan	16:00-16:15 ThC14.3 <i>Constrained Stochastic Games Including Risk-Sensitive Utility</i> (I), pp. 3258-3263. Singh, Vartika; Veeraruna, Kavitha
16:15-16:30 ThC13.4 <i>Using Reward Shaping to Train Cognitive-Based Control Policies for Intelligent Tutoring Systems</i> , pp. 3223-3230. Yuh, Madeleine; Rabb, Ethan; Thorpe,	16:15-16:30 ThC14.4

Data-Driven Distributionally Robust Mitigation of Risk of Cascading Collisions (I), pp. 3264-3269.

Liu, Guangyi; Amini, Arash; Pandey, Vivek; Motte, Nader

16:30-16:45 ThC14.5

Learning of Nash Equilibria in Risk-Averse Games (I), pp. 3270-3275.

Wang, Zifan; Shen, Yi; Zavlanos, Michael M.; Johansson, Karl H.

16:45-17:00 ThC14.6

Risk-Aware Fixed-Time Stabilization of Stochastic Systems under Measurement Uncertainty (I), pp. 3276-3283.

Black, Mitchell; Fainekos, Georgios; Hoxha, Bardh; Panagou, Dimitra

ThC15 Yonge

Estimation and Control of Distributed Parameter Systems IV (Invited Session)

Chair: Hu, Weiwei University of Georgia

Co-Chair: Worcester Polytechnic Institute

Demetriou, Michael A.

Organizer: Worcester Polytechnic Institute

Demetriou, Michael A.

Organizer: Hu, Weiwei University of Georgia

15:30-15:45 ThC15.1

Semismooth Newton Method for Boundary Bilinear Control (I), pp. 3284-3289.

Casas Rentería, Eduardo; Chrysafinos, Konstantinos; Mateos, Mariano

15:45-16:00 ThC15.2

Finite Dimensional Stabilizing Controllers for a Class of Distributed Parameter Systems (I), pp. 3290-3295.

Yegin, M. Oguz; Ozbay, Hitay

16:00-16:15 ThC15.3

From Sontag's to Cardano-Lyapunov Formula for Systems Not Affine in the Control: Convection-Enabled PDE Stabilization (I), pp. 3296-3301.

Belhadjoudea, Mohamed Camil; Krstic, Miroslav; Maghenem, Mohamed Adlene; Witrant, Emmanuel

16:15-16:30 ThC15.4

Artificial Compression POD Reduced Order Model for Control of MHD Flows (I), pp. 3302-3307.

Ravindran, S.S.

16:30-16:45 ThC15.5

Sum of Squares Approximations to Energy Functions (I), pp. 3308-3315.

Adjerid, Hamza; Borggaard, Jeff

ThC16 Dockside 4

Dynamics and Control of Wave Energy Converters (Invited Session)

Chair: Zuo, Lei University of Michigan

Co-Chair: Maynooth University, Ringwood, John V. Ireland

Organizer: Cornell University Hasankhani, Arezoo

Organizer: Tang, Florida Atlantic University Yufei

Organizer: Li, Univ. of Minnesota Perry Y.

Organizer: Zuo, University of Michigan Lei

Organizer: Worcester Polytechnic Institute Demetriou, Michael A.

15:30-15:45 ThC16.1

On the Controllability of an Active Mechanical Motion Rectifier for Wave Energy Converters (I), pp. 3316-3321.

Fornaro, Pedro; Ringwood, John V.

15:45-16:00 ThC16.2

Time-Varying Hydrodynamic Model of a Variable-Geometry Oscillating Surge Wave Energy Converter (I), pp. 3322-3327.

Demonte Gonzalez, Tania; Tom, Nathan; Parker, Gordon G.

16:00-16:15 ThC16.3

Impact of Biofouling on Point Absorber Wave Energy Converter Performance and Control (I), pp. 3328-3333.

Skrovanek, David; Brekke, Ted

16:15-16:30 ThC16.4

Towards the Optimal Control of an Active Mechanical Motion Rectifier Power Take-Off Using Dynamic Programming (I), pp. 3334-3339.

ThC17		Dockside 5
Modeling and Identification I (Regular Session)		
Chair: Shakib, Fahim	Imperial College London	
Co-Chair: Rhinehart, R. Russell	Oklahoma State Univ. - Retired	
15:30-15:45	ThC17.1	
<i>Bootstrapped Gaussian Mixture Model-Based Data-Driven Forward Stochastic Reachability Analysis</i> , pp. 3340-3345.		
Choi, Joonwon; Park, Hyunsang; Hwang, Inseok		
15:45-16:00	ThC17.2	
<i>Linguistic Modeling: Validation, Improvement, and Uncertainty</i> , pp. 3346-3351.		
Rhinehart, R. Russell		
16:00-16:15	ThC17.3	
<i>A Comparison between Markov Chain and Koopman Operator Based Data-Driven Modeling of Dynamical Systems</i> , pp. 3352-3358.		
Tafazzol, Saeid; Li, Nan; Kolmanovsky, Ilya V.; Filev, Dimitar P.		
16:15-16:30	ThC17.4	
<i>A Parameterised Family of neuralODEs Optimally Fitting Steady-State Data</i> , pp. 3359-3364.		
Shakib, Fahim; Scariotti, Giordano; Astolfi, Alessandro		
16:30-16:45	ThC17.5	
<i>Moving-Window Integrated Physics-Data-Based Modeling of Lateral Dynamics</i> , pp. 3365-3370.		
Wei, Wenpeng; Yin, Guodong; Wang, Jinxiang; He, Tianyi		

ThC18		Dockside 6
Stability of Nonlinear Systems III (Regular Session)		
Chair: Strong, Amy	Duke University	
Co-Chair: Andersson, Sean	Boston University	

B.

15:30-15:45	ThC18.1
<i>Confidence-Aware Safe and Stable Control of Control-Affine Systems</i> , pp. 3371-3376.	
Wei, Shiqing; Krishnamurthy, Prashanth; Khorrami, Farshad	
15:45-16:00	
<i>Improved Small Signal L2-Gain Analysis for Nonlinear Systems</i> , pp. 3377-3382.	ThC18.2
Strong, Amy; Lavaei, Reza; Bridgeman, Leila J.	
16:00-16:15	ThC18.3
<i>Approximating Regions of Attraction Via Flow-Control Barrier Functions and Constrained Polytope Expansion</i> , pp. 3383-3390.	
Ubellacker, Wyatt; Csomay-Shanklin, Noel; Ames, Aaron D.	
16:15-16:30	ThC18.4
<i>On Decomposition and Convergence of Distributed Optimization Algorithms</i> , pp. 3391-3396.	
Wu, Wuwei; Zhang, Shiqi; Li, Zhongkui; Chen, Jie; Georgiou, Tryphon T.	
16:30-16:45	ThC18.5
<i>Synthesizing Controller for Safe Navigation Using Control Density Function</i> , pp. 3397-3402.	
Moyalan, Joseph; Krishnamoorthy Shankara Narayanan, Sriram Sundar; Zheng, Andrew; Vaidya, Umesh	
16:45-17:00	ThC18.6
<i>Lyapunov Neural Network with Region of Attraction Search</i> , pp. 3403-3410.	
Wang, Zili; Andersson, Sean B.; Tron, Roberto	

ThC19		Pier 7
Uncertain Systems II (Regular Session)		
Chair: Komae, Arash	Southern Illinois University	
Co-Chair: Choi, Hyungjin	Sandia National Laboratories	
15:30-15:45	ThC19.1	
<i>Security Constrained Uncertainty Interval Estimation Using Sensitivity Trajectories in Dynamical Systems</i> , pp. 3411-3416.		

Choi, Hyungjin; Elliott, Ryan; Venkat, Dhruba; Trudnowski, Daniel J.		<i>State Omniscience of Linear Time-Invariant Distributed Estimators</i> , pp. 3454-3459.
15:45-16:00	ThC19.2	Hays, Christopher; Phillips, Sean; Henderson, Troy
<i>Data-Driven Distributionally Robust Safety Verification Using Barrier Certificates and Conditional Mean Embeddings</i> , pp. 3417-3423.		
Schön, Oliver; Zhong, Zhengang; Soudjani, Sadegh		
16:00-16:15	ThC19.3	
<i>Minimal Gelbrich Distance to Uncorrelation</i> , pp. 3424-3429.		
Borelle, Matthieu; Alamo, Teodoro; Stoica, Cristina; Bertrand, Sylvain; Camacho, Eduardo F.		
16:15-16:30	ThC19.4	
<i>Approximate Optimal Indirect Control of an Unknown Agent within a Dynamic Environment Using a Lyapunov-Based Deep Neural Network</i> , pp. 3430-3435.		
Philor, Jhyy; Makumi, Wanjiku A.; Bell, Zachary I.; Dixon, Warren E.		
16:30-16:45	ThC19.5	
<i>Formal Synthesis of Safety Controllers for Unknown Systems Using Gaussian Process Transfer Learning</i> , pp. 3436-3441.		
Awan, Asad Ullah; Zamani, Majid		
16:45-17:00	ThC19.6	
<i>Midrange Estimation for Sensor Fusion</i> , pp. 3442-3447.		
Komaee, Arash		
ThC20	Pier 8	
Observers for Linear Systems (Regular Session)		
Chair: Ozer, Ahmet Ozkan	Western Kentucky University	
Co-Chair: Hamel, Tarek	I3S-CNRS-UCA	
15:30-15:45	ThC20.1	
<i>Boundary Output Feedback Stabilization for a Novel Magnetizable Piezoelectric Beam Model</i> , pp. 3448-3453.		
Ozer, Ahmet Ozkan; Rasaq, Uthman; Khalilullah, Sk Md Ibrahim		
15:45-16:00	ThC20.2	
<i>A Necessary and Sufficient Condition for</i>		
		<i>Cyber-Attack Detection and Isolation in Event-Based Cyber-Physical Systems</i> , pp. 3460-3466.
		Eslami, Ali; Khorasani, Khashayar
16:00-16:15	ThC20.3	
16:15-16:30	ThC20.4	
<i>State Estimation for Linear Systems with Quadratic Outputs</i> , pp. 3467-3472.		
Berkane, Soulaime; Theodosis, Dionysios; Dimarogonas, Dimos V.; Hamel, Tarek		
16:30-16:45	ThC20.5	
<i>Parameter Estimation-Based States Reconstruction of Uncertain Linear Systems with Overparameterization and Unknown Additive Perturbations</i> , pp. 3473-3479.		
Glushchenko, Anton; Lastochkin, Konstantin		
ThC21	Pier 3	
Fault Detection and Monitoring of Energy Storage Systems for Increased Safety and Cycle (Invited Session)		
Chair: Soudbaksh, Damoon	Temple University	
Co-Chair: Lin, Xinfan	University of California, Davis	
Organizer: Zhang, Dong	University of Oklahoma	
Organizer: Soudbaksh, Damoon	Temple University	
Organizer: Jain, Neera	Purdue University	
Organizer: Dey, Satadru	The Pennsylvania State University	
Organizer: Tang, Shuxia	Texas Tech University	
Organizer: Roy, Tanusree	Texas Tech University	
Organizer: Moura, Scott	University of California, Berkeley	
Organizer: Lin, Xinfan	University of California, Davis	

Organizer: De Castro, Ricardo	University of California, Merced
Organizer: Song, Ziyou	University of Michigan, Ann Arbor
Organizer: Fogelquist, Jackson	University of California, Davis

15:30-15:45 ThC21.1

Real-Time Internal Short Circuit Detection in Li-Ion Battery Modules During Field Use (I), pp. 3480-3485.

Ahmadvad, Omidreza; Tewari, Deepa; Jeevarajan, Judith; Soudabkhsh, Damoon

15:45-16:00 ThC21.2

Post-Damage Short Circuit Detection in Lithium-Ion Batteries (I), pp. 3486-3491.

Bhaskar, Kiran; Moon, Jihoon; Rahn, Christopher D.

16:00-16:15 ThC21.3

Differential Voltage Analysis and Patterns in Parallel-Connected Pairs of Imbalanced Cells (I), pp. 3492-3497.

Wong, Clement; Weng, Andrew; Pannala, Sravan; Choi, Jesoon; Siegel, Jason B.; Stefanopoulou, Anna G.

16:15-16:30 ThC21.4

Emergency Battery Discharge under Safety Constraints Using Optimization-Based Controllers (I), pp. 3498-3503.

Ebrahimi, Iman; De Castro, Ricardo; Tran, Vivian; Stefanopoulou, Anna G.; Feng, Shuang

Technical Program for Friday July 12, 2024

FrP1	Metro E/C	10:27-10:30	FrA01.10
Automatic Control in the Era of Artificial Intelligence (Plenary Session)		<i>Incentivized Exploration of Non-Stationary Stochastic Bandits</i> , pp. 3563-3569.	
Chair: Leang, Kam K. Co-Chair: Grover, Martha	University of Utah Georgia Institute of Technology	Chakraborty, Sourav; Chen, Lijun	
08:30-09:30	FrP1.1	10:30-10:33	FrA01.11
<i>Automatic Control in the Era of Artificial Intelligence</i> , pp. 3504-3504. Borrelli, Francesco		<i>Does Online Gradient Descent (and Variants) Still Work with Biased Gradient and Variance?</i> , pp. 3570-3575.	
		Al-Tawaha,, Ahmad; Jin, Ming	
10:33-10:36		10:36-10:39	FrA01.12
		<i>Physics-Informed RL for Maximal Safety Probability Estimation</i> , pp. 3576-3583.	
		Hoshino, Hikaru; Nakahira, Yorie	
FrA01	Metro E/C	10:36-10:39	FrA01.13
RI: Learning and Optimization (RI Session)		<i>Learning-To-Control Relaxation Systems with the Step Response</i> , pp. 3584-3589.	
Chair: Chhabra, Robin Co-Chair: Yi, Jingang	Carleton University Rutgers University	Drummond, Ross; Taghavian, Hamed; Baldvieso Monasterios, Pablo Rodolfo	
10:00-10:03	FrA01.1		
<i>Utilizing Load Shifting for Optimal Compressor Sequencing in Industrial Refrigeration</i> , pp. 3505-3510. Konda, Rohit; Chandan, Vikas; Crossno, Jesse; Pollard, Blake; Walsh, Daniel; Bohonek, Rick; Marden, Jason R.			
10:03-10:06	FrA01.2		
<i>Exponential Stability of Primal-Dual Gradient Method for Distributed Convex Strongly Concave Minimax Problem</i> , pp. 3511-3516. Hu, Binxin; Liang, Shu			
10:06-10:09	FrA01.3		
<i>Communication-Constrained STL Task Decomposition through Convex Optimization</i> , pp. 3517-3523. Marchesini, Gregorio; Liu, Siyuan; Lindemann, Lars; Dimarogonas, Dimos V.			
10:09-10:12	FrA01.4		
<i>Learning-Based Hierarchical Model Predictive Control for Drift Vehicles</i> , pp. 3524-3530. Zhou, Bei; Hu, Cheng; Shi, Yao; Hu, Xiaorong; Xie, Lei; Su, Hongye			
10:12-10:15	FrA01.5		
<i>Real-Time Safety Index Adaptation for Parameter-Varying Systems Via Determinant Gradient Ascend</i> , pp. 3531-3536. Chen, Rui; Zhao, Weiyue; Liu, Ruixuan; Zhang, Weiyang; Liu, Changliu			
10:15-10:18	FrA01.6		
<i>Sample Complexity of Chance Constrained Optimization in Dynamic Environment</i> , pp. 3537-3544. Shukla, Apurv; Zhang, Qian; Xie, Le			
10:18-10:21	FrA01.7		
<i>Analysis of Backtracking A* for Resource Constrained Shortest Path Problems</i> , pp. 3545-3550. Ford, Bryce; Kumar, Mrinal			
10:21-10:24	FrA01.8		
<i>Guaranteeing Service in Connected Microgrids: Storage Planning and Optimal Power Sharing Policy</i> , pp. 3551-3556. Dey, Arnab; Khatana, Vivek; Mani, Ankur; Salapaka, Murti V.			
10:24-10:27	FrA01.9		
<i>Learning in Stochastic Stackelberg Games</i> , pp. 3557-3562. Das, Pranoy; Nortmann, Benita Alessandra Lucia; Ratliff, Lillian J.; Gupta, Vijay; Mylvaganam, Thulasi			

10:39-10:42	FrA01.14	
<i>An Iterative Method for Computing Controlled Reach-Avoid Sets</i> , pp. 3590-3597.		
Ren, Dejin; Wu, Taoran; Xue, Bai		
10:42-10:45	FrA01.15	
<i>ChatMPC: Natural Language Based MPC Personalization</i> , pp. 3598-3603.		
Miyaoka, Yuya; Inoue, Masaki; Nii, Tomotaka		
10:45-10:48	FrA01.16	
<i>Compression Repair for Feedforward Neural Networks Based on Model Equivalence Evaluation</i> , pp. 3604-3609.		
Mo, Zihao; Yang, Yejiang; Lu, Shuaizheng; Xiang, Weiming		
10:48-10:51	FrA01.17	
<i>Verification-Aided Learning of Neural Network Barrier Functions with Termination Guarantees</i> , pp. 3610-3617.		
Chen, Shaoru; Ogunmolu, Olalekan; Fazlyab, Mahyar		
10:51-10:54	FrA01.18	
<i>Obstacle-Free Trajectory Planning of an Uncertain Space Manipulator: Learning from a Fixed-Based Manipulator</i> , pp. 3618-3624.		
Sze, Timothy; Chhabra, Robin		
10:54-10:57	FrA01.19	
<i>Learning and Optimization for Price-Based Demand Response of Electric Vehicle Charging</i> , pp. 3625-3630.		
Gu, Chengyang; Pan, Yuxin; Liu, Ruohong; Chen, Yize		
10:57-11:00	FrA01.20	
<i>Optimal Tracking of Uncertain Linear Discrete-Time Systems Using Trajectory-Dependent Lifelong Q-Learning</i> , pp. 3631-3636.		
Geiger, Maxwell; Narayanan, Vignesh; Jagannathan, Sarangapani		
FrA02		Harbour
RI: Advances in Optimal Control (RI Session)		
Chair: Andersson, Sean B.	Boston University	
Co-Chair: Yao, Bin	Purdue University	
10:00-10:03		FrA02.1
<i>Optimal Assignment for Multiplayer Target Defense Differential Games Via Analytical Geometric Approach</i> , pp. 3637-3642.		
Long, Yanchen; Han, Liang; Dong, Fei; Hu, Qinglei; Li, Qingdong		
10:03-10:06		FrA02.2
<i>Stack Degradation Protection of FCEVs Via Predictive Energy Management Strategy with Segmented Roads</i> , pp. 3643-3649.		
Park, GeunYoung; Choi, Kyunghwan; Kum, Dongsuk		
10:06-10:09		FrA02.3
<i>A Fisher Information Based Receding Horizon Control Method for Signal Strength Model Estimation</i> , pp. 3650-3655.		
Zhu, Yancheng; Andersson, Sean B.		
10:09-10:12		FrA02.4
<i>Synchronization Error Elimination for Heterogeneous Discrete-Time Multi-Agent Systems: A Reinforcement Learning Design Approach</i> , pp. 3656-3661.		
Wang, Xinyang; Guay, Martin; Wang, Shimin; Zhang, Hongwei		
10:12-10:15		FrA02.5
<i>Energy Optimal Control of a Harmonic Oscillator with a State Inequality Constraint</i> , pp. 3662-3667.		
Zhou, Mi; Verriest, Erik I.; Abdallah, Chaouki T.		
10:15-10:18		FrA02.6
<i>Stability Analysis of Hypersampled Model Predictive Control</i> , pp. 3668-3673.		
Gautam, Yaashia; Nicotra, Marco M		
10:18-10:21		FrA02.7
<i>Searching for Sparse Controllers with a Budget: A Bottom-Up Approach</i> , pp. 3674-3679.		
Baddam, Vasanth Reddy; Gumussoy, Suat; Eldardiry, Hoda; Boker, Almuatazbellah		
10:21-10:24		FrA02.8
<i>Safe Predefined-Time Stability and Optimal Feedback Control: A Lyapunov-Based Approach</i> , pp. 3680-3685.		
Kokolakis, Nick-Marios T.; Vamvoudakis, Kyriakos G.		

10:24-10:27	FrA02.9	<i>Tracking Control Algorithm for Autonomous Vehicles</i> , pp. 3734-3739. Notomista, Gennaro; Wardi, Yorai
A Unifying Statement for an H-Infinity Optimal Controller with Positivity Properties, pp. 3686-3691. Vladu, Emil		
10:27-10:30	FrA02.10	<i>Time-Optimal Constrained Adaptive Robust Control of Single-DOF Mechanical Systems: A Comparative Study with BLF-Based Methods</i> , pp. 3740-3745. Liu, Yingqiang; Chen, Zheng; Yao, Bin
Composition of Control Barrier Functions with Differing Relative Degrees for Safety under Input Constraints, pp. 3692-3697. Rabiee, Pedram; Hoagg, Jesse B.		
10:30-10:33	FrA02.11	<i>Optimal Pinning Control for Synchronization Over Temporal Networks</i> , pp. 3746-3751. Sahaya Arokiadoss, Andrew Baggio; Kalaimani, Rachel Kalpana
Time-Varying Soft-Maximum Control Barrier Functions for Safety in an a Priori Unknown Environment, pp. 3698-3703. Safari, Amirseid; Hoagg, Jesse B.		
10:33-10:36	FrA02.12	FrA03 Frontenac RI: Control of Robotic and Mechatronic Systems (RI Session)
An Output Feedback Game-Theoretic Approach for Defense against Stealthy GNSS Spoofing Attacks, pp. 3704-3709. Athalye, Surabhi; Fotiadis, Filippos; Vamvoudakis, Kyriakos G.; Hugues, Jerome		Chair: Portella University of Maryland Delgado, Jhon Baltimore County Manuel
10:36-10:39	FrA02.13	Co-Chair: Karimi, EPFL Alireza
A Case Study on the Convergence of Direct Policy Search for Linear Quadratic Gaussian Control, pp. 3710-3715. Keivan, Dariush; Seiler, Peter; Dullerud, Geir E.; Hu, Bin		10:00-10:03 FrA03.1
10:39-10:42	FrA02.14	<i>Safe Human-Robot Motor Skill Learning through Probabilistic Dynamic Movement Primitives and Control Barrier Functions</i> , pp. 3752-3759. Theofanidis, Michail; Davoodi, Mohammadreza; Hafezi, Hamid; Gans, Nicholas
Asynchronous Block Parallel Policy Optimization for the Linear Quadratic Regulator, pp. 3716-3721. Sha, Xingyu; You, Keyou		10:03-10:06 FrA03.2
10:42-10:45	FrA02.15	<i>Collision-Free Landing of Multiple UAVs on Moving Ground Vehicles Using Time-Varying Control Barrier Functions</i> , pp. 3760-3767. Sankaranarayanan, Viswa Narayanan; Saradagi, Akshit; Satpute, Sumeet; Nikolakopoulos, George
Control Barrier Functions in Dynamic UAVs for Kinematic Obstacle Avoidance: A Collision Cone Approach, pp. 3722-3727. Tayal, Manan; Singh, Rajpal; Keshavan, Jishnu; Nadubettu Yadukumar, Shishir		10:06-10:09 FrA03.3
10:45-10:48	FrA02.16	<i>Learning-Based Tracking Control of Unknown Robot Systems with Online Parameter Estimation</i> , pp. 3768-3774. Peng, Zhinan; Chen, Chen; Luo, Rui; Zhang, Jingting; Cheng, Hong; Ghosh, Bijoy
Optimal Charging Control and Incentivization Strategies for Electric Vehicles Considering Grid Dynamical Constraints, pp. 3728-3733. Podder, Amit Kumar; Sadamoto, Tomonori; Chakrabortty, Aranya		10:09-10:12 FrA03.4
10:48-10:51	FrA02.17	<i>Learning-Based Design of Off-Policy Gaussian Controllers: Integrating Model</i>
A Safe and Computationally Efficient		

10:12-10:15	Fra03.5	10:33-10:36	FrA03.12
<i>A Novel Multivariate Skew-Normal Mixture Model and Its Application in Path-Planning for Very-Large-Scale Robotic Systems</i> , pp. 3783-3790.	Zhu, Pingping; Liu, Chang; Estephan, Peter	<i>Risk-Based Socially-Compliant Behavior Planning for Autonomous Driving</i> , pp. 3827-3832.	Lyu, Yiwei; Luo, Wenhao; Dolan, John
10:15-10:18	Fra03.6	10:36-10:39	FrA03.13
<i>Adaptive Impedance and Admittance Controls for Physical Human-Robot Interaction with Force-Sensorless</i> , pp. 3791-3796.	Ngo, Van-Tam; Liu, Yen-Chen	<i>Joint Trajectory Optimization for Redundant Manipulators with Constant Path Speed</i> , pp. 3833-3840.	Fried, Jonathan; Paternain, Santiago
10:18-10:21	Fra03.7	10:39-10:42	FrA03.14
<i>Modeling Reluctance Actuator Topologies with a Focus on Stiffness</i> , pp. 3797-3802.	Pumphrey, Michael Joseph; Al Saaideh, Mohammad; Alatawneh, Natheer; Al Janaideh, Mohammad	<i>Adaptive Backstepping Control of a Bicopter in Pure Feedback Form with Dynamic Extension</i> , pp. 3841-3846.	Portella Delgado, Jhon Manuel; Mirtaba, Mohammad; Goel, Ankit
10:21-10:24	Fra03.8	10:42-10:45	FrA03.15
<i>Motion Control of a Cable Robotic LED Light Fixture with IoT Connectivity</i> , pp. 3803-3808.	Tavakoli, Negar; Mohagheghi, Afagh; Moallem, Mehrdad	<i>Hybrid Task Constrained Incremental Planner for Robot Manipulators in Confined Environments</i> , pp. 3847-3852.	Sun, Yifan; Zhao, Weiyie; Liu, Changliu
10:24-10:27	Fra03.9	10:45-10:48	FrA03.16
<i>A Robust Sliding-Mode Control Framework for Quadrotors Subject to Model Uncertainty and External Disturbances</i> , pp. 3809-3814.	Yang, Yefeng; Huang, Tao; Wang, Tianqi; Chih-Yung, Wen	<i>Data-Driven Frequency-Based Feedforward Control Design for a Robotic Arm Joint</i> , pp. 3853-3858.	Schuchert, Philippe; Karimi, Alireza
10:27-10:30	Fra03.10	10:48-10:51	FrA03.17
<i>Precision ZP Perforation Automation: A Vision-Based Robotic Approach for Blastocyst Embryo Biopsy</i> , pp. 3815-3820.	Abu Ajamieh, Ihab; Al Janaideh, Mohammad; Mills, James K.	<i>A Sliding Cone Control Method for Robust Robot Running</i> , pp. 3859-3866.	Lo, Chun Ho, David; Ng, Wee Shen; Chu, Xiangyu; Au, Kwok Wai Samuel
10:30-10:33	Fra03.11	10:51-10:54	FrA03.18
<i>Flux Estimation and Control Based on High-Gain Observer for Variable Reluctance Actuator Using the Measured Current Only</i> , pp. 3821-3826.	Al Saaideh, Mohammad; Alatawneh, Natheer; Aljanaideh, Omar; Al Janaideh, Mohammad	<i>Adaptive Nonlinear Control of a Bicopter with Unknown Dynamics</i> , pp. 3867-3872.	Portella Delgado, Jhon Manuel; Goel, Ankit
10:54-10:57		10:54-10:57	FrA03.19
<i>EMPC-Based Flight Controller Design for a Quadrotor with Unbalanced Payload</i> , pp. 3873-3878.	Zhang, Xiangyu; Mu, Bingxian; Yoon, Se Young (Pablo)	<i>Newton-Raphson Flow for Aggressive Quadrotor Tracking Control</i> , pp. 3879-3884.	Morales-Cuadrado, Evans; Llanes, Christian; Wardi, Yorai; Coogan, Samuel
10:57-11:00		10:57-11:00	FrA03.20

FrA04	Metro W	10:18-10:21	FrA04.7
RI: Stochastic and Nonlinear Systems (RI Session)		<i>Prosumers Participation in Markets: A Scalar-Parameterized Function Bidding Approach</i> , pp. 3921-3926.	
Chair: Morgansen, Kristi A.	University of Washington	Alawad, Abdullah; Zaman, Muhammad Aneeq uz; Alshehri, Khaled; Basar, Tamer	
Co-Chair: Coogan, Samuel	Georgia Institute of Technology		
10:00-10:03	FrA04.1	10:21-10:24	FrA04.8
<i>Uncertainty Quantification for Recursive Estimation in Adaptive Safety-Critical Control</i> , pp. 3885-3890.		<i>Optimal Detection for Bayesian Attack Graphs under Uncertainty in Monitoring and Reimaging</i> , pp. 3927-3934.	
Cohen, Max; Mann, Makai; Leahy, Kevin; Belta, Calin		Kazeminafahabadi, Armita; Ghoreishi, Seyedeh Fatemeh; Imani, Mahdi	
10:03-10:06	FrA04.2	10:24-10:27	FrA04.9
<i>Uncertainty and Its Effect on Optimal Multidrug Control of Hemodynamic Variables</i> , pp. 3891-3896.		<i>Density Steering of Gaussian Mixture Models for Discrete-Time Linear Systems</i> , pp. 3935-3940.	
Popescu, Teodora; Birs, Isabela; Ben Othman, Ghada; Yumuk, Erhan; Mihai, Marcian; Hegedus, Erwin; Copot, Dana; De Keyser, Robin M.C.; Ionescu, Clara; Muresan, Cristina-Ioana		Balci, Isin M; Bakolas, Efstathios	
10:06-10:09	FrA04.3	10:27-10:30	FrA04.10
<i>Approximating Probabilistic Boundary of Future State Trajectory by Minimum-Volume Polynomial Sublevel Sets with Chance Constraints</i> , pp. 3897-3902.		<i>Negative Feedback Regulation Via an Autapse Enhances Neuronal Firing Precision</i> , pp. 3941-3946.	
Shen, Xun; Wang, Ye		Vahdat, Zahra; Gambrell, Oliver; Singh, Abhyudai	
10:09-10:12	FrA04.4	10:30-10:33	FrA04.11
<i>On the Complexity of Computing the Minimum Mean Square Error of Causal Prediction</i> , pp. 3903-3908.		<i>Real-Time Spatial Trajectory Planning under Lateral Constraints</i> , pp. 3947-3953.	
Boche, Holger; Pohl, Volker; Poor, H. Vincent		Ruof, Jona; Mertens, Max Bastian; Buchholz, Michael; Dietmayer, Klaus Christian Jürgen	
10:12-10:15	FrA04.5	10:33-10:36	FrA04.12
<i>Average Cost Optimality of Partially Observed MDPs: Contraction of Non-Linear Filters and Existence of Optimal Solutions and Approximations</i> , pp. 3909-3914.		<i>Data-Driven Output Feedback Control Based on Behavioral Approach</i> , pp. 3954-3959.	
Demirci, Yunus emre; Kara, Ali Devran; Yuksel, Serdar		Qin, Zhaoming; Karimi, Alireza	
10:15-10:18	FrA04.6	10:36-10:39	FrA04.13
<i>Conditions for Altruistic Perversity in Two-Strategy Population Games</i> , pp. 3915-3920.		<i>Flow Sensing and Feedback Control for Maintaining School Cohesion in Uncoordinated Flapping Swimmers</i> , pp. 3960-3965.	
Hill, Colton; Brown, Philip N.; Paarporn, Keith		Hang, Haotian; Heydari, Sina; Kanso, Eva	
		10:39-10:42	FrA04.14
		<i>Sampled-Data Output Feedback Control of the Stefan Problem with Explicit Condition of Sampling Scheduling</i> , pp. 3966-3971.	
		Koga, Shumon	
		10:42-10:45	FrA04.15
		<i>Observability-Based Sensor Selection for a Planar Bending Beam Attached to a Rotating</i>	

Body, pp. 3972-3979.	
Brace, Natalie; Morgansen, Kristi A.	
10:45-10:48	FrA04.16
<i>Nonlinear Horizon-One Model Predictive Control for Resource-Limited Applications</i> , pp. 3980-3986.	
Olucak, Jan; Fichter, Walter; Cunis, Torbjørn	
10:48-10:51	FrA04.17
<i>Discontinuous Barrier Functions for Piecewise Continuous Dynamics</i> , pp. 3987-3992.	
Jimenez Cortes, Carmen; Thitsa, Makhin; Coogan, Samuel	
10:51-10:54	FrA04.18
<i>Adaptive Controller with Novel Phase Estimator for LLC Resonant Converter</i> , pp. 3993-3998.	
Mahdizadeh Shalmaei, Amir Hossein; Tavan, Mehdi; Soltani, Mohsen; Hajizadeh, Amin	
10:54-10:57	FrA04.19
<i>Robust and Hard-Continuous Finite-Time Stabilization of Rigid Body Attitude Dynamics Using Rotation Matrices</i> , pp. 3999-4004.	
Wang, Ningshan; Hamrah, Reza; Sanyal, Amit	
10:57-11:00	FrA04.20
<i>Reach-Avoid Analysis for Sampled-Data Systems with Measurement Uncertainties</i> , pp. 4005-4011.	
Wu, Taoran; Ren, Dejin; Zhang, Shuyuan; Wang, Lei; Xue, Bai	
FrB01 Metro E/C Learning (Regular Session)	
Chair: Liu, Jun	University of Waterloo
Co-Chair:	Columbia University
Anderson, James	
13:30-13:45	FrB01.1
<i>Risk-Aware Distributed Multi-Agent Reinforcement Learning</i> , pp. 4012-4019.	
Maruf, Abdullah Al; Niu, Luyao; Ramasubramanian, Bhaskar; Clark, Andrew; Poovendran, Radha	
13:45-14:00	FrB01.2
<i>Zubov-Koopman Learning of Maximal</i>	
FrB02 Harbour Optimal Control I (Regular Session)	
Chair: Shishika, Daigo	George Mason University
Co-Chair: Borum, Andy	Vassar College
13:30-13:45	FrB02.1
<i>Real-Time Feasible Usage of Radial Basis Functions for Representing Unstructured Environments in Optimal Ship Control</i> , pp. 4050-4057.	
Tengesdal, Trym; Gros, Sebastien; Johansen, Tor Arne	
13:45-14:00	FrB02.2
<i>A Non-Regular Mixed Constrained Problem Involving Sweeping Processes</i> , pp. 4058-4063.	
T. Khalil, Nathalie; Cortez, Karla Lorena; Aguiar, A. Pedro	
14:00-14:15	FrB02.3
<i>Defending a Static Target Point with a Slow Defender</i> , pp. 4064-4071.	

Das, Goutam; Dorothy, Michael; Bell, Zachary I.; Shishika, Daigo	FrB02.4	Davino, Daniele; Monteiro, Giselle; Al Saadeh, Mohammad; Krejci, Pavel; Al Janaideh, Mohammad	
14:15-14:30	FrB02.4	14:15-14:30	
<i>Regret-Optimal Control under Partial Observability</i> , pp. 4072-4077.		<i>Output Feedback Control of a Piezoelectric Robotic Manipulator During the Characterization of an Object Exhibiting Nonlinear Viscoelastic Deformation (I)</i> , pp. 4108-4113.	
Hajar, Joudi; Sabag, Cron; Hassibi, Babak		Flores, Gerardo; Rakotondrabe, Micky	
14:30-14:45	FrB02.5	14:30-14:45	
<i>Optimal Control of Nonlinear Systems with Input and State Constraints Using Koopman Operator</i> , pp. 4078-4083.		<i>Reachability Analysis for Steerable Drifter Systems (I)</i> , pp. 4114-4119.	
Wang, Yujia; Wu, Zhe		Gaskell, Eric; Tan, Xiaobo	
14:45-15:00	FrB02.6	14:45-15:00	
<i>Efficient Value Function Upper Bounds for a Class of Constrained Linear Time-Varying Optimal Control Problems</i> , pp. 4084-4089.		<i>On Precision Motion Control for an Industrial Long-Stroke Motion System with a Nonlinear Micropositioning Actuator (I)</i> , pp. 4120-4125.	
Liu, Vincent; Manzie, Chris; Dower, Peter M.		Al-Rawashdeh, Yazan Mohammad; Al Saadeh, Mohammad; Heertjes, Marcel; Al Janaideh, Mohammad	
FrB03		Frontenac	
Mechatronics II (Invited Session)			
Chair: Al Janaideh, Mohammad	University of Guelph	FrB04	Metro W
Co-Chair: Mishra, Richa	UNIVERSTIY of TEXAS at DALLAS	Autonomous Planning and Control (Invited Session)	
Organizer: Al Janaideh, Mohammad	University of Guelph	Chair: Zhang, Fumin	Georgia Institute of Technology
Organizer: Rakotondrabe, Micky	ENIT Tarbes, INPT, University of Toulouse	Co-Chair: Mottee, Nader	Lehigh University
13:30-13:45	FrB03.1	Organizer: Liu, Guangyi	Lehigh University
<i>Simultaneous Estimation of Differential Surface Parameters with Ultra-Fast Feedback Loop in Scanning Tunneling Microscopy (I)</i> , pp. 4090-4095.		Organizer: Topcu, Ufuk	The University of Texas at Austin
Mishra, Richa; Moheimani, S.O. Reza		Organizer: Zhang, Fumin	Georgia Institute of Technology
13:45-14:00	FrB03.2	Organizer: Mottee, Nader	Lehigh University
<i>Position Servo Control Strategy for a Hydraulic Valve-Controlled Cylinder with a Digital Piezo-Actuator (I)</i> , pp. 4096-4101.		13:30-13:45	FrB04.1
Zhang, Yunzhi; Rakotondrabe, Micky; Feng, Zhao; Zhu, Yuchuan; Ling, Jie		<i>LP-Planning: Linear Control-Based Planning Using Probability Mass Function Measurements (I)</i> , pp. 4126-4132.	
14:00-14:15	FrB03.3	Kermanshah, Mehdi; Belta, Calin; Tron, Roberto	
<i>Output Feedback Control of a Nonlinear Galienol-Based Actuator for Active Vibration Control Systems (I)</i> , pp. 4102-4107.		14:45-14:00	FrB04.2
Clemente, Carmine; Loschiavo, Vincenzo;		<i>Time-Robust Path Planning with Piece-Wise Linear Trajectory for Signal Temporal Logic Specifications (I)</i> , pp. 4133-4140.	
		Le, Nhan-Khanh; Noorani, Erfau; Hirche,	

Sandra; Baras, John S.	
14:00-14:15	FrB04.3
<i>Community Consensus: Converging Locally Despite Adversaries and Heterogeneous Connectivity (I)</i> , pp. 4141-4148.	
Gava, Cristina; Vékássy, Áron; Cavorsi, Matthew; Gil, Stephanie; Mallmann-Trenn, Frederik	
14:15-14:30	FrB04.4
<i>Investigating the Effectiveness of Reinforcement Learning in Closed-Loop Systems with Time Delays (I)</i> , pp. 4149-4154.	
Wafi, Moh. Kamalul; Siami, Milad; Sznaier, Mario	
14:30-14:45	FrB04.5
<i>Hybrid Zonotope-Based Backward Reachability Analysis for Neural Feedback Systems with Nonlinear Plant Models (I)</i> , pp. 4155-4161.	
Zhang, Hang; Zhang, Yuhao; Xu, Xiangru	
14:45-15:00	FrB04.6
<i>Computing Robust Control Invariant Sets of Nonlinear Systems Using Polynomial Controller Synthesis (I)</i> , pp. 4162-4169.	
Schäfer, Lukas; Althoff, Matthias	
FrB05	Pier 2
Information-Theoretic Control (Regular Session)	
Chair: Magbool Jan, Nabil	Indian Institute of Technology Tirupati
Co-Chair: Molloy, Timothy L.	Australian National University
13:30-13:45	FrB05.1
<i>Near-Optimality of Finite-Memory Codes and Reinforcement Learning for Zero-Delay Coding of Markov Sources</i> , pp. 4170-4175.	
Cregg, Liam; Alajaji, Fady; Yuksel, Serdar	
13:45-14:00	FrB05.2
<i>Active Fixed-Sample-Size Hypothesis Testing Via POMDP Value Function Lipschitz Bounds</i> , pp. 4176-4181.	
Molloy, Timothy L.; Nair, Girish N.	
14:00-14:15	FrB05.3
<i>Information-Seeking Polynomial NARX Model-Predictive Control through Expected Free Energy Minimization</i> , pp. 4182-4187.	
Kouw, Wouter Marco	
14:15-14:30	FrB05.4
<i>Deceptive Planning for Resource Allocation</i> , pp. 4188-4195.	
Chen, Shenghui; Savas, Yagiz; Karabag, Mustafa O.; Sadler, Brian; Topcu, Ufuk	
14:30-14:45	FrB05.5
<i>Optimal Ensemble Control of Matter-Wave Splitting in Bose-Einstein Condensates</i> , pp. 4196-4203.	
Paes de Lima, André Luiz; Harter, Andrew; Martin, Michael; Zlotnik, Anatoly	
14:45-15:00	FrB05.6
<i>Robust Optimal Sensor Selection Using Information Theoretic Measures</i> , pp. 4204-4209.	
Kumar, Manjay; Ankalugari, Rahul Yadav; Magbool Jan, Nabil	
FrB06	Queens Quay 1
Decentralized Control (Regular Session)	
Chair: Pates, Richard	Lund University
Co-Chair: Huang, Minyi	Carleton University
13:30-13:45	FrB06.1
<i>Exploiting Heterogeneity in the Decentralised Control of Platoons</i> , pp. 4210-4215.	
Pates, Richard	
13:45-14:00	FrB06.2
<i>Encrypted Decentralized Model Predictive Control of Nonlinear Processes with Input Delays</i> , pp. 4216-4223.	
Kadakia, Yash Ashit; Alnajdi, Aisha; Abdullah, Fahim; Christofides, Panagiotis D.	
14:00-14:15	FrB06.3
<i>Learning Decentralized Frequency Controllers for Energy Storage Systems</i> , pp. 4224-4229.	
Sun, Zexin; Yuan, Zhenyi; Zhao, Changhong; Cortes, Jorge	
14:15-14:30	FrB06.4
<i>Mean Field Games on Dense and Sparse Networks: The Graphexon MFG Equations</i> , pp. 4230-4235.	
Caines, Peter E.; Huang, Minyi	

14:30-14:45	FrB06.5	Block, Brian; Stockar, Stephanie
A Distributed Buffering Drift-Plus-Penalty Algorithm for Coupling Constrained Optimization, pp. 4236-4241.		
Wang, Dandan; Zhu, Daokuan; Ou, Zichong; Lu, Jie		
FrB07	Queens Quay 2	
Modeling and Control of Alternative Powertrains and Mobility Systems (Invited Session)		
Chair: Rajakumar Deshpande, Shreshta	Southwest Research Institute	
Co-Chair: Gupta, Shobhit	General Motors	
Organizer: Gupta, Shobhit	General Motors	
Organizer: Kang, Jun-Mo	General Motors Holdings LLC	
Organizer: Rajakumar Deshpande, Shreshta	Southwest Research Institute	
Organizer: Nazari, Shima	UC Davis	
13:30-13:45	FrB07.1	
LQTI EGR Rate and Boost Pressure Control of a Diesel Engine Assisted by an EBoost (I), pp. 4242-4247.		
Gamache, Corey; Zhu, Guoming		
13:45-14:00	FrB07.2	
Scalable Data Driven Models for Control of Multi-Fuel Compression Ignition Engine (I), pp. 4248-4253.		
Govind Raju, Sathya Aswath; Sun, Zongxuan; Kim, Kenneth; Kweon, Chol-Bum		
14:00-14:15	FrB07.3	
Vehicle Speed Profile Optimization for Fuel Efficient Eco-Driving Via Koopman Linear Predictor and Model Predictive Control (I), pp. 4254-4261.		
Nugroho, Sebastian Adi; Chellapandi, Vishnu Pandi; Borhan, Hoseinali		
14:15-14:30	FrB07.4	
LQ Control of Traffic Flow Models Via Variable Speed Limits (I), pp. 4262-4267.		
14:30-14:45	FrB07.5	
Model Predictive Control of Diesel Engine Emissions Based on Neural Network Modeling, pp. 4268-4274.		
Zhang, Jiadi; Li, Xiao; Kolmanovsky, Ilya V.; Tsutsumi, Munehika; Nakada, Hayato		
14:45-15:00	FrB07.6	
Nexus Cognizant Pricing of Workplace Electric Vehicle Charging, pp. 4275-4282.		
Mou, Minghao; Qian, Sean; Qin, Junjie		
FrB08	Bay	
Control Applications I (Regular Session)		
Chair: Xu, Zhe	Arizona State University	
Co-Chair: Beijen, Michiel	Demcon	
13:30-13:45	FrB08.1	
Performance Analysis of Moving Average Filter Using Allan Variance, pp. 4283-4288.		
Maddipatla, Srivenkata Satya Prasad; Brennan, Sean		
13:45-14:00	FrB08.2	
Distributed Differentially Private Control Synthesis for Multi-Agent Systems with Metric Temporal Logic Specifications, pp. 4289-4295.		
Baharisangari, Nasim; Saravanan, Narendhiran; Xu, Zhe		
14:00-14:15	FrB08.3	
Hybrid Control of a Variable-Speed Peristaltic Pump, pp. 4296-4301.		
Beijen, Michiel; Tijman op Smeijers, Thijs; Boerrigter, Gijs; van den Eijnden, Sebastiaan		
14:15-14:30	FrB08.4	
Optimal Control of Material Micro-Structures, pp. 4302-4307.		
Sharma, Aayushman; Mao, Zirui; Yang, Haiying; Chakravorty, Suman; Demkowicz, Michael; Kalathil, Dileep		
14:30-14:45	FrB08.5	
An Efficiency Scanning Strategy Based on Online Smoothing Variable-Speed for AFM with a Rotating Stage, pp. 4308-4313.		
Chen, Huang-Chih; Peng, Sheng-Wei;		

Chou, Ting-An; Fu, Li-Chen	Sean; Sofge, Don; Zhang, Fumin
14:45-15:00	FrB08.6
<i>Safe Extremum Seeking Applications in Particle Accelerators</i> , pp. 4314-4319.	
Williams, Alan; Scheinker, Alexander; Huang, En-Chuan; Taylor, Charles; Krstic, Miroslav	
FrB09	Dockside 1
Recent Advancements in Data-Driven Decision-Making and Control (Invited Session)	
Chair: Drgona, Jan	Pacific Northwest National Laboratory
Co-Chair: Masti, Daniele	IMT School for Advanced Studies Lucca
Organizer: Masti, Daniele	Gran Sasso Science Institute
Organizer: Fabiani, Filippo	IMT School for Advanced Studies Lucca
Organizer: Breschi, Valentina	Eindhoven University of Technology
Organizer: Drgona, Jan	Pacific Northwest National Laboratory
13:30-13:45	FrB09.1
<i>A Data-Driven Formulation of the Maximal Admissible Set and the Data-Enabled Reference Governor (I)</i> , pp. 4320-4325.	
Ossareh, Hamid	
13:45-14:00	FrB09.2
<i>Data-Driven System Interconnections and a Novel Data-Enabled Internal Model Control (I)</i> , pp. 4326-4332.	
Pedari, Yasaman; Lee, Jaeho; Eun, Yongsoon; Ossareh, Hamid	
14:00-14:15	FrB09.3
<i>A Parametric Bayesian Optimization Framework for Batch Dynamical Systems (I)</i> , pp. 4333-4338.	
Thompson, Jaron; MacKinnon, Lloyd; Venturelli, Ophelia; Zavala, Victor M.	
14:15-14:30	FrB09.4
<i>Line-Of-Sight Visual Target Tracking Via Particle-Based Belief Propagation (I)</i> , pp. 4339-4344.	
Lin, Tony; Gagvani, Manav; Lindstrom,	
14:30-14:45	FrB09.5
<i>\$Pi\\$-ORFit: One-Pass Learning with Bregman Projection (I)</i> , pp. 4345-4352.	
Cho, Namhoon; Min, Youngjae; Shin, Hyo-Sang; Azizan, Navid	
14:45-15:00	FrB09.6
<i>Active Perception Using Neural Radiance Fields (I)</i> , pp. 4353-4358.	
He, Siming; Hsu, Christopher; Ong, Dexter; Shao, Yifei; Chaudhari, Pratik	
FrB10	Dockside 2
Adaptive Systems (Regular Session)	
Chair: Dogan, Kadriye	Embry-Riddle Aeronautical University
Co-Chair: Anubi, Olugbenga Moses	Florida State University
13:30-13:45	FrB10.1
<i>Fractional-Order Integral Neural-Adaptive Control of Nonlinear Input-Affine Systems</i> , pp. 4359-4364.	
Doctolero, Samuel; Westwick, David	
13:45-14:00	FrB10.2
<i>Passive Stability and Adaptive Control of Teleoperated System Using Wave Variables and Predictor Techniques</i> , pp. 4365-4371.	
Rajarajan, Naveen Kumar; Mudhangulla, Sridhar; Anubi, Olugbenga Moses	
14:00-14:15	FrB10.3
<i>Adaptive Control Allocation for Uncertain Systems with Unknown Effector Degradation</i> , pp. 4372-4377.	
Sarioglu, N. Eren; Dogan, Kadriye	
14:15-14:30	FrB10.4
<i>Adaptive Kalman Filtering Developed from Recursive Least Squares Forgetting Algorithms</i> , pp. 4378-4383.	
Lai, Brian; Bernstein, Dennis S.	
14:30-14:45	FrB10.5
<i>DATrack: MCMOT Based on Feature Decoupling and Adaptive Motion Association</i> , pp. 4384-4389.	
Cheng, Ao; Wang, Qiang; Liu, Feiyang; Li, Xinyi	

14:45-15:00 FrB10.6

ArUco Based Reference Shaping for Real-Time Precision Motion Control for Suspended Payloads, pp. 4390-4395.

Stein, Adrian; Vexler, David; Singh, Tarunraj

FrB11 Dockside 3

Spreading Processes in Complex Networks: Analysis, Control and Observability (Invited Session)

Chair: Pare, Philip E. Purdue University
Co-Chair: Uribe, Cesar A. Rice University
Organizer: Gracy, Sebin South Dakota School of Mines and Technology
Organizer: Uribe, Cesar A. Rice University
Organizer: Pare, Philip E. Purdue University
Organizer: Sontag, Eduardo Northeastern University

13:30-13:45 FrB11.1

Data-Driven Design of Complex Network Structures to Promote Synchronization (I), pp. 4396-4401.

Coraggio, Marco; di Bernardo, Mario

13:45-14:00 FrB11.2

Predator-Swarm-Guide Dynamics: A Hybrid Approach to Crowd Modeling and Guidance in Mass Shooting Scenarios (I), pp. 4402-4408.

Darabi, Atefe; Montazeri Hedesh, Hamidreza; Siami, Milad; Sznaier, Mario

14:00-14:15 FrB11.3

Competitive Networked Bivirus SIS Spread Over Hypergraphs (I), pp. 4409-4415.

Gracy, Sebin; Anderson, Brian D.O.; Ye, Mengbin; Uribe, Cesar A.

14:15-14:30 FrB11.4

A Lyapunov Approach to Stochastic Interaction Dynamics Over Large-Scale Networks (I), pp. 4416-4421.

Como, Giacomo; Fagnani, Fabio; Zampieri, Sandro

14:30-14:45 FrB11.5

Differentially Private Computation of Basic Reproduction Numbers in Networked Epidemic Models (I), pp. 4422-4427.

Chen, Bo; She, Baise; Hawkins, Calvin; Benvenuti, Alexander; Fallin, Brandon; Pare, Philip E.; Hale, Matthew

14:45-15:00 FrB11.6

Active Risk Aversion in SIS Epidemics on Networks (I), pp. 4428-4433.

Bizyaeva, Anastasia; Ordorica Arango, Marcela; Zhou, Yunxiu; Levin, Simon; Leonard, Naomi Ehrich

FrB12 Dockside 9

Chemical Process Control (Regular Session)

Chair: Singh, Ravendra Rutgers
Co-Chair: Shardt, Yuri TU Ilmenau

13:30-13:45 FrB12.1

Data-Driven Modeling and Control of Semicontinuous Distillation Process, pp. 4434-4439.

Aenugula, Sakthi Prasanth; Chandrasekar, Aswin; Mhaskar, Prashant; Adams, Thomas

13:45-14:00 FrB12.2

Enhancing Protein Crystal Purity through Adaptive Kinetic Monte Carlo Modeling and Control of Surface Morphology, pp. 4440-4445.

Nagpal, Satchit; Kwon, Joseph

14:00-14:15 FrB12.3

A Compact Design for Soft Sensors Based on Information-Bottleneck Theory, pp. 4446-4451.

Gao, Xinrui; Zhao, Jiarui; Shardt, Yuri

14:15-14:30 FrB12.4

A Two-Tier Encrypted Control Architecture for Enhanced Cybersecurity of Nonlinear Processes, pp. 4452-4459.

Kadakia, Yash Ashit; Suryavanshi, Atharva Vijay; Alnajdi, Aisha; Abdullah, Fahim; Christofides, Panagiotis D.

14:30-14:45 FrB12.5

Machine Learning-Based Initialization of Generalized Benders Decomposition for

Mixed Integer Model Predictive Control, pp. 4460-4465.

Mitrai, Ilias; Daoutidis, Prodromos

14:45-15:00 FrB12.6

Optimal Scheduling and Open-Loop Control of Network Batch Processes under Variable Processing Times Using Generalized Benders Decomposition, pp. 4466-4471.

Liñán, David A.; Reynoso Donzelli, Simone; Ricardez-Sandoval, Luis

FrB13 Richmond
Manufacturing and Precision Mechatronic Systems (Regular Session)

Chair: Labbadi, Moussa Aix-Marseille University, LIS UMR CNRS 7020, Marseille, France

Co-Chair: Orosz, Gabor University of Michigan

13:30-13:45 FrB13.1

Predictive Modeling of Human Fatigue in a Manufacturing-Like Setting, pp. 4472-4478.

Rafter, Abigail; Barton, Kira; Tilbury, Dawn M.

13:45-14:00 FrB13.2

Control Barrier Functionals for Safety-Critical Control of Registration Accuracy in Roll-To-Roll Printing Systems, pp. 4479-4484.

Chen, Zhiyi; Orosz, Gabor; Ni, Jun

14:00-14:15 FrB13.3

Predictable Multi-Core Implementation of Multi-Rate Sensor Fusion for High-Precision Positioning Systems, pp. 4485-4492.

Jugade, Chaitanya; Mohamed, Sajid; Goswami, Dip; Nelson, Andrew; Van der veen, Gijs; Goossens, Kees

14:15-14:30 FrB13.4

Optimal Efficiency Controller Design of Pumping Systems, pp. 4493-4498.

Nassiri, Samir; Labbadi, Moussa; Chatri, Chakib; Cherkaoui, Mohamed

14:30-14:45 FrB13.5

Voltage Waveform Optimization through Data-Driven Modeling in Electrohydrodynamic Jet Printing, pp. 4499-4505.

Hawa, Angelo; Barton, Kira

14:45-15:00 FrB13.6

Modeling and Control of Continuous Countercurrent Tangential Chromatography, pp. 4506-4511.

Dighe, Anish Vikas; Lu, Amos; Braatz, Richard D.

FrB14 Wellington
ASME-IEEE Joint Invited Session on Healthcare and Medical Systems (Invited Session)

Chair: Allen, Brendon C. Auburn University

Co-Chair: Frigge, Anna Franziska Uppsala University

Organizer: Rose, Chad Auburn University

Organizer: Allen, Brendon C. Auburn University

Organizer: Zhang, Wenlong Arizona State University

Organizer: Hahn, Jin-Oh University of Maryland

Organizer: Medvedev, Alexander V. Uppsala University

13:30-13:45 FrB14.1

On the Fisher Identifiability of Coupled Transport Processes in Animal Hypoxia Experiments (I), pp. 4512-4517.

Abdelazim, Eman; Fathy, Hosam K.

13:45-14:00 FrB14.2

Neuromechanical Model-Free Epistemic Risk Guided Exploration (NeuroMERGE) for Safe Autonomy in Human-Robot Interaction (I), pp. 4518-4523.

Baskaran, Avinash; Basyal, Sujata; Allen, Brendon C.; Rose, Chad

14:00-14:15 FrB14.3

Intersection Point-Based Analysis of Neural Balance Control Strategies by Parkinson's Patients During Quiet Stance (I), pp. 4524-4529.

Sreenivasan, Gayatri; Zhu, Chunchu; Yi, Jingang

14:15-14:30 FrB14.4

Neural Fiber Activation in Unipolar vs Bipolar

<i>Deep Brain Stimulation (I)</i> , pp. 4530-4535.	
Frigge, Anna Franziska; Medvedev, Alexander V.; Jiltsova, Elena; Nyholm, Dag	
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14:30-14:45	FrB14.5
<i>Closed-Loop Multimodal Neuromodulation of Vagus Nerve for Control of Heart Rate (I)</i> , pp. 4536-4541.	
Bender, Shane; Green, David; Kilgore, Kevin; Bhadra, Niloy; Ardell, Jeffery; Vrabec, Tina	
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14:45-15:00	FrB14.6
<i>Guaranteeing Safety of Patients under Mechanical Ventilation</i> , pp. 4542-4547.	
Hosseinzadeh, Mehdi	
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FrB15	Yonge
Estimation and Control of Distributed Parameter Systems V (Invited Session)	
Chair: Demetriou, Michael A.	Worcester Polytechnic Institute
Co-Chair: Hu, Weiwei	University of Georgia
Organizer: Demetriou, Michael A.	Worcester Polytechnic Institute
Organizer: Hu, Weiwei	University of Georgia
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13:30-13:45	FrB15.1
<i>Viability under Degraded Control Authority (I)</i> , pp. 4548-4553.	
El-Kebir, Hamza; Berlin, Richard; Bentsman, Joseph; Ornik, Melkior	
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13:45-14:00	FrB15.2
<i>Representation of PDE Systems with Delay and Stability Analysis Using Convex Optimization (I)</i> , pp. 4554-4559.	
Jagt, Declan S.; Peet, Matthew M.	
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14:00-14:15	FrB15.3
<i>Neumann Boundary Control of the Wave Equation Via Linear Quadratic Regulation (I)</i> , pp. 4560-4565.	
Krener, Arthur J	
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14:15-14:30	FrB15.4
<i>Adaptive Cluster-Dynamic Mode Decomposition with Application to the Burgers' Equation (I)</i> , pp. 4566-4571.	
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Wu, Tumin; Wilson, Dan; Djouadi, Seddik, M.	
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14:30-14:45	FrB15.5
<i>Linear-Quadratic Control Problem on a Finite-Horizon for a Class of Differential-Algebraic Equations (I)</i> , pp. 4572-4578.	
Alalabi, Al'a'; Morris, Kirsten	
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14:45-15:00	FrB15.6
<i>Strict Dissipativity and Turnpike for LQ Optimal Control Problems with Possibly Boundary Reference (I)</i> , pp. 4579-4584.	
Li, Zhuqing; Guglielmi, Roberto	
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FrB16	Dockside 4
Modeling and Control for Thermal Management Systems (Invited Session)	
Chair: Pangborn, Herschel	The Pennsylvania State University
Co-Chair: Chakrabarty, Ankush	Mitsubishi Electric Research Laboratories (MERL)
Organizer: Koeln, Justin	University of Texas at Dallas
Organizer: Bird, Trevor, J.	PC Krause and Associates
Organizer: Pangborn, Herschel	The Pennsylvania State University
Organizer: Nash, Austin	Kettering University
Organizer: Chakrabarty, Ankush	Mitsubishi Electric Research Laboratories (MERL)
Organizer: Drgona, Jan	Pacific Northwest National Laboratory
Organizer: Blizard, Audrey	The Ohio State University
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13:30-13:45	FrB16.1
<i>Stochastic Model Predictive Control for Electric Vehicles Thermal Management</i> , pp. 4585-4590.	
Hu, Qiuhan; Amini, Mohammad Reza; Kolmanovsky, Ilya V.; Sun, Jing	
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13:45-14:00	FrB16.2
<i>Experimental Validation of Control-Oriented Dynamic Modeling of Pumped Two-Phase Cooling Systems (I)</i> , pp. 4591-4598.	

Shaikh, Juned; Koeln, Justin		
14:00-14:15	FrB16.3	
<i>A Multi-Agent Approach to Safe Control of Energy Systems Using Control Barrier Functions (I)</i> , pp. 4599-4604.		
Marvi, Zahra; Alleyne, Andrew G.		
14:15-14:30	FrB16.4	
<i>Understanding the Role of Thermal Energy Storage Location in the Optimal Performance and Operation of a District Cooling Network (I)</i> , pp. 4605-4611.		
Andujar Lugo, Frank; Alleyne, Andrew G.		
14:30-14:45	FrB16.5	
<i>Physics-Constrained Deep Kalman Filters for Estimating Vapor Compression System States (I)</i> , pp. 4612-4617.		
Deshpande, Vedang M.; Chakrabarty, Ankush; P. Vinod, Abraham; Laughman, Christopher R.		
14:45-15:00	FrB16.6	
<i>Smooth Sliding Control of Van Der Pol Oscillators with a Single Input: Application to Micro-Thermal-Fluid Cooling Systems</i> , pp. 4618-4623.		
Silva, Luiz; Lizarralde, Fernando; Peixoto, Alessandro Jacoud		
FrB17	Dockside 5	Modeling and Identification II (Regular Session)
Chair: Kim, Jin Sung	Hanyang University	
Co-Chair: Shen, Minghao	University of Michigan	
13:30-13:45	FrB17.1	
<i>Optimal Control for Antivirus Routing in Epidemiological-Based Heterogeneous Computer Network Clusters</i> , pp. 4624-4630.		
Wang, Shuangge; He, Zhilin; Xu, Ziaoh; Haskell, Cymra; Krishnamachari, Bhaskar		
13:45-14:00	FrB17.2	
<i>Uncertainty Quantification of Autoencoder-Based Koopman Operator</i> , pp. 4631-4636.		
Kim, Jin Sung; Quan, Yingshuai; Chung, Chung Choo		
14:00-14:15	FrB17.3	
A Model for Multi-Agent Heterogeneous Interaction Problems , pp. 4637-4644.		
Hsu, Christopher; Haile, Mulugeta; Chaudhari, Pratik		
14:15-14:30	FrB17.4	
<i>A Harmonic Framework for the Identification of Linear Time-Periodic Systems</i> , pp. 4645-4650.		
Vernerey, Flora; Riedinger, Pierre; Iannelli, Andrea; Daafouz, Jamal		
14:30-14:45	FrB17.5	
<i>Control-Oriented 2D Thermal Modelling of Cylindrical Battery Cells for Optimal Tab and Surface Cooling</i> , pp. 4651-4656.		
Peprah, Godwin; Wik, Torsten; Huang, Yicun; Faisal, Altaf; Zou, Changfu		
FrB18	Dockside 6	
Hybrid Systems (Regular Session)		
Chair: Trivedi, Ashutosh	University of Colorado Boulder	
Co-Chair: Phillips, Sean	Air Force Research Laboratory	
13:30-13:45	FrB18.1	
<i>Falsification Via Barrier Certificates</i> , pp. 4657-4662.		
Murali, Vishnu; Trivedi, Ashutosh; Zamani, Majid		
13:45-14:00	FrB18.2	
<i>A Switched Reference Governor for High Performance Trajectory Tracking Control under State and Input Constraints</i> , pp. 4663-4668.		
Wang, Nan; Sanfelice, Ricardo G.; Di Cairano, Stefano		
14:00-14:15	FrB18.3	
<i>Robust Hybrid Wide-Area Damping Control for Power Systems with Communication Errors</i> , pp. 4669-4674.		
Copp, David A.; Phillips, Sean		
14:15-14:30	FrB18.4	
<i>Parameter Estimation for Hybrid Dynamical Systems with Delayed Jump Detection</i> , pp. 4675-4680.		
Johnson, Ryan S.; Sanfelice, Ricardo G.		
14:30-14:45	FrB18.5	
<i>Dynamic Event-Triggered Control for LTI</i>		

<i>Systems with Asynchronous Input/Output Transmissions</i> , pp. 4681-4686.	Tartaglione, Gaetano; Montefusco, Francesco; Ariola, Marco; Cosentino, Carlo; Merola, Alessio; Amato, Francesco
Abdelrahim, Mahmoud; Almakhles, Dhafer J	
14:45-15:00	FrB18.6
<i>Fault-Tolerant Control of Hybrid UAV Using Weighted Control Allocation Scheme</i> , pp. 4687-4692.	
Ijaz, Salman; Javaid, Umair; Nasr, Ahmed; Sun, Donglei	
FrB19	Pier 7
Stochastic Systems and Control I (Regular Session)	
Chair: Hsu, Shun-Pin	National Chung-Hsing University
Co-Chair: Halder, Abhishek	Iowa State University
13:30-13:45	FrB19.1
<i>Path Structured Multimarginal Schrödinger Bridge for Probabilistic Learning of Hardware Resource Usage by Control Software</i> , pp. 4693-4698.	
Bondar, Georgiy Antonovich; Gifford, Robert; Phan, Linh Thi Xuan; Halder, Abhishek	
13:45-14:00	FrB19.2
<i>Consensus Sets Based on Sarymsakov Matrices</i> , pp. 4699-4704.	
Hsu, Shun-Pin	
14:00-14:15	FrB19.3
<i>Distributionally Robust Output-Feedback Control of Markov Jump Linear Systems</i> , pp. 4705-4710.	
Mark, Christoph; Pazzaglia, Paolo; Schmidt, Kevin	
14:15-14:30	FrB19.4
<i>Turing-Type Instabilities and Pattern Formation Induced by Saturation Effects and Randomness in Nonlinear, Diffusive Epidemic Spread</i> , pp. 4711-4716.	
Singh, Aman Kumar; Boltz, Noelle; Kumar, Manish; Ramakrishnan, Subramanian	
14:30-14:45	FrB19.5
<i>Guaranteed Region of Attraction of Stochastic Nonlinear Quadratic Systems</i> , pp. 4717-4722.	
Tartaglione, Gaetano; Montefusco, Francesco; Ariola, Marco; Cosentino, Carlo; Merola, Alessio; Amato, Francesco	
14:45-15:00	FrB19.6
<i>On the Contraction Coefficient of the Schrödinger Bridge for Stochastic Linear Systems</i> , pp. 4723-4728.	
Teter, Alexis; Chen, Yongxin; Halder, Abhishek	
FrB20	Pier 8
Observers for Nonlinear Systems (Regular Session)	
Chair: Bainier, Gustave	Université De Lorraine
Co-Chair: Raïssi, Tarek	Conservatoire National Des Arts Et Métiers
13:30-13:45	FrB20.1
<i>Confidently Incorrect: Nonlinear Observers with Online Error Bounds</i> , pp. 4729-4734.	
Bunton, Jonathan; Tabuada, Paulo	
13:45-14:00	FrB20.2
<i>Moving-Horizon Estimators for Hyperbolic and Parabolic PDEs in 1-D</i> , pp. 4735-4740.	
Bian, Luke; Shi, Yuanyuan; Karafyllis, Iasson; Krstic, Miroslav; Rawlings, James B.	
14:00-14:15	FrB20.3
<i>Interval State Estimation Based on Ellipsoid for Wastewater Treatment Bioprocess</i> , pp. 4741-4746.	
Zhou, Meng; Wu, Yan; Wang, Jing; Xue, Tonglai; Raïssi, Tarek	
14:15-14:30	FrB20.4
<i>Sampled Data Radial Basis Function Neural Network Observer Design for Nonlinear Vehicle Dynamics</i> , pp. 4747-4752.	
Abdl Ghani, Hasan; Ahmed Ali, Sofiane; Laghmara, Hind; Ainouz, Samia; Khemmar, Redouane	
14:30-14:45	FrB20.5
<i>Bezier Controllers and Observers for Takagi-Sugeno Models</i> , pp. 4753-4758.	
Bainier, Gustave; Marx, Benoit; Ponsart, Jean-Christophe	
14:45-15:00	FrB20.6

Observer-Based Stabilization of Lipschitz Nonlinear Systems by Using a New Matrix-Multiplier Based LMI Approach, pp. 4759-4764.

Mohite, Shivaraj; Alma, Marouane;
Zemouche, Ali

Pump Systems, pp. 4795-4800.

Nassiri, Samir; Labbadi, Moussa; Chatri, Chakib; Cherkaoui, Mohamed

FrB21	Pier 3
Lyapunov Methods (Regular Session)	
Chair: Sforini, Lorenzo	Alma Mater Studiorum - Università Di Bologna
Co-Chair: Poveda, Jorge I.	University of California, San Diego
13:30-13:45	FrB21.1
<i>Receding Horizon CBF-Based Multi-Layer Controllers for Safe Trajectory Generation</i> , pp. 4765-4770.	
Sforini, Lorenzo; Notarstefano, Giuseppe; Ames, Aaron D.	
13:45-14:00	FrB21.2
<i>Characterizing Smooth Safety Filters Via the Implicit Function Theorem</i> , pp. 4771-4776.	
Cohen, Max; Ong, Pio; Bahati, Gilbert; Ames, Aaron D.	
14:00-14:15	FrB21.3
<i>Stabilization under Arbitrary Tight and One Sided Control Constraints: A Variational Equations Approach</i> , pp. 4777-4782.	
Kolmanovsky, Ilya V.; Garone, Emanuele	
14:15-14:30	FrB21.4
<i>On Fixed-Time Stability for a Class of Singularly Perturbed Systems Using Composite Lyapunov Functions</i> , pp. 4783-4788.	
Tang, Michael; Krstic, Miroslav; Poveda, Jorge I.	
14:30-14:45	FrB21.5
<i>Compositionally Verifiable Vector Neural Lyapunov Functions for Stability Analysis of Interconnected Nonlinear Systems</i> , pp. 4789-4794.	
Liu, Jun; Meng, Yiming; Fitzsimmons, Maxwell; Zhou, Ruikun	
14:45-15:00	FrB21.6
<i>Optimal Recursive Terminal Sliding-Mode Control Using Super-Twisting Algorithm for Improving High Efficiency and Reliability of</i>	

FrC01	Metro E/C
Convergence Behavior and Applications in Iterative Learning Control (Invited Session)	
Chair: Koscielniak, Shane	TRIUMF
Co-Chair: Bristow, Douglas A.	Missouri University of Science & Technology
Organizer: Bristow, Douglas A.	Missouri University of Science & Technology
Organizer: Koscielniak, Shane	TRIUMF
15:30-15:45	FrC01.1
<i>Observations on Causal Iterative-Learning-Control & Transients</i> , pp. 4801-4806.	
Koscielniak, Shane	
15:45-16:00	FrC01.2
<i>Observations on Noncausal Iterative-Learning-Control & Transients</i> , pp. 4807-4812.	
Koscielniak, Shane	
16:00-16:15	FrC01.3
<i>Constrained Reinforcement Learning for Building Demand Response</i> , pp. 4813-4818.	
Sanchez, Jerson; Cai, Jie	
16:15-16:30	FrC01.4
<i>Iterative Learning Control of Direct Write Additive Manufacturing Using Online Process Monitoring (I)</i> , pp. 4819-4824.	
Urbanski, Christopher J.; Alleyne, Andrew G.	
16:30-16:45	FrC01.5
<i>Artificial Neural Network Based ILC with Application to Stroke Rehabilitation (I)</i> , pp. 4825-4830.	
Sun, Xiaoru; Freeman, Christopher T.	
16:45-17:00	FrC01.6
<i>L Bounds for Transient Growth in Repetitive and Iterative Learning Control Systems (I)</i> , pp. 4831-4837.	

Bristow, Douglas A.; Singler, John

FrC02	Harbour
Optimal Control II (Regular Session)	
Chair: Borum, Andy	Vassar College
Co-Chair: Gurpegui, Alba	Lund University
15:30-15:45	FrC02.1
<i>Poisoning Actuation Attacks against the Learning of an Optimal Controller, pp. 4838-4843.</i>	
Fotiadias, Filippos; Kanellopoulos, Aris; Vamvoudakis, Kyriakos G.; Hugues, Jerome	
15:45-16:00	FrC02.2
<i>Pointwise Sufficient Conditions for One-Dimensional Optimal Control Problems, pp. 4844-4849.</i>	
Borum, Andy; Bretl, Timothy	
16:00-16:15	FrC02.3
<i>Modeling Model Predictive Control: A Category Theoretic Framework for Multistage Control Problems, pp. 4850-4857.</i>	
Hanks, Tyler; She, Baike; Patterson, Evan; Hale, Matthew; Klawonn, Matthew; Fairbanks, James	
16:15-16:30	FrC02.4
<i>Minimax Linear Optimal Control of Positive Systems, pp. 4858-4863.</i>	
Gurpegui, Alba; Tegling, Emma; Rantzer, Anders	
16:30-16:45	FrC02.5
<i>Privacy-Preserving Cloud Computation of Algebraic Riccati Equations, pp. 4864-4869.</i>	
Malladi, Surya; Monshizadeh, Nima	

FrC03	Frontenac
Robotics II (Regular Session)	
Chair: Sharma, Nitin	North Carolina State University
Co-Chair: Hashim, Hashim A	Carleton University
15:30-15:45	FrC03.1
<i>Dynamic Active Subspaces for Model Predictive Allocation in Over-Actuated</i>	
Gurses, Yigit; Buyukdemirci, Kaan; Yildiz, Yildiray	

Systems, pp. 4870-4875.

Singh, Mayank; Lambeth, Krysten; Iyer, Ashwin; Sharma, Nitin

15:45-16:00	FrC03.2
<i>Adaptive Backstepping and Non-Singular Sliding Mode Control for Quadrotor UAVs with Unknown Time-Varying Uncertainties, pp. 4876-4882.</i>	
Shevidi, Arezo; Hashim, Hashim A	
<i>Optimized Control Invariance Conditions for Uncertain Input-Constrained Nonlinear Control Systems, pp. 4883-4888.</i>	
Brunke, Lukas; Zhou, Siqi; Che, Mingxuan; Schoellig, Angela P	
16:15-16:30	FrC03.4
<i>Human Torque Estimation for an LMI-Based Convex Control Rehabilitation Strategy Using Assistive Robots, pp. 4889-4894.</i>	
Ibarra, Jorge; Moussa, Kaouther; Lauber, Jimmy	
16:30-16:45	FrC03.5
<i>Optimizing Energy Efficiency with Configuration Constraints for AMR Trajectory Planning, pp. 4895-4900.</i>	
Chu, Jian; Huang, Joey; Bakshi, Soovadeep; Zhu, Yongye; Ohman, Ethan; Chen, Dongmei	
16:45-17:00	FrC03.6
<i>Trajectory Tracking and Disturbance Rejection for Euler-Lagrange Systems with High-Order Actuator Dynamics, pp. 4901-4906.</i>	
He, Changran; Huang, Jie	
FrC04	Metro W
Autonomous Vehicles (Regular Session)	
Chair: Ramadan, Mohammad	Argonne National Laboratory
Co-Chair: Zemouche, Ali	CRAN UMR CNRS 7039 & Université De Lorraine
15:30-15:45	FrC04.1
<i>Developing Driving Strategies Efficiently: A Skill-Based Hierarchical Reinforcement Learning Approach, pp. 4907-4912.</i>	
Gurses, Yigit; Buyukdemirci, Kaan; Yildiz, Yildiray	

15:45-16:00	FrC04.2	<i>Existence of Static Output Feedback Stabilization Gain Via Non-Lyapunov, Null Plant Matrix (NPM) Approach, pp. 4948-4953.</i>
<i>RNN Controller for Lane-Keeping Systems with Robustness and Safety Verification, pp. 4913-4918.</i>		Yedavalli, Rama K.
Quan, Yingshuai; Kim, Jin Sung; Chung, Chung Choo		
16:00-16:15	FrC04.3	16:00-16:15
<i>Radar Sensor-Based Longitudinal Motion Estimation by Using a Generalized High-Gain Observer, pp. 4919-4923.</i>		<i>Construction of Robust NCR for Input-Constrained Discrete Nonlinear Systems Using Backward Reachability, pp. 4954-4959.</i>
Bessafa, Hichem; Belkhatir, Zehor; Delattre, Cedric; Khemmar, Redouane; Zemouche, Ali; Rajamani, Rajesh		Kothiyari, Ashish; Bannerjee, Addyay; Mhaskar, Prashant
16:15-16:30	FrC04.4	16:15-16:30
<i>A Control Approach for Nonlinear Stochastic State Uncertain Systems with Probabilistic Safety Guarantees, pp. 4924-4929.</i>		<i>Sensor Placement for Flapping Wing Model Using Stochastic Observability Gramians, pp. 4960-4966.</i>
Ramadan, Mohammad; Alsuwaidan, Mohammad; Atallah, Ahmed; Herbert, Sylvia		Boyacioglu, Burak; Babaei, Mahnoush; Mamo, Amanuel; Bergbreiter, Sarah; Daniel, Thomas; Morgansen, Kristi A.
16:30-16:45	FrC04.5	16:30-16:45
<i>Trajectory-Tracking Hybrid Prescribed-Time Control for Wheeled Mobile Robots with Disturbances, pp. 4930-4935.</i>		<i>A Computation Governor for ADMM-Based MPC with Constraint Satisfaction and Setpoint Tracking, pp. 4967-4973.</i>
Rodriguez-Arellano, Jesus Abraham; Miranda Colorado, Roger; Aguilar, Luis T.		van Leeuwen, Steven; Kolmanovsky, Ilya V.
16:45-17:00	FrC04.6	16:45-17:00
<i>Hierarchical Motion Planning and Offline Robust Model Predictive Control for Autonomous Vehicles, pp. 4936-4941.</i>		<i>A Computational Framework for the Numerical Solution of Optimal Control Problems Governed by Partial Differential Equations, pp. 4974-4979.</i>
Duy Nguyen, Hung; Vu, Minh Nhat; Nam, Nguyen Ngoc; Han, Kyoungseok		Davies, Alexander; Dennis, Miriam; Rao, Anil V.

FrC05	Pier 2
Computational Methods (Regular Session)	
Chair: Hafstein, Sigurdur	University of Iceland
Co-Chair: Yedavalli, Rama K.	Ohio State Univ
15:30-15:45	FrC05.1
<i>Lyapunov Functions for Switched Linear Systems: Proof of Convergence for an LP Computational Approach, pp. 4942-4947.</i>	
Hafstein, Sigurdur	
15:45-16:00	FrC05.2
<i>A Necessary and Sufficient Condition for the</i>	

FrC06	Queens Quay 1
Large-Scale Systems (Regular Session)	
Chair: Boker, Almuatazbella	Virginia Tech
Co-Chair: Song, Ziyou	University of Michigan, Ann Arbor
15:30-15:45	FrC06.1
<i>Efficient Near-Optimal Control of Large-Size Second-Order Linear Time-Varying Systems, pp. 4980-4985.</i>	
Rustagi, Vishvendra; Baddam, Vasanth Reddy; Boker, Almuatazbella; Sultan, Cornel; Eldardiry, Hoda	
15:45-16:00	FrC06.2
<i>A Scalable Charging Algorithm for</i>	

<i>Heterogeneous EV Fleets Based on Clustering and Learning Methods</i> , pp. 4986-4991.	Xu, Liangcai; Gu, Xubo; Song, Ziyu		<i>Automated Vehicles Based on Data-Aided Model Augmentation</i> , pp. 5030-5035.
16:00-16:15	FrC06.3	Nemeth, Balazs; Lelkó, Attila; Hegedus, Tamas; Gaspar, Peter	
<i>Recognition of an Unknown Linear Ensemble by Its Aggregated Measurements</i> , pp. 4992-4997.	Cheng, Gong; Miao, Wei		16:15-16:30
16:15-16:30	FrC06.4	Teresa, Maria; Czuprynski, Kenneth; Zikatanov, Ludmil	FrC07.4
<i>Exploring Non-Submodular Scheduling for Large-Scale Sensor Networks</i> , pp. 4998-5003.	Vafaei, Reza; Siami, Milad		16:30-16:45
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.....	WeB13.1	919	Azad, Saeed	ThB16.4	2572
.....	ThC03.1	2830	Azizan, Navid	FrB09.5	4345
.....	ThC11.5	3152	B		
.....	ThC18.3	3383	Babaei, Mahnoush	FrC05.4	4960
.....	FrB21.1	4765	Babaei Pourkargar, Davood	WeA01.1	2
.....	FrB21.2	4771	WeA01.8	45
.....	FrC11.2	5169	WeA02.14	208
Amini, Arash	WeA02.6	151	Baddam, Vasantha Reddy	FrA02.7	3674
.....	ThC14.4	3264	FrC06.1	4980
Amini, Mohammad Reza	FrB16.1	4585	Bagaev, Dmitry	ThC01.3	2766
Aminzare, Zahra	FrC12	C	Bageshwar, Vibhor	WeC19.3	1885
Amir, Hanifi Yazdi	WeA01.15	86	Bagheri, Amirsalar	WeA01.1	2
Anderson, Brian D.O.	FrB11.3	4409	WeA01.8	45
Anderson, James	FrB01	CC	Bagnerini, Patrizia	WeB15.5	1012
.....	FrB01.4	4032	ThPo1.18	2001
Anderson, Logan	WeC04	C	ThB18.3	2636
.....	WeC04.6	1380	Baharisangari, Nasim	WeA01.6	33
Andersson, Sean B.	ThC18	CC	WeB01.4	522
.....	ThC18.6	3403	FrB08.2	4289
.....	FrA02	C	Bahati, Gilbert	FrB21.2	4771
.....	FrA02.3	3650	FrC11.2	5169
Andert, Jakob	FrC13.2	5232	Bahavarnia, MirSaleh	ThB17.6	2618
Andreotti, Amedeo	WeC16.2	1783	Bahoo, Yeganeh	WeA03.3	259
Andujar Lugo, Frank	FrB16.4	4605	Bahrami, Somayyeh	WeB02.3	554
Ankalugari, Rahul Yadav	ThPo1.19	2002	Bai, He	WeB20.3	1192
.....	FrB05.6	4204	Baillieul, John	FrC14.1	5264
Anubi, Olugbenga Moses	FrB10	CC	Bainier, Gustave	WeC13.6	1701
.....	FrB10.2	4365	FrB20	C
Aponte Rengifo, Oscar Emilio	ThPo1.38	*	FrB20.5	4753
Archila Cruz, Oscar Fabian	ThB01.1	2023	Baird, Luke	ThB11.2	2380
Ardell, Jeffery	FrB14.5	4536	Bajelani, Mohammad	FrC09.3	5106
Arezki, Hasni	WeC04	CC	Bakker, Craig	WeB21.5	1243
.....	WeC04.2	1355	Bakolas, Efstatios	WeA02.18	233
.....	ThB18.3	2636	WeB10.1	809
Ariola, Marco	FrB19.5	4717	ThB13	CC
Aschemann, Harald	WeB12.2	887	ThB13.4	2470
.....	ThC03	C

	FrA04.9	3935	Bell, Zachary	ThC02.3	2802
Bakshi, Soovadeep	FrC03.5	4895	Bell, Zachary I.	ThB10.4	2356
Balas, Mark	ThC10.4	3106		ThC19.4	3430
Balci, Isin M	FrA04.9	3935		FrB02.3	4064
Baldea, Michael	WeA01.9	51	Belta, Calin	Fra04.1	3885
Baldivieso Monasterios, Pablo Rodolfo	FrA01.13	3584		FrB04.1	4126
Balim, Haldun	WeC20.2	1915	Bemporad, Alberto	WeB13.3	931
Ballotta, Luca	ThC02.6	2822	Ben Othman, Ghada	Fra04.2	3891
Balta, Efe C.	WeB05.2	656	Benalcazar, Diego R.	ThB20.3	2703
Balzano, Laura	FrC09.4	5113	Benciolini, Tommaso	FrC07	C
Bamieh, Bassam	ThB17.2	2592		Frc07.5	5042
	ThB21.4	2740	Bender, Shane	Frb14.5	4536
Banavar, Ravi N.	FrC09.1	5094	Bentsman, Joseph	Frb15.1	4548
Bang, Heeseung	WeC07.6	1488	Benvenuti, Alexander	FrB11.5	4422
Bannerjee, Addyay	FrC05.3	4954	Berberich, Julian	ThC12.4	3184
Bao, Jie	WeC18.2	1843	Bergbreiter, Sarah	Frc05.4	4960
	FrC09.2	5100	Bergveld, Hendrik Johannes	WeC21.2	1952
Bao, Zhengyang	ThC06.2	2950		WeC21.6	1977
Bapat, Nachiket	WeA01.12	68		Frc16.3	5351
Baptista, Ricardo	WeC20.3	1921	Berkane, Soulaimeane	WeB18.6	1133
	ThC09.3	3062	Berkane, Soulaimeane	ThB20.1	2691
Baras, John S.	FrB04.2	4133		ThC20.4	3467
Barbastathis, George	ThC08.4	3031	Berlin, Richard	Frb15.1	4548
Barbosa, Karina A.	ThPo1.3	1986	Berliner, Marc D.	Frc16.1	5339
Barooah, Prabir	WeC16	C	Bernstein, Dennis S.	WeC09.5	1556
	WeC16.4	1795		WeC10.1	1568
Barreiro-Gomez, Julian	WeB05.6	681		ThB10.2	2344
	FrC10.3	5137		ThB10.3	2350
Barton, Kira	FrB13.1	4472		ThC04.4	2891
	FrB13.5	4499		ThC10.6	3118
Barton, Samuel	WeB16.4	1044		FrB10.4	4378
Basar, Tamer	WeC11.1	1604		Frc11.1	5163
	FrA04.7	3921	Berntorp, Karl	Frc07.6	5049
Baskaran, Avinash	FrB14.2	4518	Bertoni, Massimiliano	WeC09.4	1550
Basnet, Dhiraj	ThPo1.24	2007	Bertrand, Sylvain	ThC19.3	3424
Bastopcu, Melih	WeC11.1	1604	Bertschinger, Bernd Markus	Frc13.6	5258
Basu, Himadri	WeC02.5	1305	Bertucci, Juan Pablo	ThC07.3	2995
Basyal, Sujata	WeA01.3	15	Bessafa, Hichem	Frc04.3	4919
	ThC04.3	2885	Betz, Johannes	ThPo1.21	2004
	FrB14.2	4518		ThPo1.22	2005
Batmani, Yazdan	WeC02.2	1287		ThPo1.23	2006
Baumann, Henry	WeC15.3	1751		Frc19.4	5466
Baumgärtner, Jan	FrC13.6	5258	Bhadra, Niloy	FrB14.5	4536
Bay, Christopher	WeB16	O	Bhadriraju, Bhavana	WeC14.5	1732
Bayiz, Yigit Ege	WeA02.4	135	Bhan, Luke	FrB20.2	4735
	WeA02.6	151	Bhaskar, Kiran	ThC21.2	3486
Beard, Randal W.	WeA03	CC	Bhattacharya, Raktim	WeA04.14	468
	WeA03.14	332	Bhattacharya, Rounak	Frc20.5	5511
	WeA04.18	492	Bhimaraju, Akhil	Frc19.5	5474
Beaver, Logan E.	WeB10.3	821	Bianchi, Mattia	ThC02.1	2790
Becker, Aaron	WeB13.2	925	Bianchin, Gianluca	Frc12	CC
Bedei, Julian	FrC13.2	5232		Frc12.2	5201
Beijen, Michiel	FrB08	CC	Billings, Blake	WeA04.1	382
	FrB08.3	4296		ThB06.6	2242
Belhadjoudja, Mohamed Camil	ThC15.3		Bird, Trevor, J.	ThB14	O
	3296			ThB14.6	2513
Belkhatir, Zehor	FrC04.3	4919		ThB16.3	2564
				FrB16	O

Birs, Isabela.....	ThC08.5	3037		FrC01.6	4831
	FrA04.2	3891	Broucke, Mireille E.....	ThC13	CC
Biswas, Gautam	WeC09.3	1543		ThC13.6	3237
Bizyaeva, Anastasia	FrB11.6	4428	Brown, Philip N.....	WeB11	CC
Black, Mitchell.....	WeA03.16	344		WeB11.3	857
	ThC14.6	3276		WeC11	C
Blizard, Audrey	FrB16	O		WeC11.5	1628
Block, Brian	FrB07.4	4262		FrA04.6	3915
Boche, Holger.....	FrA04.4	3903	Brunke, Lukas.....	WeA03.5	272
Boerrigter, Gijs.....	FrB08.3	4296		WeC01.1	1249
Bohonek, Rick	Fra01.1	3505		FrC03.3	4883
Boker, Almuatazbellah	FrA02.7	3674	Buchholz, Michael	WeA01.19	111
	FrC06	C		FrA04.11	3947
	FrC06.1	4980	Bullo, Francesco.....	ThB02.1	2060
Bollas, George.....	WeC08	CC	Bunton, Jonathan	FrB20.1	4729
	WeC08.2	1500	Burbano Lombana, Daniel....	ThB05.6	2206
Bolliger, Diego	WeB05.2	656	Burks, Luke.....	WeA04.12	454
Boltz, Noelle	FrB19.4	4711	Burns, John A	WeB15.2	994
Bondar, Georgiy Antonovich	FrB19.1	4693	Burton, Samantha.....	WeA04.4	402
Bongiovanni, Nicolas.....	WeA01.16	92	Busoni, Lucian	WeB20.5	1204
Bopardikar, Shaunak D.....	ThB20	CC	Butcher, Eric	ThC09.1	3049
	ThB20.4	2709	Buyukdemirci, Kaan.....	FrC04.1	4907
Borah, Manashita	WeC06.2	1429		C	
	WeC06.4	1441			
Borelle, Matthieu.....	ThC19.3	3424	Cabral, Kailah.....	WeA04.12	454
Borggaard, Jeff	ThC15.5	3308	Caforio, Antonio	FrC14.4	5282
Borhan, Hoseinali	FrB07.3	4254	Cai, Jie.....	FrC01.3	4813
Borisov, Nikita	WeA04.13	462	Cai, Kai	ThC13.1	3202
Borrelli, Francesco	FrP1.1	3504	Cai, Mingyu.....	WeC13.2	1676
Borum, Andy	FrB02	CC	Caiazzo, Bianca.....	WeC16	CC
	FrC02	C		WeC16.2	1783
	FrC02.2	4844	Caines, Peter E.....	FrB06.4	4230
Boughellaba, Mouaad	ThB01.4	2041		FrC12.5	5219
Bouland, Ali	WeB15.2	994	Calle, Christopher I.....	ThB20.4	2709
	ThC04.1	2871	Camacho, Eduardo F.....	ThC19.3	3424
Boussaada, Islam	FrC20.2	5492	Canova, Marcello.....	ThC07.2	2989
Boyacioglu, Burak.....	FrC05.4	4960	Cao, Yongcan	WeB10	CC
Braatz, Richard D.....	WeB08.1	749		WeB10	O
	WeB08.2	763	Cao, Yue	WeB16.4	1044
	ThPo1.8	1991	Capobianco, Roberto.....	WeA03.17	352
	ThC08.4	3031	Casas Rentería, Eduardo	ThC15.1	3284
	FrB13.6	4506	Casbeer, David W.....	WeB02.1	542
	FrC16.1	5339		WeB10	O
Brace, Natalie	FrA04.15	3972		WeB10.5	833
Brandt, Teo	WeB13.5	943	Cassandras, Christos G.....	WeC07.1	1455
	WeC13.4	1689		WeC07.3	1468
Braniff, Austin	WeC14.1	1707	Castelan, Eugenio B.....	WeC13.1	1670
	ThPo1.43	2022	Castillo, Ivan	WeB08	C
Brekken, Ted	WeB16.4	1044		WeB08	O
	ThC16.3	3328		WeB08.3	769
Brennan, Sean	ThB04.5	2164		WeC08.4	1512
	FrB08.1	4283	Castillo, Pedro	WeB09	C
Breschi, Valentina	FrB09	O		WeB09.3	785
Bretl, Timothy	FrC02.2	4844	Caverly, Ryan James.....	WeC04.6	1380
Brewer, John Matthew	WeB09.4	791		WeC19	CC
Bridgeman, Leila J.....	ThC18.2	3377		WeC19.3	1885
Bristow, Douglas A.....	FrC01	CC	Cavorsi, Matthew	FrB04.3	4141
	FrC01	O	Cenedese, Angelo	WeC09.4	1550

	WeC10	C		ThC07.5	3007
	WeC10.6	1598	Chen, Rui	WeA03.8	292
	ThC01	C		WeB13.4	937
	ThC01.1	2752		Fra01.5	3531
Chakrabarty, Ankush	WeA03.12	318	Chen, Shangcheng	ThC01.6	2784
	FrB16	CC	Chen, Shaoru	Fra01.17	3610
	FrB16	O	Chen, Shenghui	FrB05.4	4188
	FrB16.5	4612	Chen, Siyu	WeB02.4	560
Chakraborty, Aranya	Fra02.16	3728	Chen, Tianxing	WeB17.6	1097
Chakraborty, Prakash	WeC11.2	1610	Chen, Tongwen	WeB20	CC
Chakraborty, Sayan	WeA03.1	245		WeB20.1	1180
Chakraborty, Sourav	FrA01.10	3563	Chen, Xu	WeC05	C
Chakraborty, Subhrajit	FrC16.2	5345		WeC05.6	1417
Chakravarthy, Animesh	WeC15.5	1764		Frc17.6	5400
Chakravorty, Suman	FrB08.4	4302	Chen, Xunjie	ThC12.1	3166
Chamoin, Ludovic	WeB12.4	899	Chen, Yan	WeB07.2	725
Chandan, Vikas	FrA01.1	3505	Chen, Yijun	WeB19.4	1158
Chandra, Rohan	ThB13.4	2470		WeC16.3	1789
Chandrasekar, Aswin	FrB12.1	4434	Chen, Yiting	ThC05.3	2924
Chaoying, Pei	ThB05.1	2176	Chen, Yize	Fra01.19	3625
Chapman, Airlie	WeA02.10	180	Chen, Yongxin	FrB19.6	4723
Chapman, Margaret P	ThC14	C	Chen, Youyi	ThB06.1	2212
	ThC14	O	Chen, Yue-Ming Chen	ThC07.1	2983
Chari, Anirudh	WeA03.8	292	Chen, Yunzhi	ThB06.6	2242
Charla, Sesha	WeA04.8	427	Chen, YuWen	WeA03.6	279
Chatri, Chakib	FrB13.4	4493	Chen, Zheng	WeB14	CC
	FrB21.6	4795		WeB14.3	969
Chatterjee, Avhishek	FrC19.5	5474	Chen, Zheng	Fra02.18	3740
Chatzinikolaou, Efstratios	WeB06.5	713	Chen, Zhiyi	WeB12.3	893
Chatzipantazis, Evangelos	ThC04.5	2897		FrB13.2	4479
Chaudhari, Pratik	FrB09.6	4353	Cheng, Ao	FrB10.5	4384
	FrB17.3	4637	Cheng, Gong	Frc06.3	4992
Chavez Arana, Diego	ThC10.3	3100	Cheng, Hong	Fra03.3	3768
	ThC11.1	3124	Cheng, Shiyu	ThB11.6	2405
Che, Mingxuan	WeA03.5	272	Cheniouni, Ishak	WeB18.6	1133
	FrC03.3	4883	Cherkaoui, Mohamed	FrB13.4	4493
Cheded, Lahouari	WeC20.1	1909		FrB21.6	4795
Chee, Yin Yong	WeC09.5	1556	Chesebrough, Samuel	WeA04.11	447
	FrC11.1	5163	Chhabra, Robin	ThB20	C
Chellapandi, Vishnu Pandi	FrB07.3	4254		ThB20.2	2697
Chen, Bo	FrB11.5	4422		Fra01	C
Chen, Chen	FrA03.3	3768		Fra01.18	3618
Chen, Chih-Chiang	ThPo1.27	2010	Chiang, Leo	WeB08.3	769
	ThB18	CC	Chiang, Ming-Li	WeA03.6	279
	ThB18.4	2642	Chiasson, John	WeC04.3	1361
Chen, Cindy	ThB04.5	2164	Chih-Yung, Wen	Fra03.9	3809
Chen, Dongmei	WeB18.4	1121	Chihabi, Yazan	ThC09.4	3068
	FrC03.5	4895	Chitimkeni, Hareesh	ThC03.3	2844
Chen, Hao	ThB14.1	2482	Chiu, Chih-Yuan	WeC07.2	1461
Chen, Huang-Chih	FrB08.5	4308	Chnib, Echrak	ThPo1.18	2001
Chen, Jie	ThC18.4	3391	Cho, Minhyun	WeC02.3	1293
Chen, Jiming	FrC12.1	5195	Cho, Namhoon	FrB09.5	4345
Chen, Kuo	ThC12.1	3166	Cho, Youngki	ThPo1.13	1996
Chen, Lijun	WeB17	C	Choi, Hyungjin	ThC19	CC
	WeB17.4	1083		ThC19.1	3411
	FrA01.10	3563	Choi, Jeesoon	ThC21.3	3492
Chen, Mo	ThB14.4	2501	Choi, Jiwoo	WeB09.2	778
Chen, Pingen	ThC07.4	3001	Choi, Jongeun	WeC03.5	1335

Choi, Joonwon.....	ThC17.1	3340	Czuprynski, Kenneth	FrC07.4	5036
Choi, Kyunghwan	FrA02.2	3643			
Choi, Wonseok	ThPo1.13	1996	D		
Chou, Ting-An.....	FrB08.5	4308	Daafouz, Jamal.....	FrB17.4	4645
Chowdhury, Dhrubajit	WeC20.5	1933	Dai, Min	ThC03.1	2830
.....	ThC05.1	2911	Dai, Ran.....	ThB05	CC
Christofides, Panagiotis D.	FrB06.2	4216	.....	ThB05.1	2176
.....	FrB12.4	4452	Dai, Xiaobing.....	WeB02.4	560
Chrysafinos, Konstantinos.....	ThC15.1	3284	Dal Fabbro, Nicolò.....	ThB02.5	2090
Chu, Jian	FrC03.5	4895	Dall'Anese, Emiliano.....	ThC05.3	2924
Chu, Thomas	WeC05.6	1417	Damiani, Angelo	WeA01.2	8
.....	FrC17.6	5400	Dani, Ashwin.....	FrC20	C
Chu, Xiangyu	FrA03.17	3859	.....	FrC20.5	5511
Chuang, Che-Jung	WeA03.6	279	Daniel, Thomas	FrC05.4	4960
Chung, Chung Choo	FrB17.2	4631	Danielson, Claus	WeB13	CC
.....	FrC04.2	4913	.....	WeB13.5	943
Chung, Wooyoung.....	WeA04.10	439	.....	WeC13.4	1689
Cichella, Venanzio	WeC05.3	1398	.....	ThB09.3	2311
.....	ThB17	C	.....	FrC08.5	5082
.....	ThB17.1	2586	Dantas, Beatriz.....	ThPo1.43	2022
Clark, Andrew	ThB11.6	2405	Daoutidis, Prodromos	FrB12.5	4460
.....	FrB01.1	4012	Darabi, Atefe	FrB11.2	4402
Clarke, John-Paul	ThB07.1	2248	Darir, Hussein	WeA04.13	462
Clemente, Carmine.....	FrB03.3	4102	Das, Goutam	WeA02.18	233
Cohen, Max	FrA04.1	3885	.....	FrB02.3	4064
.....	FrB21.2	4771	Das, Pranoy	FrA01.9	3557
Cole, Michael.....	FrC07.1	5016	Datar, Adwait	WeB15.6	1018
Como, Giacomo	FrB11.4	4416	Dave, Aditya Deepak	WeB01.6	536
Coogan, Samuel	WeC03	CC	.....	WeC07.6	1488
.....	WeC03.6	1343	.....	ThB07.2	2254
.....	ThB11.2	2380	Davies, Alexander.....	FrC05.6	4974
.....	ThB14	C	Davino, Daniele	FrB03.3	4102
.....	ThB14.5	2507	Davison, Daniel E.	FrC08.3	5067
.....	FrA03.20	3879	Davoodi, Mohammadreza	WeC02	CC
.....	FrA04	CC	.....	WeC02.2	1287
.....	FrA04.17	3987	.....	FrA03.1	3752
Copot, Dana	FrA04.2	3891	Davoudi, Mehdi.....	ThC06.4	2964
Copp, David A.....	FrB18.3	4669	Davydov, Alexander	ThB02.1	2060
Coraggio, Marco	FrB11.1	4396	Dayanikli, Gokce	FrC08.4	5075
Corbett, Brandon	WeC01.4	1269	Dayi, Arif Kerem.....	ThB02	O
Corbin, Nicholas	ThB15.1	2521	.....	ThB02.4	2082
Cortes, Jorge	ThC05.3	2924	.....	ThC02	O
.....	FrB06.3	4224	de Andrade, Gustavo Artur	WeC05.1	1386
.....	FrC15.3	5313	De Castro, Ricardo	WeB06	O
Cortez, Karla Lorena	FrB02.2	4058	.....	WeC06	CC
Cosentino, Carlo	FrB19.5	4717	.....	WeC06	O
Cothren, Liliaokeawawa	ThC05.3	2924	.....	WeC21	O
Coursey, Austin	WeC09.3	1543	.....	ThB06	O
Cowlagi, Raghvendra V.	WeA01.12	68	.....	ThC21	O
.....	WeA03.10	306	.....	ThC21.4	3498
Cregg, Liam	FrB05.1	4170	De Keyser, Robin M.C.	FrA04.2	3891
Crevecoeur, Guillaume	WeA04.5	408	de Queiroz, Marcio	ThB01.2	2029
Crossno, Jesse	FrA01.1	3505	De Silva, Oscar	ThB03.4	2122
Crouse, Steven	WeB20.2	1186	.....	ThB04.6	2170
Csomay-Shanklin, Noel	ThC18.3	3383	De Tavernier, Delphine	WeB16.5	1051
Cucuzzella, Michele	ThB18.1	2624	de Vries, Bert	ThC01.3	2766
Cui, Xiaofan	WeA04.15	474	Decardi-Nelson, Benjamin	WeA02.3	129
Cunis, Torbjørn	FrA04.16	3980	Del Duca, Alessandro	WeC16.5	1801

Del Favero, Simone.....	WeC08.1	1494		FrC10.2	5131
Del Vecchio, Domitilla.....	WeA02.1	117	Djeumou, Franck.....	ThC11.2	3130
	ThP1.1	1983	Djouadi, Seddik, M.	FrB15.4	4566
dela Rosa, Loren	FrC16.2	5345	Doctolero, Samuel.....	ThB10.1	2338
	FrC16.5	5364		FrB10.1	4359
Delattre, Cedric.....	FrC04.3	4919	Dogadin, Egor.....	WeC20.6	1940
Delvenne, Jean-Charles	FrC12.2	5201	Dogan, Kadriye.....	ThB19.3	2666
Demetriou, Michael A.	WeB15	C		FrB10	C
	WeB15	O		FrB10.3	4372
	WeC15	CC	Dolan, John	Fra03.12	3827
	WeC15	O	Dong, Fei	Fra02.1	3637
	WeC15.2	1744	Dong, Roy.....	WeB05	CC
	ThB15	CC		WeB05.5	675
	ThB15	O		WeC11.6	1634
	ThB15.2	2527	Dong, Songbo.....	WeB02.4	560
	ThC15	CC	Dong, Wenjie	ThPo1.30	2013
	ThC15	O	Dong, Yi	ThB19.6	2685
	ThC16	O	Donkers, M.C.F.	WeC21.2	1952
	FrB15	C		WeC21.6	1977
	FrB15	O		FrC16	CC
Demir, Cenk.....	FrC15.1	5301		FrC16.3	5351
Demirci, Yunus emre	FrA04.5	3909	Dörfler, Florian.....	WeB21.2	1225
Demkowicz, Michael.....	FrB08.4	4302		ThC02.1	2790
Demonte Gonzalez, Tania	ThC16.2	3322	Dorothy, Michael.....	ThC01.2	2758
Deneke, Tewodros Lemma....	WeA01.9	51		FrB02.3	4064
Deniz, Meryem	ThB19.3	2666	Dower, Peter M.	FrB02.6	4084
Dennis, Miriam.....	FrC05.6	4974	Drgona, Jan.....	FrB09	C
Deshpande, Vedang M.	WeC03.4	1329		FrB09	O
	FrB16.5	4612		FrB16	O
Dey, Arnab.....	FrA01.8	3551	Droop, Robin	WeB08.2	763
Dey, Satadru.....	WeB06	O	Drummond, Ross.....	WeB21	C
	WeC06	O		WeB21.3	1231
	WeC21	O		Fra01.13	3584
	ThB06	O	Du, Lili.....	ThB07.3	2260
	ThC21	O	Du, Shuhan.....	WeB12.6	911
Dey, Shawon	WeB11.5	869	Du, Zhe.....	WeC20.2	1915
di Bernardo, Mario.....	FrB11.1	4396		FrC09.4	5113
Di Cairano, Stefano	WeA03.9	299	Duan, Xiaoming	WeC18.6	1867
	WeA03.12	318	Dubljevic, Stevan.....	ThC08.2	3019
	WeA03.20	375		FrC15.2	5307
	WeB03.3	587	Duffaut Espinosa, Luis Augusto	WeA04.16	
	FrB18.2	4663		480	
Diagne, Mamadou	WeC15.4	1757	Dullerud, Geir E.	WeA04.13	462
	ThC05.5	2936		Fra02.13	3710
	FrC15.3	5313	Duncan, Stephen.....	WeB06.5	713
Dietmayer, Klaus Christian Jürgen	FrA04.11		Dunia, Ricardo.....	WeA01.9	51
	3947		Dunyk, Alexander	FrC12.5	5219
Dighe, Anish Vikas.....	FrB13.6	4506	Durand, Helen	WeC14	C
Dimarogonas, Dimos V.	ThB13.2	2458		WeC14	O
	ThC20.4	3467	Duvall, Alon.....	WeC18.1	1837
	FrA01.3	3517	Duy Nguyen, Hung	FrC04.6	4936
Ding, Fan.....	WeC18.6	1867		E	
Ding, Haochen.....	ThB01.3	2035	Ebrahimi, Alireza.....	WeB12.1	881
Ding, Zihan	WeA02.15	214	Ebrahimi, AmirMohammad	WeA02.14	208
Dixon, Warren E.	WeB09.4	791	Ebrahimi, Iman	ThC21.4	3498
	WeC02.4	1299	Ebrahimi, Mohammadjavad....	ThB05.2	2182
	ThC19.4	3430	Edwards, Sage	WeB09.4	791
	FrC10.1	5125			

Ekanayake, Lahiru.....	ThPo1.24	2007	Fazlyab, Mahyar	FrA01.17	3610
El-Farra, Nael H.....	WeC14.4	1726	Fekih, Afef.....	WeB02.3	554
.....	ThC08.6	3043	Feng, Qian	FrC11.5	5189
El-Kebir, Hamza.....	FrB15.1	4548	.....	FrC20.3	5498
Eldardiry, Hoda	FrA02.7	3674	Feng, Shuang	ThC21.4	3498
.....	FrC06.1	4980	Feng, Zhao	FrB03.2	4096
Elliott, D. Sawyer	ThB05.5	2200	Fernandes, Keegan	FrC08.3	5067
Elliott, Ryan	ThC19.1	3411	Feron, Eric	ThC13.2	3208
Ellis, Matthew	WeC14.4	1726	Ferrante, Francesco	WeB11.6	875
.....	FrC16	C	.....	WeC02.5	1305
.....	FrC16.2	5345	Ferrara, Antonella.....	FrC08.6	5088
.....	FrC16.5	5364	Ferrari-Trecate, Giancarlo	ThB12.3	2426
Elorza Casas, Carlos Andres..	ThPo1.28	2011	Ferreira, Patryck.....	ThPo1.20	2003
Elsayed, Mahmoud N.....	ThB04.6	2170	Fiacchini, Mirko.....	WeC02.5	1305
Enyioha, Chinwendu.....	ThB20.3	2703	Fichter, Walter	FrA04.16	3980
Eo, Jeong Soo	WeC12.1	1640	Fidkowski, Krzysztof	WeC10.1	1568
Eslami, Ali	ThC20.3	3460	Fiedler, Christian.....	FrC06.6	5010
Espin, Jorge Esteban	WeC21.3	1959	Fierro, Rafael.....	WeC13.4	1689
.....	ThB06.3	2224	Filev, Dimitar P.....	ThC17.3	3352
Espinosa Quesada, Eduardo Steed	ThC10.3	3100	Findeisen, Rolf.....	WeB08.2	763
.....	ThC11.1	3124	.....	WeC12.2	1646
Espitia, Nicolas	WeB15.4	1006	.....	ThC14.2	3251
Esser, Stefan	FrC08.2	5061	.....	FrC16.1	5339
Estephan, Peter	FrA03.5	3783	Fitzsimmons, Maxwell	FrB21.5	4789
Estiri, Elham	ThPo1.26	2009	Fleischer, Jürgen	FrC13.6	5258
Etesami, Rasoul	WeC11.1	1604	Fleming, Paul.....	WeB16	O
Eun, Yongsoon	FrB09.2	4326	Flores, Gerardo	FrB03.4	4108
Eyboglu, Mert	WeC19.2	1879	Fogelquist, Jackson.....	WeB06	O
F					
Fabiani, Filippo	FrB09	O	.....	WeC06	O
Fagiano, Lorenzo.....	ThC05.2	2918	.....	WeC06.3	1435
Fagnani, Fabio.....	FrB11.4	4416	.....	WeC21	O
Fainekos, Georgios	WeA03.16	344	.....	ThB06	CC
.....	ThC14.6	3276	.....	ThB06	O
Fairbanks, James	FrC02.3	4850	.....	ThC21	O
Fairchild, Preston	WeB14.1	957	Ford, Bryce	FrA01.7	3545
Faisal, Altaf	FrB17.5	4651	Fornaro, Pedro	ThC16.1	3316
Falco, Gregory	ThC09.2	3055	Fotiadis, Filippos.....	FrA02.12	3704
Fallin, Brandon	FrB11.5	4422	.....	FrC02.1	4838
Fan, Shicai.....	WeC08.3	1506	Fourati, Hassen	WeB04.4	632
Fan, Wenhui	WeB12.6	911	Franca dos Santos, Geovana.	WeC13.1	1670
Fang, Huazhen	WeB06.1	687	Franceschetti, Massimo.....	FrB01.5	4038
.....	WeC03.4	1329	Francisco, Mario	ThPo1.38	*
.....	WeC21.1	1946	Franze, Giuseppe	ThC12.6	3196
Fang, Xu	WeC17.3	1819	Frasca, Mattia.....	FrC12.3	5207
Farago, Francois	ThC09.6	3081	Freeman, Christopher T.....	ThC01.6	2784
Faraj, Rami	ThPo1.9	1992	.....	FrC01.5	4825
Farakhor, Amir	WeB06.1	687	Fregene, Kingsley C.....	WeP1.1	1
Farinelli, Alessandro	ThB11.5	2399	Frew, Eric W	ThB04.1	2140
Farnam, Arash	WeA04.5	408	Fribourg, Laurent	WeB12.4	899
Faros, Ioannis	WeB01.6	536	Fridovich-Keil, David.....	WeA03.18	360
Farrell, Jay A.....	WeC04.5	1373	Fried, Jonathan	FrA03.13	3833
Farsi, Milad	WeA04.5	408	Frigge, Anna Franziska	FrB14	CC
Farzan, Siavash	FrA03.4	3775	.....	FrB14.4	4530
Fateh, Fariba	ThPo1.31	*	Frisch, Daniel	WeB04.2	620
Fathy, Hosam K	FrB14.1	4512	Frost, Damien Francis	WeB06.5	713
.....			Frye, Michael	ThPo1.39	2019
.....			Fu, Li-Chen	WeA03.6	279
.....			.....	FrB08.5	4308

Fuady Emzir, Muhammad.....	WeC20.1	1909	Ghosh, Bijoy	FrA03.3	3768
G					
Gaggero, Mauro	WeB15.5	1012	Ghosh, Sanchita.....	ThB06.5	2236
.....	ThPo1.18	2001	Ghrist, Robert	ThC02.3	2802
Gagvani, Manav	FrB09.4	4339	Gianello, Maria Victoria	ThC03.2	2838
Gah, Elkplim	WeC19.5	1897	Gibart, Jules	ThC09.6	3081
Gajjar, Aatam	ThC08.6	3043	Gifford, Robert	FrB19.1	4693
Gallo, Alexander J.	WeB16.2	1030	Gil, Stephanie	ThB02	C
Gallup, Ethan	WeA04.1	382	.....	ThB02	O
Galuppini, Giacomo	WeB08.2	763	.....	ThB02.4	2082
Gamache, Corey	FrB07.1	4242	.....	ThC02	C
Gamarra, Marco	ThC02.4	2809	.....	ThC02	O
Gambrell, Oliver.....	FrA04.10	3941	.....	FrB04.3	4141
Gampa, Varun	FrA03.4	3775	Gilbert, Hunter B.....	WeB14	O
Gan, Die	WeC04.4	1367	Giordano, Jacopo	WeC10.6	1598
Gans, Nicholas	FrA03.1	3752	Girard, Anouck	WeA03.7	285
Gao, Chenxi.....	ThB11.4	2393	.....	ThC09.5	3074
Gao, Feng.....	WeC21.4	1965	Glushchenko, Anton	ThC20.5	3473
Gao, Han	WeB03.4	594	Göçmen, Tuhfe	WeB16.6	1057
Gao, Xinrui.....	FrB12.3	4446	Goel, Ankit	WeC09.5	1556
Gao, Xinzhou	ThB12.2	2420	.....	ThB10.2	2344
Gao, Yan.....	WeA02.17	226	.....	ThB21	C
Gao, Yulong.....	ThB14.1	2482	.....	ThB21.5	2746
Gao, Zhenyu.....	ThB07.1	2248	.....	Fra03.14	3841
Garagic, Denis	WeA04.11	447	.....	Fra03.18	3867
Garcia, Eloy	WeB02.1	542	Gokhale, Anand	ThB02.1	2060
Garcia Alcantara, Omar Alejandro	ThC10.3		Golgoon, Melika.....	ThB03.3	2116
		3100	Gomaa, Mahmoud A. K.	ThB03.4	2122
	ThC11.1	3124	Gomes da Silva Jr, Joao Manoel	WeC02.5	
Garcia Carrillo, Luis Rodolfo..	ThC10	CC			1305
.....	ThC10.3	3100	Gómez-León, Brian Camilo	ThC06.5	2971
.....	ThC11.1	3124	.....	ThC06.6	2977
Garone, Emanuele	FrB21.3	4777	Goncalves, Jorge.....	ThPo1.4	1987
Garrido-Moctezuma, Ruben ...	ThC06.6	2977	Gong, Zheng	ThB14.4	2501
Gaskell, Eric	FrB03.5	4114	Goossens, Kees	FrB13.3	4485
Gaspar, Peter	FrC07.3	5030	Gordon, David Carl.....	Frc13	C
Gautam, Yaashia	FrA02.6	3668	.....	Frc13.2	5232
Gava, Cristina.....	FrB04.3	4141	Gorsich, David	Frc07.1	5016
Ge, Xiaoyu.....	WeB16.3	1038	Goshtasbi, Alireza.....	WeB06.2	695
Gehlot, Vinod	ThC10.4	3106	Gosine, Raymond G.	ThB04.6	2170
Geiger, Maxwell.....	FrA01.20	3631	Gostin, David	ThB14.2	2488
George, Koshy	WeB21.4	1237	Goswami, Bhavya Giri.....	WeA03.13	325
Georgiou, Tryphon T.	WeC20	C	Goswami, Dip	FrB13.3	4485
.....	WeC20.3	1921	Gould, Brendan	WeC11.5	1628
.....	ThC18.4	3391	Goutham, Mithun	WeB10.6	839
Ghabcheloo, Reza.....	WeC12.3	1652	Govind Raju, Sathya Aswath ..	FrB07.2	4248
Ghaeminezhad, Nourallah....	ThB06.2	2218	Goyal, Raman	WeC20.5	1933
Ghanbarian, Behzad.....	WeA01.1	2	.....	ThC05.1	2911
Ghasemi, Masood	FrC07	CC	.....	Frc20.4	5505
.....	FrC07.1	5016	Gracia, Victor	ThB12.6	2446
Ghezelbash, Azam	ThPo1.17	2000	Gracy, Sebin	FrB11	O
Ghimire, Donipolo.....	ThPo1.37	2018	.....	FrB11.3	4409
Ghimire, Mukesh	WeA01.10	56	Graf, Thomas	Frc08.2	5061
Ghorbani, Majid	WeA04.5	408	Grange, Daniel	WeC20.3	1921
Ghoreishi, Seyede Fatemeh..	FrA04.8	3927	.....	ThC09.3	3062
.....	FrC19	CC	Gravdahl, Irja	ThC03.3	2844
.....	FrC19.2	5453	Green, David	FrB14.5	4536
			Greiff, Marcus Carl	WeA03.9	299
			.....	WeA03.20	375

	FrC07.6	5049		FrC02.3	4850
Griffis, Emily	FrC10.1	5125	Haman, George III Victor	ThB09.5	2325
	FrC10.2	5131	Hamel, Tarek	ThC20	CC
Griffith, Tristan	ThC10.4	3106		ThC20.4	3467
Gros, Sebastien	FrB02.1	4050	Hamrah, Reza	FrA04.19	3999
Grover, Jaskaran	WeA03.8	292	Han, Feng	WeB03.2	581
Grover, Martha	WeP1	C	Han, Kyoungseok	WeC12	C
	WeB20.2	1186		WeC12.1	1640
	ThP1	C		FrC04.6	4936
	FrP1	CC	Han, Liang	FrA02.1	3637
Gu, Chengyang	FrA01.19	3625	Han, Minghao	ThC08.3	3025
Gu, Xubo	FrC06.2	4986	Han, Qi	ThB04.3	2152
Guay, Martin	FrA02.4	3656	Han, Sangwoo	WeB06.2	695
Guglielmi, Roberto	FrB15.6	4579	Han, Shuangyu	FrC09.2	5100
Gul, Kursad Metehan	WeC17.5	1831	Han, Zhifeng	ThPo1.35	*
Gumussoy, Suat	FrA02.7	3674	Hanasusanto, Grani A.	WeB19.5	1164
Gunnell, LaGrande	WeC08.4	1512	Hanebeck, Uwe D.	WeB04.2	620
Guo, Fanghong	WeA02.11	186	Hang, Haotian	FrA04.13	3960
Guo, Jia	WeC10.4	1586	Hanks, Tyler	FrC02.3	4850
Guo, Zehui	WeB11.1	845	Hans, Christian Andreas	ThB06.4	2230
Guo, Ziyi	WeB20.1	1180	Hansen, Scott	ThB15.4	2539
Gupta, Shobhit	ThC07	O	Hao, Ce	WeA04.17	486
	ThC07.2	2989	Haraldsen, Aurora	ThC11.5	3152
	FrB07	CC	Harapanahalli, Akash	ThB11.2	2380
	FrB07	O		ThB14.5	2507
Gupta, Vijay	FrA01.9	3557	Hart, Rebecca	FrC10.1	5125
Gurjar, Bhagyashri	WeB10.2	815		FrC10.2	5131
Gurpegui, Alba	FrC02	CC	Harter, Andrew	FrB05.5	4196
	FrC02.4	4858	Hasankhani, Arezoo	ThC16	O
Gurses, Yigit	FrC04.1	4907	Hasanzadeh, Milad	WeB15.3	1000
Guthikonda, Vrithik Raj	FrC20.5	5511	Hashim, Hashim A.	ThC12.2	3172
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H					
Haddad, Madjid	WeC04.1	1350		FrC03	CC
	ThPo1.41	2021		FrC03.2	4876
Haddad, Shadi	ThB19.5	2679	Hashimoto, Kazumune	WeA01.13	74
Haddadin, Osama	ThPo1.33	2015	Hashimoto, Wataru	WeA01.13	74
Hadi, Behnaz	ThB10.6	2368	Haskell, Cymra	FrB17.1	4624
Hadizadeh Kafash, Sahand	FrC18.1	5406	Hassani, Hamed	WeA01.14	80
Hadjigeorgiou, Andreas	WeC07.4	1474	Hassanpour, Hesam	WeC01.4	1269
Haeri, Hossein	ThB04.5	2164	Hassibi, Babak	FrB02.4	4072
Hafez, Mohamed Ashraf	ThC13.6	3237	Hastedt, Philipp	WeB15.6	1018
Hafezi, Hamid	FrA03.1	3752	Hatanaka, Takeshi	WeB10.4	827
Hafstein, Sigurdur	FrC05	C	Hattab, Georges	WeB02.4	560
	FrC05.1	4942	Hawa, Angelo	FrB13.5	4499
Hagen, Daniel	WeA04.11	447	Hawkins, Calvin	FrB11.5	4422
Haghshenas-Jaryani, Mahdi	WeB14.2	963	Hayajneh, Mohammad	WeA02.9	173
Hagiwara, Tomomichi	FrC11.3	5177	Hayakawa, Tomohisa	WeB11.1	845
Hahn, Jin-Oh	FrB14	O	Hays, Christopher	ThC20.2	3454
Haile, Mulugeta	FrB17.3	4637	He, Changran	FrC03.6	4901
Hajar, Joudi	FrB02.4	4072	He, Chong	ThB14.4	2501
Hajizadeh, Amin	FrA04.18	3993	He, Jianping	WeC18.6	1867
Halder, Abhishek	ThB19	C	He, Shuaipeng	ThB18.4	2642
	ThB19.5	2679	He, Siming	FrB09.6	4353
	FrB19	CC	He, Tianyi	WeA04.4	402
	FrB19.1	4693		ThC17.5	3365
	FrB19.6	4723	He, Zhichen	WeC08.6	1525
Hale, Matthew	FrB11.5	4422	He, Zhilin	FrB17.1	4624
			Hedengren, John	WeC08.4	1512
				ThB06.6	2242

Heertjes, Marcel	FrB03.6	4120	Hu, Qiuhan	FrB16.1	4585
	FrC13.4	5244	Hu, Wang	WeC04.5	1373
Hegedus, Erwin	ThC08.5	3037	Hu, Weiwei	WeB15	CC
	FrA04.2	3891		WeB15	O
Hegedus, Tamas	FrC07.3	5030		WeC15	C
Heining, André	FrC08.2	5061		WeC15	O
Hencey, Brandon	ThB14.3	2494		ThB15	C
Henderson, Troy	ThC20.2	3454		ThB15	O
Henselman-Petrusek, Gregory	ThC02.3	2802		ThB15.2	2527
				ThC15	C
Herber, Daniel R	ThB16.4	2572		ThC15	O
Herbert, Sylvia	ThB14.4	2501		Frb15	CC
	FrC04.4	4924		FrB15	O
Hereid, Ayonga	WeA04.11	447	Hu, Xiaohai	WeC05.6	1417
	WeB13.6	949		Frc17.6	5400
Herty, Michael	FrC06.6	5010	Hu, Xiaorong	Fra01.4	3524
Hesse, Holger	WeB06.3	701	Huan, Xun	WeB12	C
Heydari, Sina	FrA04.13	3960		WeB12.3	893
Hill, Colton	FrA04.6	3915	Huan, Zhijie	ThC10.2	3094
Hill, Daniel	ThB06.6	2242	Huang, Biao	Frc09.2	5100
Hinson, Kimber	ThB04	CC	Huang, Bowen	WeB21.5	1243
	ThB04.2	2146		ThB16.5	2580
Hirche, Sandra	WeB02.4	560	Huang, Dexian	ThC12.3	3178
	FrB04.2	4133	Huang, En-Chuan	Frb08.6	4314
Hixenbaugh, Chris	WeB19.2	1146	Huang, Jie	Frc03.6	4901
Hoagg, Jesse B	FrA02.10	3692	Huang, Joey	Frc03.5	4895
	FrA02.11	3698	Huang, Minyi	FrB06	CC
Hoffmann, Kathrin	FrC13.6	5258		FrB06.4	4230
Hofman, Theo	ThC07.3	2995	Huang, Tao	Fra03.9	3809
Holmer, Justin	ThC07.1	2983	Huang, Xinyan	ThC12.1	3166
Hoobler, Richard	ThB09.2	2304	Huang, Yicun	FrB17.5	4651
Hoogerwerf, Rob	WeC08.4	1512	Huang, Yunshen	WeA03.20	375
Horn, Martin	WeA04.6	414	Huber, Marco	WeA01.18	104
Horowitz, Roberto	WeC03.5	1335	Hugues, Jerome	Fra02.12	3704
Hoshino, Hikaru	FrA01.12	3576		Frc02.1	4838
Hosseiniipour, Ali	WeB16.3	1038	Hulsman, Paul	WeB16.6	1057
Hosseinzadeh, Mehdi	FrB14.6	4542	Hung, Pin-Yun	WeA02.5	143
Hou, Tan	ThB13.3	2464	Husmann, Ricus	ThC03.5	2858
Hou, Zhinan	ThB07.5	2273	Hutchinson, Spencer	WeC05.4	1404
Hovakimyan, Naira	WeC10.5	1592	Hwang, Inseok	WeC02.3	1293
	WeC12.3	1652		ThC17.1	3340
	WeC19.1	1873	Hwang, Seunghoon	ThB12.1	2412
	ThB17.1	2586	Hwang, Soungwan	WeC02.3	1293
Howey, David A	WeB06.3	701	Hyeon, Soojeong	WeB02.2	548
	WeB06.5	713		I	
Howland, Michael	WeB16.6	1057	Iannelli, Andrea	FrB17.4	4645
Hoxha, Bardh	WeA03.16	344	Ibarra, Efrain	WeB09.3	785
	ThC14.6	3276	Ibarra, Jorge	Frc03.4	4889
Hsiao, Tesheng	FrC13.1	5226	Ichalal, Dalil	WeB04.1	614
Hsieh, Chiao	ThC13.3	3215	Ifqir, Sara	WeB04	C
Hsu, Christopher	FrB09.6	4353		WeB04.1	614
	FrB17.3	4637	Ijaz, Salman	FrB18.6	4687
Hsu, Shun-Pin	FrB19	C	Ijoga, Emmanuel Ogbanje	WeC09.6	1562
	FrB19.2	4699	Imani, Mahdi	Fra04.8	3927
Hu, Bin	FrA02.13	3710		Frc19.2	5453
Hu, Binxin	FrA01.2	3511	Immonen, Jake	WeA04.1	382
Hu, Cheng	FrA01.4	3524	Inanc, Emirhan	WeC10.3	1580
Hu, Qinglei	FrA02.1	3637			

Incremona, Gian Paolo	FrC08.6	5088	Jimenez Cortes, Carmen	FrA04.17	3987			
Innis, Cody	ThC07.5	3007	Jin, Ming	WeC01	CC			
Inoue, Masaki	FrA01.15	3598	.....	WeC01.3	1263		
Ionescu, Clara	FrA04.2	3891	.....	FrA01.11	3570		
Isaly, Axton	WeB09.4	791	Jin, Wanxin	WeC18.6	1867			
Ito, Hiroshi	WeB18	CC	Johansen, Tor Arne	FrB02.1	4050			
.....	WeB18.5	1127	Johansson, Karl H.	ThC14.5	3270			
Ivanco, Andrej	WeB07.1	719	.....	FrC19.1	5447		
Iyer, Ashwin	FrC03.1	4870	Johnson, Eric	WeC09.1	1531			
J								
J. Leudo, Santiago	WeB11.6	875	Johnson, Jacob Collin	WeA04.18	492			
Jaafar, Hussein Ali	WeB17.5	1091	Johnson, Ryan S.	FrB18.4	4675			
Jabbari, Faryar	WeC05.2	1392	Jokic, Andrej	WeB18.3	1115			
Jaber, Halah	ThPo1.39	2019	.....	WeB21	CC		
Jadbabaie, Ali	ThC01.4	2772	.....	WeB21.1	1219		
.....	ThC02.2	2796	Jonas, Jared	ThB21.4	2740			
Jafari, Alireza	WeA04.7	421	Jones, Morgan	ThC04.2	2879			
Jafarpour, Saber	ThB14.5	2507	Joseph, Ajin George	ThPo1.19	2002			
Jagannathan, Sarangapani	FrA01.20	3631	Jouret, Louis	FrC10.5	5149			
Jagt, Declan S.	FrB15.2	4554	Jovanovic, Mihailo R.	WeB05.1	650			
Jagtap, Pushpak	WeA03.13	325	Ju, Yi	WeB06.4	707			
Jain, Anoop	ThB13.5	2476	Jugade, Chaitanya	FrB13.3	4485			
Jain, Neera	WeB06	O	Jung, Dohoy	ThB06.1	2212			
.....	WeC06	O	K					
.....	WeC21	O	K. C., Tejaswi	ThPo1.6	1989			
.....	ThB06	O	Kaaya, Theophilus	WeB14.3	969			
.....	ThB14	O	Kadakia, Yash Ashit	FrB06.2	4216			
.....	ThB14.6	2513	.....	FrB12.4	4452		
.....	ThB16.3	2564	Kajiru, Yuichi	WeC21.3	1959			
.....	ThC13.4	3223	Kakuko, Norihiro	WeA01.17	98			
.....	ThC21	O	Kalaimani, Rachel Kalpana	FrA02.19	3746			
Jankowski, Łukasz	ThPo1.9	1992	Kalantar-Neyestanaki, Hossein	FrC16.2	5345			
Javid, Umair	FrB18.6	4687	Kalathil, Dileep	FrB08.4	4302			
Jayaratnhe, Damsara	ThB11.3	2386	Kamalapurkar, Rushikesh	WeB01	CC			
Jayasiri, Awantha	ThB03.4	2122	.....	WeB01.1	504		
.....	ThB04.6	2170	.....	ThB10	CC		
Jeevarajan, Judith	ThC21.1	3480	.....	.....	2356	
Jeloka, Bhavini	FrC09.1	5094	Kamaldar, Mohammadreza	ThB10.3	2350			
Jensen, Emily	WeC17	CC	Kaminer, Isaac	ThB17.1	2586			
.....	ThB17	CC	Kanagaligam, Gajanan	FrC13.6	5258			
.....	ThB17.2	2592	Kanellopoulos, Aris	FrC02.1	4838			
Jeong, Bora	ThPo1.13	1996	Kang, Dongyeop	WeC20.4	1927			
Jeong, Da Hoon	WeB09.2	778	Kang, Hyungsoo	ThB17.1	2586			
Jerath, Kshitij	ThB04.5	2164	Kang, Jun-Mo	FrB07	O			
Jha, Mayank Shekhar	WeC10.2	1574	Kanso, Eva	FrA04.13	3960			
Jia, Gaofeng	ThB16.4	2572	Kao, Cheng-Hao	WeB17.5	1091			
Jia, Tianyu	ThB12.5	2440	Kara, Ali Devran	FrA04.5	3909			
Jia, Yupeng	ThB19.6	2685	Karabag, Mustafa O.	WeA03.18	360			
Jiang, Boxi	ThB16.2	2558	.....	FrB05.4	4188		
Jiang, Jesse	WeC03.6	1343	Karafyllis, Iasson	FrB20.2	4735			
Jiang, Jin	ThB08.2	2297	Karapetyan, Aren	WeB05.2	656			
Jiang, Shida	WeC06.2	1429	Karimi, Alireza	WeB19.3	1152			
.....	WeC06.4	1441	.....	WeC19.2	1879		
Jiang, Yu	WeA03.1	245	.....	FrA03	CC		
Jiang, Zhong-Ping	WeA03.1	245	.....	FrA03.16	3853		
Jiang, Zifei	ThC03.4	2851	.....	FrA04.12	3954		
Jiltsova, Elena	FrB14.4	4530	Karimi, Zahra	WeC02.2	1287			

Kashyap, Abhishek	WeC15.5	1764	Kim, Junsoo	ThB12.4	2432
Kawakita de Souza, Aloisio Henrique	WeC06.5		Kim, Kenneth	Frb07.2	4248
		1449	Kim, Minsu	Frc16.1	5339
Kawano, Yu	ThB18.1	2624	Kim, Nayeon	ThPo1.13	1996
	ThC13	C	Kim, Taehyeun	ThC09.5	3074
	ThC13.5	3231	Kim, Taewan	WeB03.3	587
Kazeminajafabadi, Armita	FrA04.8	3927	Kim, Youngjin	WeC03.3	1323
Kazi, Saif R.	FrC16.4	5357	Kim, Youngki	ThB06.1	2212
Ke, Jin	WeC18.6	1867		ThC07	O
Keivan, Darioush	FrA02.13	3710		ThC07.1	2983
Kelkar, Atul	ThPo1.34	2016	Kimura, Akari	Frc18.6	5441
Kellan, Moose	ThB21.2	2728	Kitashiba, Atsushi	WeB10.4	827
Kelly, Spencer	WeB05.3	662	Kiumarsi, Bahare	WeC10	CC
Kermanshah, Mehdi	FrB04.1	4126		WeC10.2	1574
Keshavan, Jishnu	FrA02.15	3722		ThB19.1	2654
Khaledi, Marjan	ThB19.1	2654	Klawonn, Matthew	Frc02.3	4850
Khaligh, Vahid	ThPo1.17	2000	Knutson, Mark	ThB08	CC
Khalilullah, Sk Md Ibrahim	ThPo1.12	1995		ThB08.1	2285
	ThC20.1	3448	Koc, Denizcan	WeB14.3	969
	FrC15.5	5327	Kocev, Kiment	WeB15.6	1018
Khamvilai, Thanakorn	WeC09.1	1531	Koch, Charles Robert	WeA01.15	86
Khan, Faisal	WeC14.5	1732		ThC08	C
	ThPo1.43	2022		ThC08.2	3019
Khan, Muhammad Aadil	WeA04.15	474		Frc13.2	5232
Khanal, Suraj	ThB16.4	2572	Koeln, Justin	ThB14	O
Khatana, Vivek	FrA01.8	3551		ThB14.2	2488
Khatri, Amit	WeB09.1	771		ThB14.6	2513
Khattar, Vanshaj	WeC01.3	1263		FrB16	O
Khazaei, Javad	WeB16.3	1038		FrB16.2	4591
Khemmar, Redouane	FrB20.4	4747	Koga, Shumon	Fra04.14	3966
	FrC04.3	4919		Frc15	C
Khodary, Pansie	ThB19.5	2679		FrC15.1	5301
Khorasani, Khashayar	ThC20.3	3460	Koh, Joewie J.	WeB17.4	1083
Khorrami, Farshad	ThC18.1	3371	Koh, Yubin	ThC13.3	3215
Khoshdel, Sahand	WeB03.5	601	Köhler, Andreas	ThB04.4	2158
Khoshnevisan, Ladan	WeC18.4	1855	Köhler, Johannes	ThB12.3	2426
Khosravi, Alireza	ThB10.6	2368	Kokolakis, Nick-Marios T.	Fra02.8	3680
Khosravi, Mohammad	WeB04	CC	Kolmanovsky, Ilya V.	WeA03.7	285
	WeB04.3	626		WeC19.1	1873
Kia, Solmaz S.	ThPo1.37	2018		ThC09.5	3074
	ThB05.4	2194		ThC17.3	3352
Kibangou, Alain	WeB04.4	632		FrB07.5	4268
Kidambi, Krishna Bhavithavya	WeC09	CC		FrB16.1	4585
	WeC09.6	1562		FrB21.3	4777
Kilgore, Kevin	FrB14.5	4536		Frc05.5	4967
Kim, Daeyeon	ThPo1.13	1996	Komaee, Arash	ThPo1.24	2007
Kim, Dohee	WeC12.1	1640		ThC19	C
Kim, Donghae	ThB01.6	2053		ThC19.6	3442
Kim, Heeseong	ThC07.1	2983	Konda, Revanth	WeB14.4	975
Kim, Jeeseop	WeA04.3	394	Konda, Rohit	Fra01.1	3505
Kim, Jin Sung	FrB17	C	Konidala, Bhargav	Frc15.4	5320
	FrB17.2	4631	Konowrocki, Robert	ThPo1.9	1992
	FrC04.2	4913	Koscielniak, Shane	Frc01	C
Kim, Jong-Han	WeB09.2	778		Frc01	O
Kim, Juhyeon	FrC19.6	5480		Frc01.1	4801
Kim, Jung Hoon	FrC11	CC		Frc01.2	4807
	FrC11.3	5177	Kothyari, Ashish	Frc05.3	4954
Kim, Junseo	WeA03.3	259	Kourtzanidis, Nikolaos	ThC03.6	2865

Koutsoukos, Xenofon	WeA01.5	27		WeA01.11	62
Kouw, Wouter Marco	FrB05.3	4182		WeC14.5	1732
Kozma, Elisabeta	ThC08.5	3037		FrB12.2	4440
Kramer, Boris	ThB15.1	2521		FrC17	CC
Kravaris, Costas	WeC08	C		FrC17.1	5370
	WeC08.5	1518		FrC17.2	5376
Krejci, Pavel	FrB03.3	4102		FrC19.6	5480
Krener, Arthur J.	FrB15.3	4560		Kwon, Kyung-bin	ThC14.1
Krishnamachari, Bhaskar	FrB17.1	4624			3245
Krishnamoorthy, Shankara Narayanan, Sriram			L		
Sundar	ThC18.5				
	3397				
Krishnamurthy, Prashanth	ThC18.1	3371	L'Afflitto, Andrea	WeC10.4	1586
Krishnannair, Syamala	ThPo1.16	1999		ThC10	C
Kristović, Pietro	WeB18.3	1115		ThC10.5	3112
	WeB21.1	1219	L. Azad, Nasser	WeA04.5	408
Krstic, Miroslav	WeB15.4	1006	Labbadi, Moussa	FrB13	C
	WeC05.1	1386		FrB13.4	4493
	WeC15.4	1757		FrB21.6	4795
	ThB15.3	2533		FrC08	CC
	ThC05.5	2936		FrC08.6	5088
	ThC15.3	3296	Laghmara, Hind	FrB20.4	4747
	FrB08.6	4314	Lahijanian, Morteza	WeC01.5	1275
	FrB20.2	4735		ThB04	C
	FrB21.4	4783		ThB04.1	2140
	FrC15.1	5301		ThB09.6	2331
	FrC15.3	5313	Lai, Beixian	ThC10.1	3088
Krupa, Pablo	ThB12.6	2446	Lai, Brian	ThC10.6	3118
Kruse, Niklas	WeB12.2	887		FrB10.4	4378
Kühn, Martin	WeB16.6	1057	Lai, Wenxin	ThB13.1	2452
Kum, Dongsuk	FrA02.2	3643	Laleg-Kirati, Taous-Meriem	WeA03.4	265
Kumar, Alok	ThPo1.34	2016		ThPo1.25	2008
Kumar, Gautam	WeA02	C	Lam, Hak-Keung	ThC10.2	3094
	WeA02.7	159	Lambeth, Krysten	FrC03.1	4870
Kumar, Manish	WeB10.5	833	Lamperski, Andrew	WeC04.6	1380
	FrB19.4	4711	Lane, Steven	FrC08.5	5082
Kumar, Manjay	FrB05.6	4204	Lastochkin, Konstantin	ThC20.5	3473
Kumar, Mrinal	FrA01.7	3545	Lau, Ivan	ThB02.6	2098
Kumar, Shashi Ranjan	WeB09	CC	Laub, Michael	WeA02.1	117
	WeB09.5	797	Lauber, Jimmy	FrC03.4	4889
	WeB09.6	803	Laughman, Christopher R.	FrB16.5	4612
	WeB10.2	815	Laurenti, Luca	WeC01.5	1275
Kumtepeli, Volkan	WeB06.3	701		ThB04.1	2140
Kung, Yung-Chi	WeB07.3	731	Lauriere, Mathieu	FrC08.4	5075
Kuo, Guo-Rong	WeA03.6	279	Lavaei, Abolfazl	FrC09.5	5119
Kurdila, Andrew J.	WeB15.2	994	Lavaei, Reza	ThC18.2	3377
	WeC10.4	1586	Lazri, Anes	ThB18.5	2648
	ThC04.1	2871	Le, Nhan-Khanh	FrB04.2	4133
	ThC10.5	3112	le Roux, Francis Anne	WeC21.6	1977
Kurtoglu, Deniz	WeB02.1	542		FrC16.3	5351
	ThB19.2	2660	Leahy, Kevin	FrA04.1	3885
Kurttisi, Atahan	ThB19.3	2666	Leang, Kam K.	WeP1	CC
Kwak, Dohyeok	FrC11.3	5177		WeA03	C
Kwak, Kyong Hyun	ThB06.1	2212		ThP1	CC
	ThC07	CC		ThPo1.33	2015
	ThC07.1	2983		ThPo1.36	2017
Kweon, Chol-Bum	FrB07.2	4248		FrP1	C
Kwon, Joseph	WeA01.7	39	Leccese, Sara	WeC16.2	1783
			Lederer, Armin	WeB02.4	560
			Lee, Chi Ho	FrC17.2	5376

Lee, Christopher	WeA02.16	220	Li, Zhiwen	ThC10.1	3088
Lee, Donghwan	ThB18	C	Li, Zhongkui	ThC18.4	3391
.....	ThB18.2	2630	Li, Zhuqing	FrB15.6	4579
Lee, Heoncheol	ThPo1.13	1996	Lian, Penglong	WeC08.3	1506
Lee, Hyeonjik	ThC07.1	2983	Liang, Dingguo	WeC08.6	1525
Lee, Jaeho	FrB09.2	4326	Liang, Kaier	WeC13.2	1676
Lee, Jaemin	WeA04.3	394	Liang, Shu	FrA01.2	3511
.....	ThC03.1	2830	Liao, Yingqian	ThB16.2	2558
Lee, Joonghyun	WeC09.5	1556	Limon, Daniel	ThB12.6	2446
Lee, Kooktae	WeC03.1	1311	Lin, Chi-Hui	WeB17.4	1083
Lee, Richard	WeC07.5	1480	Lin, Shan	WeA02.15	214
Lee, Taeyoung	WeC09.2	1537	Lin, Tony	FrB09.4	4339
.....	ThPo1.6	1989	Lin, Wei	Frc20.1	5486
.....	ThPo1.11	1994	Lin, Xiaofeng	WeA02.12	192
Lee, Yoonjae	WeA02.18	233	Lin, Xiaojun	ThC06.4	2964
Leeser, Miriam	ThC03.2	2838	Lin, Xinfan	WeB06	C
LeGrand, Keith	ThC02.5	2816	.....	WeB06	O
Lei, Jinlong	WeA02.19	239	.....	WeC06	O
Leibold, Marion	FrC07.5	5042	.....	WeC06.3	1435
Lelkó, Attila	FrC07.3	5030	.....	WeC21	O
Lendek, Zsofia	WeB20.5	1204	.....	WeC21.1	1946
Leok, Melvin	WeA03.11	312	.....	ThB06	O
Leonard, Naomi Ehrich	FrB11.6	4428	.....	ThC21	CC
Leonardi, Stefano	WeB16.1	1024	.....	ThC21	O
Less, Greg	ThPo1.42	*	Lin, Yixuan	ThC02.4	2809
Levin, Simon	FrB11.6	4428	Lin, Yun-Hao	WeA04.7	421
Li, Anni	WeC07.1	1455	Lin, Zongli	WeC16.1	1777
Li, Danyang	FrC10.6	5155	.....	ThB13.1	2452
Li, Dewei	ThB17.5	2612	.....	ThB13.3	2464
.....	ThC11.6	3160	Liňán, David A.	FrB12.6	4466
Li, Hui Qing	ThB07.1	2248	Lindemann, Lars	WeA03.2	251
.....	ThB09.3	2311	.....	Fra01.3	3517
Li, Jin	ThB11.4	2393	Lindstrom, Sean	FrB09.4	4339
Li, Jing Shuang (Lisa)	ThB20.5	2715	Ling, Jie	FrB03.2	4096
Li, Jr-Shin	FrC06.5	5004	Link, Brian	ThC07.1	2983
Li, Na	WeC17.2	1813	Lipka, Johannes Bernd	ThB06.4	2230
.....	FrB01.6	4044	Liu, Bing	WeC17.1	1807
Li, Nan	ThC17.3	3352	Liu, Chang	WeB03.4	594
Li, Perry Y.	ThC16	O	.....	Fra03.5	3783
Li, Qingdong	FrA02.1	3637	Liu, Changliu	WeA03.8	292
Li, Shaoyuan	WeB04.6	644	.....	WeB13	C
.....	WeB17.1	1065	.....	WeB13.4	937
.....	ThB12.5	2440	.....	ThB19	CC
Li, Shihua	FrC12.4	5213	.....	ThB19.4	2672
Li, Wei	WeB18.4	1121	.....	Fra01.5	3531
Li, Weibing	ThC10.1	3088	.....	Fra03.15	3847
Li, Wenlong	WeC08.6	1525	Liu, Changrong	WeA02.13	200
Li, Xianwei	WeB17.1	1065	Liu, Chih-Wei	Frc13.1	5226
.....	WeB17.2	1071	Liu, Ding	ThC04.6	2905
Li, Xiao	WeA03.7	285	Liu, Feiyang	FrB10.5	4384
.....	FrB07.5	4268	Liu, Guangyi	ThC14	O
Li, Xiaofan	ThC16.4	3334	.....	ThC14.4	3264
Li, Xiaolei	WeC17.3	1819	.....	FrB04	O
Li, Xinyv	FrB10.5	4384	Liu, Hangxin	WeB03.4	594
Li, Yang	ThB06.2	2218	Liu, Jay	ThPo1.17	2000
Li, Yangge	ThC13.3	3215	Liu, Jen Jui	WeA03.14	332
Li, Yuanlong	ThB13.1	2452	Liu, Ji	ThC02.4	2809
.....	ThB13.3	2464	Liu, Jianan	FrC12.4	5213

		M
Liu, Jinfeng	WeB04.6	644
.....ThB12	C	2440
.....ThB12.5	CC	1172
Liu, Jun	WeB19	4020
.....WeB19.6	C	4026
.....FrB01	C	4789
.....FrB01.2	CC	1077
.....FrB01.3	CC	285
.....FrB21.5	CC	1825
Liu, Junwei	WeB17	725
.....WeB17.3	CC	5213
Liu, Kaiwen	WeA03.7	285
Liu, Meiqin	WeC17.4	3531
Liu, Mingzhe	WeB07.2	3625
Liu, Rongjie	FrC12.4	3517
Liu, Ruixuan	FrA01.5	4084
Liu, Ruohong	FrA01.19	186
Liu, Siyuan	FrA01.3	1855
Liu, Vincent	FrB02.6	1855
Liu, Weijia	WeA02.11	3791
Liu, Xinzhi	WeC18	421
.....WeC18.4	C	2104
Liu, Yen-Chen	WeA04.7	3740
.....FrA03.6	CC	2022
Liu, Yibo	ThB03.1	2905
Liu, Yingqiang	FrA02.18	2012
Liu, Yuanxing	ThPo1.43	2482
Liu, Yuyu	ThC04.6	2152
Liu, Zexiang	ThPo1.29	1367
.....ThB14.1	CC	4618
Liu, Zhitao	ThB04.3	3879
Liu, Zhixin	WeC04.4	3859
Lizarralde, Fernando	FrB16.6	312
Llanes, Christian	FrA03.20	3637
Lo, Chun Ho, David	FrA03.17	2362
Long, Kehan	WeA03.11	2648
Long, Yanchen	FrA02.1	4102
Lopez, Brett	ThB10.5	4506
Loria, Antonio	ThB18.5	1077
Loschiavo, Vincenzo	FrB03.3	167
Lu, Amos	FrB13.6	4236
Lu, Haibo	WeB17.3	2013
Lu, Jie	WeA02.8	1568
.....FrB06.5	CC	3604
Lu, Qi	ThPo1.30	1568
Lu, Qizhi	WeC10.1	2612
Lu, Shuaizheng	FrA01.16	608
Lu, Yang	ThB17.5	1670
Lucia, Walter	WeB03.6	1783
.....WeC13.1	CC	601
Lui, Dario Giuseppe	WeC16.2	3768
Luo, Qi	WeB03.5	574
Luo, Rui	FrA03.3	3827
Luo, Wenhao	WeB03.1	656
.....FrA03.12	CC	2851
Lygeros, John	WeB05.2	2851
Lynch, Alan Francis	ThC03.4	3827
Lyu, Yiwei	FrA03.12	2851
		M
		M Anderson, Jacob
		ThPo1.36
		2017
		M U, Abuthahir
		ThPo1.19
		2002
		Ma, Guangfu
		ThC11.4
		3146
		Ma, Ji
		WeB03.4
		594
		Ma, Shiqian
		ThB02.6
		2098
		Ma, Shu-Gen
		ThC03.3
		2844
		Ma, Xutao
		ThC05.4
		2930
		Ma, Yunxiang
		WeA04.19
		498
		Maadani, Mohammad
		ThC09.1
		3049
		Machado, Gabriel Freitas
		ThC04.2
		2879
		Machado Martínez, Juan Eduardo
		ThB17.3
		2598
		MacKinnon, Lloyd
		FrB09.3
		4333
		MacKunis, William
		WeC09.6
		1562
		Maddipatla, Srivenkata Satya Prasad
		ThB04.5
		2164
		Magbool Jan, Nabil
		ThPo1.19
		2002
		FrB05
		C
		FrB05.6
		4204
		Maghenem, Mohamed Adlene
		ThB18.5
		2648
		.....ThC15.3
		3296
		Magnusson, Sindri
		ThB20.3
		2703
		Mahdizadeh Shalmaei, Amir Hossein
		FrA04.18
		3993
		Maity, Dipankar
		ThC01.2
		2758
		Majumder, Kakoli
		WeB09.6
		803
		Makarenko, Volodymyr
		WeA02.7
		159
		Makki, Imad
		WeB08
		O
		Makumi, Wanjiku A
		ThC19.4
		3430
		Malikopoulos, Andreas A
		WeB01.6
		536
		.....WeC07
		C
		.....WeC07.6
		1488
		.....ThB07
		CC
		.....ThB07.2
		2254
		Malladi, Surya
		FrC02.5
		4864
		Mallmann-Trenn, Frederik
		FrB04.3
		4141
		Mammar, Said
		WeB04.1
		614
		Mamo, Amanuel
		FrC05.4
		4960
		Mande, Caton
		FrC16.5
		5364
		Manganini, Giorgio
		WeA01.2
		8
		Mangharam, Rahul
		WeA03.16
		344
		Mani, Ankur
		FrA01.8
		3551
		Mann, George K. I.
		ThB03.4
		2122
		.....ThB04.6
		2170
		Mann, Makai
		FrA04.1
		3885
		Mannini, Davide
		WeC19.4
		1891
		Mantelli, Luca
		WeB15.5
		1012
		Manton, Jonathan H.
		WeB05.4
		669
		Manyam, Satyanarayana Gupta
		WeB10.5
		833
		.....FrB02.6
		4084
		.....FrB08.4
		4302
		.....ThPo1.25
		2008
		.....FrA01.3
		3517

Marconi, Lorenzo.....	ThB04.3	2152		FrA04.2	3891
Marden, Jason R.....	FrA01.1	3505	Miller, Jared.....	WeB19.2	1146
Mariash, Cary.....	FrC14.2	5270	Miller, Kristina.....	ThB09.1	2298
Marinho, Yara Quilles.....	ThB18.2	2630	Mills, James K.	Fra03.10	3815
Mark, Christoph.....	FrB19.3	4705	Min, Youngjae.....	FrB09.5	4345
Marshall, Walden.....	ThB17.2	2592	Mirafzal, Behrooz.....	ThPo1.31	*
Martin, Christopher.....	WeB18.4	1121	Miranda Colorado, Roger	Frc04.5	4930
Martin, Michael.....	FrB05.5	4196	Mirinejad, Hossein.....	ThPo1.26	2009
Martin Xavier, Daniel.....	WeB12.4	899	Mirtaba, Mohammad.....	Fra03.14	3841
Martinez-Piazuelo, Juan.....	ThB01.1	2023	Mishra, Kislaya.....	WeA01.3	15
Martins, Joaquim R.R.A.....	ThB16.2	2558		ThC04.3	2885
Martins, Renato.....	WeA01.16	92	Mishra, Kushagra.....	WeB09.5	797
Maruf, Abdullah Al.....	FrB01.1	4012	Mishra, Richa.....	FrB03	CC
Marvi, Zahra.....	FrB16.3	4599		FrB03.1	4090
Marx, Benoit.....	WeC13.6	1701	Mishra, Sandipan.....	ThB11.3	2386
	FrB20.5	4753	Mitra, Aritra.....	WeA01.14	80
Maske, Harshal.....	WeB12.3	893		ThB02.5	2090
Masti, Daniele.....	FrB09	CC	Mitra, Sayan.....	ThB09.1	2298
	FrB09	O		ThC13.3	3215
Mateos, Mariano.....	ThC15.1	3284	Mitrai, Ilia.....	FrB12.5	4460
Matsui, Shoma.....	ThC13.1	3202	Myaoka, Yuya.....	Fra01.15	3598
Mauroy, Alexandre.....	ThPo1.4	1987	Mo, Zihao.....	WeA04.2	388
Mavkov, Bojan.....	WeA01.16	92		Fra01.16	3604
Mazo Jr., Manuel.....	WeB04.3	626	Moallem, Mehrdad.....	ThPo1.10	1993
McCloy, Ryan Josef.....	WeC18.2	1843		Fra03.8	3803
McKee, Sasha M.....	ThPo1.33	2015	Moazen, Farrah.....	WeB16.3	1038
Medvedev, Alexander V.....	FrB14	O	Mohagheghi, Afagh.....	ThPo1.10	1993
	FrB14.4	4530		Fra03.8	3803
	FrC18	CC	Mohajer, Soheil.....	WeB04.5	638
	FrC18.3	5419	Mohajerin Esfahani, Peyman..	WeB04.3	626
Mehdifar, Farhad.....	ThB13.2	2458		ThC14	O
Mehlman, Cameron.....	ThC09.2	3055	Mohamed, Sajid.....	FrB13.3	4485
Mei, Jie.....	ThC11.4	3146	Mohammadi, Alireza.....	ThB03.3	2116
Mei, Wenjun.....	WeA04.9	433		ThC03.3	2844
Mei, Yu.....	WeB14.1	957	Mohammadpour Velni, Javad.	WeB12.1	881
Mejari, Manas.....	WeB13.3	931		WeC12	CC
Meng, Fanwei.....	WeC04.1	1350		WeC12.5	1658
Meng, Shengya.....	WeC04.1	1350	Moheimani, S.O. Reza.....	FrB03.1	4090
Meng, Yiming.....	FrB01.2	4020	Mohite, Shivaraj.....	FrB20.6	4759
	FrB21.5	4789	Mohr, Fabian.....	WeB08.1	749
Menon, Prathyush P.....	WeC15.5	1764	Mollo, Timothy L.....	WeA02.13	200
Merola, Alessio.....	FrB19.5	4717		WeB20	C
Mertens, Max Bastian.....	WeA01.19	111		WeB20.6	1212
	FrA04.11	3947		FrB05	CC
Mertin, Nicholas Frederick Andreas.....	FrC18.5			FrB05.2	4176
	5433		Molnar, Tamas G.	WeB07.5	743
Mesbahi, Mehran.....	ThC01.1	2752		WeB13.1	919
Meshkat Alsadat, Shayan.....	WeA01.6	33	Monshizadeh, Nima.....	Frc02.5	4864
Metelli, Alberto Maria.....	WeA01.2	8	Montano, Victor.....	WeB13.2	925
Meurer, Thomas.....	WeC15.3	1751	Montazeri Hedesh, Hamidreza	FrB11.2	
Mhaskar, Prashant.....	WeC01.4	1269		4402	
	FrB12.1	4434	Montecchio, Giulio.....	ThC05.2	2918
	FrC05.3	4954	Montefusco, Francesco.....	FrB19.5	4717
Miao, Wei.....	FrC06.3	4992	Monteiro, Giselle.....	FrB03.3	4102
Michieletto, Giulia.....	WeC09	C	Montufar, Sergio.....	ThPo1.32	2014
	WeC09.4	1550	Moon, Jihoon.....	ThC21.2	3486
	ThC01.1	2752	Moradi, Lee.....	Frc07.1	5016
Mihai, Marcian.....	ThC08.5	3037	Moradian, Hossein.....	ThB05.4	2194

Morales-Cuadrado, Evans	.... FrA03.20	3879		..... FrA02.15	3722
Morel, Yannick	..... FrC14.6	5294	Nagamune, Ryozo	..... ThPo1.15	1998
Moreschini, Alessio	..... FrC17.5	5394	Naghizadeh, Parinaz	..... FrC11.4	5183
Morgansen, Kristi A.	..... ThB04.2	2146	Nagpal, Satchit	..... FrB12.2	4440
	..... FrA04	C	Naik, Kartik Praful	..... ThB16.2	2558
	..... FrA04.15	3972	Nair, Girish N.	..... WeA02.13	200
	..... FrC05.4	4960		..... FrB05.2	4176
Morishima, Keisuke	..... FrC14.4	5282	Nakada, Hayato	..... FrB07.5	4268
Morris, Kirsten	..... FrB15.5	4572	Nakahira, Yorie	..... FrA01.12	3576
Morrison, Zachary	..... WeB01.1	504	Nam, Nguyen Ngoc	..... FrC04.6	4936
Morstyn, Thomas	..... WeB06.3	701	Namba, Takumi	..... WeB02.5	568
Mosharafian, Sahand	..... WeB12.1	881	Namerikawa, Ryo	..... ThB13.2	2458
Motee, Nader	..... ThC14	CC	Namerikawa, Toru	..... ThB13	C
	..... ThC14	O		..... ThB13.2	2458
	..... ThC14.4	3264	Nan, Shiqi	..... ThPo1.27	2010
	..... FrB04	CC	Nandanoori, Sai Pushpak	..... WeB21.5	1243
	..... FrB04	O	Narasimhan, Mukundhan	..... ThB07.3	2260
Mou, Minghao	..... FrB07.6	4275	Narasimhan, Shilpa	..... WeC14.4	1726
Mou, Shaoshuai	..... ThB01.5	2047	Narayanan, Vignesh	..... FrA01.20	3631
Mou, Tianhao	..... WeB04.6	644	Narendra, Kumpati S.	..... WeB21.4	1237
Moulton, Richard Hugh	..... FrC18.4	5425		..... ThB05.3	2188
Moura, Scott	..... WeB06	O	Nash, Austin	..... FrB16	O
	..... WeB06.4	707	Nasr, Ahmed	..... FrB18.6	4687
	..... WeC06	O	Nassiri, Samir	..... FrB13.4	4493
	..... WeC06.2	1429		..... FrB21.6	4795
	..... WeC06.4	1441	Navkar, Nikhil Vishwas	..... WeB13.2	925
	..... WeC21	O	Nayak, Siddharth	..... WeA03.9	299
	..... ThB06	O	Nazari, Shima	..... WeB07	CC
	..... ThC21	O		..... WeB07	O
Mousavi, Shima Sadat	..... WeB02	C		..... ThC07	C
	..... WeB02.3	554		..... ThC07	O
Moussa, Kaouther	..... FrC03.4	4889		..... FrB07	O
Moyalan, Joseph	..... ThC18.5	3397	Nazerian, Amirhossein	..... FrC12.3	5207
Mrzyglod, Stephanie	..... FrC08.2	5061	Ndunda, Enock	..... ThPo1.16	1999
Mu, Bingxian	..... FrA03.19	3873	Neary, Cyrus	..... ThC11.2	3130
Mudhangulla, Sridhar	..... FrB10.2	4365	Nedich, Angelia	..... ThB02	O
Mukherjee, Dwaipayan	..... WeB09.5	797		..... ThB02.4	2082
	..... WeB10.2	815		..... ThC02	O
Mukherjee, Sayak	..... ThC14.1	3245		..... ThC02.1	2790
Mukhopadhyay, Snehasis	..... ThB05.3	2188	Nejatbakhsh Esfahani, Hossein	..... WeC12.5	
Mulagaleti, Sampath Kumar	... WeB13.3	931		1658		
Mulders, Sebastiaan Paul	..... WeB16	CC	Nelson, Andrew	..... FrB13.3	4485
	..... WeB16	O	Nemeth, Balazs	..... FrC07.3	5030
	..... WeB16.2	1030	Neubauer, Jeremy	..... WeB06.2	695
Munger, Michael	..... ThC02.3	2802	Newton, Rachel	..... FrC09.4	5113
Muradore, Riccardo	..... ThB11	C	Ng, Wee Shen	..... FrA03.17	3859
	..... ThB11.5	2399	Ngamlamai, Sirchai	..... ThPo1.40	2020
Murali, Vishnu	..... FrB18.1	4657	Ngo, Van-Tam	..... FrA03.6	3791
Muresan, Cristina-loana	..... ThC08.5	3037	Nguang, Sing Kiong	..... FrC20.3	5498
	..... FrA04.2	3891	Nguyen, Duc Giap	..... WeC12.1	1640
Murray, Richard M.	..... ThE1	C	Nguyen, Duong	..... ThC02.1	2790
	..... ThB21.2	2728	Nguyen, Duong	..... ThC02.1	2790
Mylvaganam, Thulasi	..... FrA01.9	3557	Nguyen, Quang Huy	..... ThPo1.41	2021
N						
N'Doye, Ibrahima	..... WeA03.4	265	Ni, Jun	..... WeB12.3	893
	..... ThPo1.25	2008		..... FrB13.2	4479
Nadubettu Yadukumar, Shishir	..... WeA03.13	325	Niaz, Haider	..... ThPo1.17	2000
			Nicolau, Florentina	..... FrC09.1	5094
			Nicotra, Marco M	..... WeC13	C

Niculescu, Silviu-Iulian.....	WeC13.3	1682	FrB13	CC	
FrA02.6	3668		FrB13.2	4479	
Nii, Tomotaka.....	FrC20.2	5492	Frc17.4	5388	
Niknezhad, Shayan Sean.....	FrA01.15	3598	Oruganti, Pradeep Sharma.....	FrC11.4	5183
Nikolakopoulos, George.....	ThPo1.43	2022	Ossareh, Hamid.....	WeB21.2	1225
Ning, Chao.....	FrA03.2	3760		FrB09.1	4320
Nino, Cristian F.....	ThC05.4	2930		FrB09.2	4326
Niu, Kaicheng.....	WeC02.4	1299	Ou, Zichong.....	WeA02.8	167
Niu, Luyao.....	WeA02.9	173		FrB06.5	4236
Niu, Shengyuan.....	FrB01.1	4012	Ouyang, Quan.....	ThB06.2	2218
.....	WeB15.2	994	Ouyang, Zikai.....	WeB17.3	1077
.....	ThC04.1	2871	Oveissi, Parham.....	WeC09.5	1556
Niu, Yue.....	ThPo1.15	1998	Oymak, Samet.....	WeC20.2	1915
Nolan, Nicholas.....	WeA02.1	117	Ozay, Necmiye.....	WeB19.6	1172
Noorani, Erfauan.....	FrB04.2	4133		WeC20	CC
.....	FrC20.4	5505		WeC20.2	1915
Norman, Kevin.....	ThC06	CC		ThPo1.7	1990
.....	ThC06.1	2944		ThPo1.29	2012
Nortmann, Benita Alessandra Lucia.....	FrA01.9	3557		ThB14.1	2482
Nosratabadi, Seyyed Mostafa.....	WeB06.3	701		ThB20.5	2715
Notarstefano, Giuseppe.....	FrB21.1	4765	Ozbay, Hitay.....	ThC15.2	3290
Notomista, Gennaro.....	FrA02.17	3734	Ozer, Ahmet Ozkan	ThPo1.12	1995
Nugroho, Sebastian Adi.....	FrB07.3	4254		ThC20	C
Nyholm, Dag.....	FrB14.4	4530		ThC20.1	3448
Nylof, Jakob.....	ThB20.5	2715		Frc15.5	5327
Ozorio Cassol, Guilherme	ThC08.2	3019	Ozorio Cassol, Guilherme	ThC08.2	3019

O			P		
Oboe, Roberto.....	WeC09.4	1550	P. Vinod, Abraham	WeA03.9	299
Obrecht, Nicolas.....	WeB06.4	707		WeA03.12	318
Oda, Ryo.....	WeB10.4	827		WeA03.20	375
Oehlschlaegel, Thimo.....	ThC03.5	2858		WeB03	C
Ogri, Tochukwu Elijah.....	ThB10.4	2356		WeB03.3	587
Ogunmolu, Olalekan.....	Fra01.17	3610		FrB16.5	4612
Oguri, Kenshiro.....	ThB09.4	2318	Paarporn, Keith.....	Fra04.6	3915
Ohman, Ethan.....	FrC03.5	4895	Paes de Lima, André Luiz.....	FrB05.5	4196
Oishi, Meeko.....	ThB09.3	2311	Paffenroth, Randy C.....	WeA01.12	68
.....	ThC11	CC	Pahari, Silabratra.....	Frc17.1	5370
.....	ThC11.2	3130		Frc17.2	5376
Okamoto, Hideki.....	WeA03.16	344		Frc19.6	5480
Olaru, Sorin.....	FrC10.5	5149	Paik, Peter.....	Frc13.3	5238
Oliveira, Ricardo C. L. F.....	WeC18.5	1861	Pakala, Rinith.....	ThB04.5	2164
.....	ThB18.2	2630	Paliwal, Yash.....	WeA01.6	33
Oliveira, Tiago Roux.....	WeC05	CC	.....	WeB01.4	522
.....	WeC05.1	1386	Palunko, Ivana.....	WeB20.5	1204
Oliveira Cabral, Thiago.....	WeA01.8	45	Pan, Lulu.....	ThB17.5	2612
Olsson, Johan.....	WeC17.2	1813	Pan, Yongping.....	ThC10.1	3088
Oluçak, Jan.....	FrA04.16	3980	Pan, Yue.....	WeA02.19	239
Ong, Dexter.....	FrB09.6	4353	Pan, Yuxin.....	Fra01.19	3625
Ong, Pio.....	FrB21.2	4771	Pan, Zhuo-Rui.....	ThB11.1	2374
.....	FrC11	C	Panagou, Dimitra.....	ThB02.3	2074
.....	FrC11.2	5169		ThC14.6	3276
Onori, Simona.....	WeA04.15	474	Pandey, Vivek.....	ThC14.4	3264
Ordorica Arango, Marcela.....	FrB11.6	4428	Pandya, Ravi.....	ThB19.4	2672
Orlov, Yury.....	WeB15.1	988	Pangborn, Herschel.....	ThB14	CC
Ornik, Melkior.....	WeB05.5	675	.....	ThB14	O
.....	FrB15.1	4548	.....	ThB14.6	2513
Orosz, Gabor.....	WeB07.1	719	.....	ThB16.3	2564

.....	ThB21.1	2721	Pellanda, Paulo Cesar.....	WeC05.1	1386
.....	FrB16	C	Peng, Sheng-Wei	FrB08.5	4308
.....	FrB16	O	Peng, You	WeC08.4	1512
Pannala, Sravan.....	ThC21.3	3492	Peng, Zhinan	FrA03.3	3768
Panteley, Elena.....	ThB18.5	2648	Peprah, Godwin.....	FrB17.5	4651
Pappas, George J.....	ThB02.5	2090	Peregudin, Alexey.....	WeC20.6	1940
.....	ThC04.5	2897	Pereira, Bruno	ThC12.5	3190
Pare, Philip E.....	FrB11	C	Peres, Pedro L. D.....	WeC18.5	1861
.....	FrB11	O	.....	ThB18.2	2630
.....	FrB11.5	4422	Perez, Krystian X.....	WeC08.4	1512
Paredes, Victor.....	WeA04.11	447	Perin, Marco	WeC09.4	1550
.....	WeB13.6	949	Perruquetti, Wilfrid.....	WeB15.4	1006
Paredes Salazar, Juan Augusto	WeC09.5	1556	Petersen, Chris.....	ThB09	C
.....	.....	.....	.....	ThB09	O
.....	ThB10.2	2344	.....	ThC09	O
.....	ThC04.4	2891	Petersen, Ian R.....	WeB19.4	1158
.....	FrC11.1	5163	.....	WeC16.3	1789
Parizy, Matthieu.....	WeA01.17	98	.....	WeC19.6	1904
Park, Chaneun.....	WeC20.4	1927	Peterson, Alex	WeC04.3	1361
Park, GeunYoung.....	FrA02.2	3643	Petrillo, Alberto	WeC16.2	1783
Park, Gyubin.....	WeB09.2	778	Petrović, Vlaho	WeB16.6	1057
Park, Gyunghoon.....	ThB12.4	2432	Pettersen, Kristin Y.....	ThC03.3	2844
Park, Hyuk.....	WeB19.5	1164	.....	ThC11.5	3152
Park, Hyunsang.....	ThC17.1	3340	Pfefferkorn, Maik	ThC14.2	3251
Park, Jaesang.....	ThC06.3	2958	Phan, Linh Thi Xuan.....	FrB19.1	4693
Park, Jinrak.....	WeC12.1	1640	Phillips, David	FrC12.3	5207
Park, Seho.....	ThB21.1	2721	Phillips, Sean.....	ThB09	O
Park, Suyong.....	WeC12.1	1640	.....	ThB09.1	2298
Parker, Gordon G.....	ThC16.2	3322	.....	ThC09	C
Parkinson, Christian.....	FrC08	C	.....	ThC09	O
.....	FrC08.1	5055	.....	ThC09.3	3062
Parry, Adam.....	ThB14.3	2494	.....	ThC20.2	3454
Paruchuri, Sai Tej.....	WeB15.2	994	.....	FrB18	CC
.....	ThB15.5	2545	.....	FrB18.3	4669
.....	ThC04	C	Philor, Jhyv	ThC19.4	3430
.....	ThC04.1	2871	Piet-Lahanier, Helene	ThC09.6	3081
Parwana, Hardik.....	ThB02.3	2074	Pirje, Stefan	WeB20.5	1204
Paschalidis, Phevos.....	FrB01.6	4044	Pisarski, Dominik	ThPo1.9	1992
Paternain, Santiago.....	ThB11	CC	Pischinger, Stefan.....	FrC13.2	5232
.....	ThB11.3	2386	Pistikopoulos, Efstratios N.....	ThPo1.43	2022
.....	FrA03.13	3833	Pitroda, Shreyansh	ThC03.2	2838
Pates, Richard.....	FrB06	C	Plett, Gregory L.....	WeC06.5	1449
.....	FrB06.1	4210	Podder, Amit Kumer.....	FrA02.16	3728
Pati, Tarun.....	ThB12.1	2412	Podusenko, Albert	ThC01.3	2766
Patil, Omkar Sudhir.....	WeC02.4	1299	Pohl, Volker	FrA04.4	3903
.....	FrC10.1	5125	Polage, Kyle	FrC08.1	5055
.....	FrC10.2	5131	Polani, Daniel	WeA04.10	439
Patnaik, Natasha.....	FrC19.3	5460	Pollard, Blake	FrA01.1	3505
Patrick, Steven.....	WeB10.1	809	Ponsart, Jean-Christophe.....	WeC13.6	1701
Patrignani, Andres.....	WeA01.1	2	.....	FrB20.5	4753
Patron, Gabriel David.....	WeC14.3	1720	Poor, H. Vincent.....	FrA04.4	3903
Patterson, Evan.....	FrC02.3	4850	Poovendran, Radha.....	FrB01.1	4012
Paulson, Joel.....	WeB08.4	770	Popescu, Teodora.....	FrA04.2	3891
Pavlasek, Natalia.....	ThB09.3	2311	Poplawski, Blazej.....	ThPo1.9	1992
Pazzaglia, Paolo.....	FrB19.3	4705	Portella Delgado, Jhon Manuel	ThB10.2	
Pedari, Yasaman.....	FrB09.2	4326	.....	2344	
Peet, Matthew M.....	FrB15.2	4554	.....	ThB21	CC
Peixoto, Alessandro Jacoud	FrB16.6	4618	.....	ThB21.5	2746

Potu Surya Prakash, Nikhil	WeC03.5	1335	Rafaralahy, Hugues	ThPo1.41	2021
Poudel, Prakash	WeA03.10	306	Rafter, Abigail	FrB13.1	4472
Poveda, Jorge I.	WeB05	C	Raghavan, Aneesh	Frc19.1	5447
	WeB05.6	681	Raghunathan, Arvind	WeA03.9	299
	ThE1.1	1984	Rahn, Christopher D.	ThC21.2	3486
	FrB21	CC	Rai, Ayush	ThB01	C
	FrB21.4	4783		ThB01.5	2047
	FrC10.3	5137	Raissi, Tarek	FrB20	CC
Powell, Kody	WeA04	CC		FrB20.3	4741
	WeA04.1	382	Rajakumar Deshpande, Shreshta	ThC07	O
	ThB06.6	2242			
Powell, Nathan	WeC10.4	1586	Rajamani, Rajesh	FrB07	C
	WeC19.2	1879		FrB07	O
	ThC04.1	2871	Rajaraman, Naveen Kumar	FrB07.4	737
	ThC10.5	3112	Rajendran, Sunil Kumar	FrC04.3	4919
Pozzan, Beniamino	ThC01.1	2752	Rajarajan, Naveen Kumar	FrB10.2	4365
Pozzi, Andrea	ThB06.3	2224	Rajendran, Sunil Kumar	WeB14.5	981
Prabhat, Himanshu	WeA04.14	468	Rajgopal, Karthik	WeA03.13	325
Prasad, Rupanjali	WeB20.2	1186	Rajkumar, Suryaprakash	WeB03.6	608
Prieur, Christophe	WeB04.4	632	Rajput, Rohit Hiraman	ThC03.2	2838
Prkačin, Vicko	WeB20.5	1204	Rakotondrabe, Micky	ThB03	O
Proskurnikov, Anton V.	FrC18.3	5419		FrB03	O
Prossel, Dominik	WeB04.2	620		FrB03.2	4096
Puig, Vicenc	ThC12.6	3196		FrB03.4	4108
Pulsipher, Joshua	ThPo1.28	2011	Ramachandran, Thiagarajan	WeB21.5	1243
Pumphrey, Michael Joseph	FrA03.7	3797		ThB16.5	2580
Punta, Elisabetta	FrC14	C	Ramadan, Mohammad	FrC04	C
	FrC14.4	5282		FrC04.4	4924
Putri, Saskia	WeB16.3	1038	Ramakrishnan, Subramanian	FrB19.4	4711
Q					
Qian, Chunjiang	ThPo1.27	2010	Ramasubramanian, Bhaskar	FrB01.1	4012
	ThB18.4	2642	Ramazi, Pouria	WeB11	C
Qian, Sean	FrB07.6	4275		WeB11.2	851
Qian, William	ThPo1.32	2014	Ramezani, Alireza	ThC03.2	2838
Qian, Yangyang	WeC16.1	1777	Rane, Shantanu	WeC20.5	1933
Qin, Junjie	ThC06.4	2964		ThC05.1	2911
	FrB07.6	4275		FrC20.4	5505
Qin, Qiaomeng	ThB11.4	2393	Rani, Rishi	FrB01.5	4038
Qin, Zhaoming	FrA04.12	3954	Rantzer, Anders	FrC02.4	4858
Qiu, Chenyang	WeA02.8	167	Rao, Anil V.	ThB09.5	2325
Qiu, Yiwen	ThC12.3	3178		FrC05.6	4974
Qu, Guannan	ThB17.4	2604	Rasaq, Uthman	ThPo1.12	1995
Qu, Zhihua	ThC01.5	2778		ThC20.1	3448
Quah, Titus	FrC17.3	5382		FrC15.5	5327
Quan, Yingshuai	FrB17.2	4631	Rastgoftar, Hossein	WeB07	C
	FrC04.2	4913		WeB07	O
Quijano, Nicanor	ThB01	CC	Rathnayake, Bhathiya	Frc15.3	5313
	ThB01.1	2023	Ratliff, Lillian J.	Fra01.9	3557
Quinones-Grueiro, Marcos	WeC09.3	1543	Ratnam, Elizabeth	WeB19	C
Qureshi, Muzaffar	ThB10.4	2356		WeB19.4	1158
R					
Rabb, Ethan	ThC13.4	3223		WeC16.3	1789
Rabiee, Pedram	FrA02.10	3692	Ravari, Amirhossein	Frc19.2	5453
			Ravindran, S.S.	ThC15.4	3302
			Rawlings, James B.	WeC19.4	1891
				FrB20.2	4735
				FrC17.3	5382
			Reed, Robert	WeC01.5	1275
				ThB09.6	2331
			Reichelt, Stephan	Frc13.6	5258

Ren, Beibei	ThC06.1	2944		FrC18.4	5425
Ren, Dejin	FrA01.14	3590		FrC18.5	5433
Ren, Dejin	FrA04.20	4005	Ruiz, Fredy	WeC16.5	1801
Ren, Junchao	ThC04.6	2905		ThC05.2	2918
Ren, Wei	WeA04.17	486	Ruof, Jona	WeA01.19	111
	WeC03.2	1317		FrA04.11	3947
Ren, Wei	ThB11.1	2374	Russell, Kayla	ThB16	C
Ren, Wei	FrC07.6	5049		ThB16.1	2551
Ren, Yi	WeA01.10	56	Rustagi, Vishvendra	FrC06.1	4980
Renganathan, Venkatraman	ThC14.2	3251	Ruths, Justin	ThB14	O
Restelli, Marcello	WeA01.2	8		ThB14.6	2513
Restrepo, Esteban	WeC15.6	1771		FrC18.1	5406
Reynoso Donzelli, Simone	FrB12.6	4466	Ryu, Jiae	FrC19.6	5480
Rhinehart, R. Russell	ThC17	CC		S	
	ThC17.2	3346			
Rhyu, Jinwook	WeB08.2	763	Sabag, Oron	FrB02.4	4072
Ricardez-Sandoval, Luis	WeC14.3	1720	Sabug, Lorenzo Jr.	ThC05.2	2918
	ThPo1.28	2011	Saccani, Danilo	ThB12.3	2426
	FrB12.6	4466	Sadamoto, Tomonori	FrA02.16	3728
Richards, Christopher	WeC13	CC	Sader, Malika	ThC12.3	3178
	WeC13.5	1695	Sadki, Osama	ThPo1.41	2021
Richards, Riley J.	ThC04.4	2891	Sadler, Brian	FrB05.4	4188
Riedlinger, Pierre	FrB17.4	4645	Saeedi, Sajad	WeA03.3	259
Riess, Hans	ThC02.3	2802		WeB17.5	1091
Ringwood, John V.	ThC16	CC		ThC03.6	2865
	ThC16.1	3316	Safari, Amirsaeid	FrA02.11	3698
Rizzoni, Giorgio	ThC07.2	2989	Safikou, Efi	WeC08.2	1500
Robuffo Giordano, Paolo	WeC15.6	1771	Sagnier, Berta Pedret	FrC16.1	5339
Rodriguez, Eric	ThPo1.30	2013	Sahaya Arokia dass, Andrew Baggio	FrA02.19	
Rodriguez-Arellano, Jesus Abraham	FrC04.5			3746	
	4930		Sahebsara, Farid	ThB01.2	2029
Rojas, Alejandro J.	WeC02	C	Said, Anwar	WeA01.5	27
	WeC02.1	1281	Salagame, Adarsh	ThC03.2	2838
	ThPo1.3	1986	Salapaka, Murti V.	FrA01.8	3551
Römer, Ralf	WeC01.1	1249	Salapaka, Srinivasa M.	ThC06.3	2958
Roncone, Alessandro	WeB17.4	1083	Salazar, Mauro	ThB07.6	2279
Rose, Alyssa	WeA04.12	454		ThC07.3	2995
Rose, Chad	FrB14	O	Saldi, Naci	WeC11.3	1616
	FrB14.2	4518	Salehi, Zeinab	WeC16.3	1789
Rosenfeld, Joel A.	WeB01.1	504	Salehi, Zeynab	WeA01.15	86
Ross, Joseph Peter	WeB06.5	713	Samadi, Sepideh	ThB05.6	2206
Rostami, Mohammadreza	ThB05.4	2194	Samuelson, Samantha	WeB05.1	650
Rotea, Mario	WeB16.1	1024	Sanchez, Jerson	FrC01.3	4813
	WeB16.2	1030	Sanfelice, Ricardo G.	WeB11.6	875
Rotondo, Damiano	WeB20.4	1198		FrB18.2	4663
Rousseau, Ronald	WeB20.2	1186		FrB18.4	4675
Roy, Tanushree	WeB06	O	Sanfilippo, Filippo	ThC03	CC
	WeC06	O		ThC03.3	2844
	WeC21	CC	Sanjari, Sina	WeC11	CC
	WeC21	O		WeC11.3	1616
	ThB06	O	Sankaranarayanan, Viswa Narayanan	FrA03.2	
	ThB06.5	2236		3760	
	ThC21	O	Santini, Stefania	WeC16.2	1783
Rubio Scola, Ignacio	ThC10.3	3100	Santos, Tito Luís Maia	ThC12	C
	ThC11.1	3124		ThC12.5	3190
Rudie, Karen	ThC13.1	3202	Sanyal, Amit	FrA04.19	3999
	FrC18	C	Saoud, Adnane	FrC09.1	5094
	FrC18.2	5412		FrC10	CC

	FrC10.5	5149	Sforni, Lorenzo	FrB21	C
Saradagi, Akshit	FrA03.2	3760		FrB21.1	4765
Saravanane, Narendhiran	FrB08.2	4289	Sha, Xingyu	Fra02.14	3716
Sarhadi, Pouria	ThB10.6	2368	Shaaban, Ghadeer	WeB04.4	632
Sarioglu, N. Eren	ThB19.3	2666	Shabbir, Mudassir	WeA01.5	27
	FrB10.3	4372	Shah, Parth	Frc17.1	5370
Sarkar, Arijit	ThC13.5	3231		Frc17.2	5376
Sarsilmaz, Selahattin Burak	WeC17	C	Shahbakhti, Mahdi	WeA01	C
	WeC17.5	1831		WeA01.15	86
Sartor, Davide	WeC08.1	1494	Shahbazzadeh, Majid	WeC13.5	1695
Sastray, Shankar	WeC07.2	1461	Shaikh, Juned	FrB16.2	4591
Satici, Aykut C	WeC04.3	1361	Shakeri, Heman	WeB01	C
Satpute, Sumeet	FrA03.2	3760		WeB01.3	516
Savas, Yagiz	FrB05.4	4188	Shakib, Fahim	ThC17	C
Savchenko, Anton	WeC12.2	1646		ThC17.4	3359
Sawodny, Oliver	FrC08.2	5061	Shamash, Yacov	WeC16.1	1777
	FrC13.6	5258	Shames, Iman	WeB02.2	548
Scariotti, Giordano	ThC17.4	3359		WeB05.4	669
Scattolini, Riccardo	WeC16.5	1801	Shamma, Jeff S.	ThC13.2	3208
Schaber, Patrick	FrC13.2	5232	Shan, Jinjun	ThB03	C
Schaeffer, Joachim	WeB08.2	763		ThB03.1	2104
	FrC16.1	5339	Shanbhag, Uday V.	ThB05.2	2182
Schäfer, Lukas	FrB04.6	4162	Shang, Chao	ThC12.3	3178
Schaub, Hanspeter	ThB09.6	2331	Shang, Penghui	WeC08.3	1506
Schaum, Alexander	WeC15.3	1751	Shang, Xu	ThB07.4	2266
Scheinker, Alexander	FrB08.6	4314	Shao, Haibin	ThB17.5	2612
Scherpen, Jacquelin M.A.	ThC13.5	3231		ThC11.6	3160
Schiffer, Johannes	ThB17.3	2598	Shao, Siyuan	WeC09.5	1556
Schlenther, Nils	ThC03.5	2858	Shao, Yifei	FrB09.6	4353
Schmidt, Kevin	FrB19.3	4705	Shao, Yunli	ThPo1.5	1988
Schmiederer, Timothée	FrC20.2	5492	Shao, Zhijiang	WeA02.17	226
Schoellig, Angela P.	WeA03.5	272	Shardt, Yuri	FrB12	CC
	WeC01.1	1249		FrB12.3	4446
	FrC03.3	4883	Sharma, Aayushman	FrB08.4	4302
Schön, Oliver	ThC19.2	3417	Sharma, Gaurav	WeB07.4	737
Schonewille, Bryony H.	FrC18.2	5412	Sharma, Himanshu	ThB16	CC
Schoof, Eric	WeA02.10	180		ThB16	O
Schuchert, Philippe	WeB19.3	1152		ThB16.5	2580
	FrA03.16	3853	Sharma, Nitin	Frc03	C
Schuster, Eugenio	WeB15.2	994		Frc03.1	4870
	ThB15.5	2545	Sharma, Ratnesh	WeA04.15	474
Schwager, Mac	ThB02.2	2066	Sharma, Suruchi	WeA02.7	159
Scott, Drew	WeB10.5	833	She, Baike	FrB11.5	4422
Scruggs, Jeff	WeC07.5	1480		Frc02.3	4850
Scurlock, Brian	ThC10.5	3112	Sheikh, Abdul Muiz Ahmad	WeC21.2	1952
Seaton, Joshua	WeB11.3	857	Shek, Chak Lam	WeA03.19	367
Seeber, Richard	WeA04.6	414	Shen, Chao	ThC12	CC
Seiler, Peter	FrA02.13	3710		ThC12.2	3172
	FrC09	CC	Shen, Heran	WeB07.3	731
	FrC09.4	5113	Shen, Minghao	FrB17	CC
Senoz, Ismail	ThC01.3	2766		Frc17	C
Seo, Joohwan	WeC03	C		Frc17.4	5388
	WeC03.5	1335	Shen, Tongsheng	WeB14.5	981
Sepasiahoooyi, Sara	WeC21.5	1971	Shen, Xun	WeA01.13	74
Serrani, Andrea	WeC10.6	1598		Fra04.3	3897
Serry, Mohamed	WeB19.6	1172	Shen, Yi	ThC14.5	3270
Seuret, Alexandre	FrC20.3	5498	Shevidi, Arezo	Frc03.2	4876
Seybold, Lothar	WeB20.4	1198			

Shi, Guangyao.....	WeA03.19	367		ThC06.5	2971
Shi, Guodong.....	WeC16.3	1789		ThC06.6	2977
Shi, Junzhe.....	WeC06.2	1429	Sitapure, Nirjanan.....	WeA01.7	39
	WeC06.4	1441		WeA01.11	62
Shi, Shuyan.....	ThC04.6	2905	Sivarjanji, S	FrC10	C
Shi, Yang	WeB12	CC		FrC10.4	5143
	WeB12.5	905	Skibik, Terrence	WeC13.3	1682
Shi, Yao	FrA01.4	3524	Skovbekk, John	ThB04.1	2140
Shi, Yuanyuan	FrB20.2	4735	Skrivanek, David	ThC16.3	3328
Shiledar, Ankur	ThC07.2	2989	Slotine, Jean-Jacques	ThB10.5	2362
Shim, Hyungbo.....	WeB02.2	548	Smaili, Lyes	ThB20.1	2691
Shin, Hyo-Sang	FrB09.5	4345	Smith, Alexander	WeC08.4	1512
Shirokih, Dmitriy	WeC20.6	1940	Smith, Daniel	WeA01.15	86
Shishika, Daigo.....	WeA02.18	233	Smith, Reid	ThB14.3	2494
	ThC01.2	2758	Smith, Sophia	WeA03.18	360
	FrB02	C	Snyder, Murray	ThPo1.11	1994
	FrB02.3	4064	Soderlund, Alexander	ThB09	CC
Shore, Scott.....	FrC08.5	5082		ThB09	O
Shorinwa, Ola.....	ThB02.2	2066		ThC09	CC
Shu, Zhan.....	ThB12.2	2420		ThC09	O
Shui, Huanyi	WeB12.3	893	Sofge, Don	FrB09.4	4339
Shukla, Apurv	FrA01.6	3537	Soltani, Mohsen.....	FrA04.18	3993
Siami, Milad.....	FrB04.4	4149	Somalwar, Anne.....	FrC19.3	5460
	FrB11.2	4402	Somarakis, Christoforos	FrC20.4	5505
	FrC06.4	4998	Song, Ziyou	WeB06	O
Siefert, Jacob.....	ThB14	O		WeC06	C
	ThB14.6	2513		WeC06	O
	ThB16.3	2564		WeC06.1	1423
Siegel, Jason B.....	ThPo1.42	*		WeC21	O
	ThC21.3	3492		ThB06	O
Sihite, Eric	ThC03.2	2838		ThC21	O
Silva, Luiz	FrB16.6	4618		FrC06	CC
Silva, Paulo Cesar Souza.....	WeC05.1	1386		FrC06.2	4986
Simaan, Marwan A.....	ThC01	CC	Sontag, Eduardo.....	WeC18.1	1837
	ThC01.5	2778		ThPo1.29	2012
Simard, Joel David	FrC17.5	5394		FrB11	O
Simpson-Porco, John W.....	WeB05.3	662	Sornborger, Andrew T.....	ThC10.3	3100
Singh, Abhyudai.....	FrA04.10	3941		ThC11.1	3124
Singh, Aman Kumar.....	FrB19.4	4711	Sorrentino, Francesco	FrC12.3	5207
Singh, Mayank.....	FrC03.1	4870	Sosnowski, Stefan	WeB02.4	560
Singh, Rajpal	FrA02.15	3722	Soudabkhsh, Damoon	WeB06	CC
Singh, Ravendra.....	ThPo1.2	*		WeB06	O
	ThC08	CC		WeC06	O
	FrB12	C		WeC21	O
Singh, Shubham.....	ThB13.5	2476		ThB06	O
Singh, Surinder.....	WeA04.15	474		ThC21	C
Singh, Tarunraj	WeC03.3	1323		ThC21	O
	FrB10.6	4390		ThC21.1	3480
	FrC14.5	5288	Soudjani, Sadegh	ThC19.2	3417
Singh, Vartika	ThC14.3	3258	Souza, Andressa	WeC18.5	1861
Singhal, Bharat.....	FrC06.5	5004	Spall, James C.	ThB21.3	2734
Singler, John.....	FrC01.6	4831	Spanakakis, Marios	ThPo1.23	2006
Sinha, Abhinav.....	WeB10	C	Spano, Matteo	ThC07.2	2989
	WeB10	O	Spinello, Davide.....	FrC15.4	5320
Sinha, Subhrajit	WeB21.5	1243	Spong, Mark W.	ThB03.3	2116
Sinner, Michael	WeB16	C	Sreenivasan, Gayatri	FrB14.3	4524
	WeB16	O	Srinivasan, Vittal	FrC14.2	5270
Sira-Ramirez, Hebertt.....	ThC06	C	Srisuma, Prakir.....	ThC08.4	3031

Stamouli, Charis	ThC04.5	2897	.....	FrB11.2	4402
Starke, Jens.....	WeB12.2	887			
Stavdahl, Øyvind	ThC03.3	2844		T	
Stefanopoulou, Anna G.	ThPo1.42	*			
.....	ThC21.3	3492	T. Khalil, Nathalie.....	FrB02.2	4058
.....	ThC21.4	3498	Tabasso, Camilla.....	WeC05.3	1398
Stein, Adrian	FrB10.6	4390	Tabuada, Paulo.....	FrB20.1	4729
.....	FrC14.5	5288	Tafazzol, Saeid	ThC17.3	3352
Steinbrecher, Christian	ThC03.5	2858	Tafreshi, Reza.....	WeB01.2	510
Stockar, Stephanie	WeB10.6	839	Taghavian, Hamed.....	Fra01.13	3584
.....	FrB07.4	4262	Taghvaei, Amirhossein.....	WeC20.3	1921
Stoica, Cristina	ThC19.3	3424	.....	ThC09.3	3062
Stolpe, Phoebus Raphael	FrC14	CC	Taha, Ahmad.....	ThB17.6	2618
.....	FrC14.6	5294	Takaba, Kiyotsugu	WeB02	CC
Stone, Peter.....	WeA03.17	352	.....	WeB02.5	568
Strässer, Robin	WeC19.4	1891	Takai, Shigemasa	WeA01.13	74
Strebe, Luke	WeC03.1	1311	.....	Frc18.6	5441
Strohbeck, Jan.....	WeA01.19	111	Takatori, Sho.....	Frc17.3	5382
Strong, Amy	ThC18	C	Tan, Wallace	WeB01.5	528
.....	ThC18.2	3377	Tan, Xiaobo.....	WeB14	O
Su, Hongye.....	WeA02.11	186	.....	WeB14.1	957
.....	ThB04.3	2152	.....	FrB03.5	4114
.....	FrA01.4	3524	Tanaka, Takashi.....	WeB19.5	1164
Su, Ruchao	WeB17.1	1065	Tang, Jennifer	ThC01.4	2772
Su, Shaoshu	WeA04.17	486	.....	ThC02.2	2796
Su, Weihua	WeA04.4	402	Tang, Michael	FrB21.4	4783
Su, Yao	WeB03.4	594	Tang, Shuxia	WeB06	O
Su, Zhiheng	WeC08.3	1506	.....	WeB15.3	1000
Su, Zifei	ThC07.4	3001	.....	WeC06	O
Subbarao, Kamesh	WeB09.1	771	.....	WeC21	O
Subramanyan, Arun Bala	ThPo1.5	1988	.....	WeC21.5	1971
Sultan, Cornel	FrC06.1	4980	.....	ThPo1.20	2003
Sun, Donglei	WeC10.5	1592	.....	ThB06	O
.....	FrB18.6	4687	.....	ThC21	O
Sun, Jing	ThB16.2	2558	Tang, Wentao	WeC14.2	1713
.....	FrB16.1	4585	Tang, Yufei	ThC16	O
Sun, Lingfeng	WeA02.5	143	Tannenbaum, Allen	WeC20.3	1921
.....	ThB21.3	2734	.....	ThC09.3	3062
Sun, Shiqing	WeB08.1	749	Tao, Jiyue	WeB14.5	981
Sun, Weikey	FrC12.1	5195	Tao, Qinghua	WeC05.5	1411
Sun, Weiyang	ThB11.1	2374	Tao, Ran	WeC19.1	1873
Sun, Xi-Ming	FrC01.5	4825	Tartaglione, Gaetano	FrB19.5	4717
Sun, Xiaoru	FrA03.15	3847	Tatliciooglu, Enver	ThB19.2	2660
Sun, Yifan	FrB06.3	4224	Tavakoli, Negar	Fra03.8	3803
Sun, Zexin	FrC14.1	5264	Tavan, Mehdi	Fra04.18	3993
.....	FrB07.2	4248	Tavasoli, Ali	WeB01.3	516
Sun, Zongxuan	FrC16.4	5357	Tayal, Manan	WeA03.13	325
Sundar, Kaarthik	ThC02.5	2816	.....	Fra02.15	3722
Sundaram, Shreyas	ThPo1.14	1997	Tayebi, Abdelhamid	WeB18.6	1133
Suplin, Vladimir	FrB12.4	4452	.....	ThB01.4	2041
Suryavanshi, Atharva Vijay	WeC08.1	1494	Taylor, Charles	FrB08.6	4314
Susto, Gian Antonio	WeC05.5	1411	Tedesco, Francesco	ThC12.6	3196
Suykens, J.A.K.	WeA04.11	447	Tegling, Emma	WeC17.2	1813
Swann, Riley	FrC07.2	5024	.....	Frc02.4	4858
Syed, Bilal Javed	ThB17.3	2598	Tekaslan, Huseyin Emre	ThC11.3	3138
Syed, Wasif Haider	FrA01.18	3618	Tekumata, Shiva	Fra03.4	3775
Sze, Timothy	WeB19.2	1146	Tengesdal, Trym	FrB02.1	4050
Sznaier, Mario	FrB04.4	4149	Teresa, Maria	Frc07.4	5036
.....	.....	.....	Teter, Alexis	FrB19.6	4723

Tewari, Deepa	.....	ThC21.1	3480	Tumova, Jana	WeA03.2
Theilliol, Didier	.....	WeC10.2	1574	Turner, Matthew C.	WeB21.3
Theodosis, Dionysios	.....	ThB07.2	2254	Tuttle, Jacob	WeA04.1
		.....	3467	Tzortzoglou, Filippos	ThB07.2
Theofanidis, Michail	.....	FrA03.1	3752	Tzoumas, Vasileios	WeA02.12
Thitsa, Makhin	.....	FrA04.17	3987		
Thompson, Jaron	.....	FrB09.3	4333	U	
Thorpe, Adam	.....	ThC11	C	Ubellacker, Wyatt	ThC18.3
		.....	3130	Ugrinovskii, Valery	WeC19.6
		.....	3223	Ulrich, Steve	ThC09.4
Tian, Yuhe	.....	WeC14	CC	Umathe, Bhagyashree	WeC18
		.....	O		CC
		.....	1707		WeC18.3
		.....	2022		1849
Tijman op Smeijers, Thijs	.....	FrB08.3	4296	Upadhyay, Devesh	WeB12.3
Tilbury, Dawn M	.....	FrB13.1	4472	Uppal, Ali Arshad	FrC07.2
Timotheou, Stelios	.....	WeC07	CC	Urakawa, Yoshiyuki	ThPo1.40
		.....	1474	Urbanski, Christopher J.	FrC01.4
		.....		Uribe, Cesar A.	ThB02.6
Ting, Jonathan	.....	WeA01.3	15		2098
		.....	2885		FrB11
Tiomkin, Stas	.....	WeA02.7	159		CC
		.....	439		O
Tiriolo, Cristian	.....	WeB03.6	608	Uwineza, Jean-Bernard	WeC04.5
Tofiqhi, Mohamadali	.....	WeA01.15	86	Uzun, Muhammed Yusuf	WeC10.3
Tokekar, Pratap	.....	WeA03.19	367	Uzzaman, Nahid	WeB20.3
Tolic, Domagoj	.....	WeB20.5	1204		
Tom, Nathan	.....	ThC16.2	3322	V	
Tomizuka, Masayoshi	.....	WeA02.5	143	Vafaee, Reza	FrC06.4
		.....	352	Vahdat, Zahra	FrA04.10
Tong, Junbo	.....	WeB12.6	911	Vaidya, Umesh	WeC18.3
Tooranjipour, Pouria	.....	ThB19.1	2654		1849
Topcu, Ufuk	.....	WeA02.4	135	Vakili, Sasan	ThPo1.34
		.....	151		2016
		.....	360	Vakili, Sasan	ThC18.5
		.....	2248		3397
Toso, Leonardo Felipe	.....	FrB07.1	3130	Vamvoudakis, Kyriakos G.	WeB04.3
Toti, Daniele	.....	ThC11.2	O		626
Touri, Behrouz	.....	WeA03.17	4188	Vamvoudakis, Kyriakos G.	FrA02.8
Tran, Dzung	.....	WeA02.6	135		3680
		.....	360		FrA02.12
		.....	2248		3704
		.....	3130		FrC02.1
Tran, Hoang-Dung	.....	ThC07.1	O	van Beers, Joash	FrC16.3
Tran, Khoa	.....	ThC11.2	135	van den Berg, Daniel	WeB16.5
Tran, Vivian	.....	FrB04	151	van den Eijnden, Sebastiaan..	FrB08.3
Trimboli, Michael	.....	FrB04	151	Van der veen, Gijs	FrB13.3
Trimpe, Sebastian	.....	FrB05.4	4188	van Erp, Bart	ThC01.3
Trivedi, Ashutosh	.....	FrB05.4	4032	van Heusden, Klaske	FrC09.3
		.....	2224	van Leeuwen, Steven	FrC05.5
		.....	312	van Wingerden, Jan-Willem...	WeB16
Tron, Roberto	.....	ThC21.4	3498		O
		.....	1449	Vander Schaaf, Jacob	WeC10.1
		.....	5010	Vantsevich, Vladimir	FrC07.1
		.....	1449	Varshney, Lav R.	FrC19.5
		.....	C	Vasconcelos, Marcos M.	WeC11.4
		.....	4657	Vasile, Cristian Ioan	WeC13.2
		.....	3403	Vatsan, Maansi	ThB05.5
		.....	4126	Veeraruna, Kavitha	ThC14.3
		.....	5155	Vega Cruz, Pastora	ThPo1.38
		.....	2399	Vehlhaber, Finn Niklas	ThB07
		.....	3411		C
Trotti, Francesco	.....	ThB11.5			.....
Trudnowski, Daniel J.	.....	ThC19.1			.....
Tseng, H. Eric	.....	WeA03.7	285	Vékássy, Áron	FrB04.3
Tsiamic, Anastasios	.....	WeB05.2	656	Velicheti, Raj Kiriti	WeC11.1
Tsutsumi, Munechika	.....	FrB07.5	4268	Venkat, Dhruva	ThC19.1
Tu, Hao	.....	WeC21.1	1946		3411

Venkatesh Krishnamurthy, Kaushik	ThC03.2	Wang, Lei	Fra04.20	4005	
	2838	Wang, Lili	ThC02.5	2816	
Venkateswaran, Sunjeev	WeC08.5	1518	Wang, Mingrui	WeC11.2	1610
Venturelli, Ophelia	FrB09.3	4333	Wang, MingYi	Frc19.3	5460
Verhagen, Joris	WeA03.2	251	Wang, Nan	FrB18.2	4663
Verma, Ashwin	WeB04.5	638	Wang, Ningshan	Fra04.19	3999
Verma, Shashank	ThC10.6	3118	Wang, Qiang	FrB10.5	4384
Vermillion, Christopher	ThB16	O	Wang, Renke	WeB19.1	1139
Vernerey, Flora	FrB17.4	4645	Wang, Ruiting	WeB06.4	707
Verriest, Erik I.	FrA02.5	3662	Wang, Ruiyang	WeA04.9	433
Vexler, David	FrB10.6	4390	Wang, Ruiyang	ThB02.3	2074
Viera López, Gustavo	WeA01.2	8	Wang, Shanshan	WeC15.4	1757
Vikas, Vishesh	WeB14	C	Wang, Shimin	Fra02.4	3656
	WeB14	O	Wang, Shuangge	FrB17.1	4624
Villani, Manfredi	ThC07.2	2989	Wang, Shuquan	WeC21.4	1965
Vladimirsky, Alexander	FrC19.3	5460	Wang, Siqing	WeA04.9	433
Vladu, Emil	FrA02.9	3686	Wang, Tianqi	Fra03.9	3809
Von Moll, Alexander	ThC01.2	2758	Wang, Wei	ThB16.5	2580
Voyles, Richard	WeA04.8	427	Wang, Xiaoyu	Frc11.5	5189
Vrabec, Tina	FrB14.5	4536	Wang, Xinyang	Fra02.4	3656
Vu, Minh	FrC06.5	5004	Wang, Ye	Fra04.3	3897
Vu, Minh Nhat	FrC04.6	4936	Wang, Yebin	WeC03.4	1329
Vu, Thanh Long	ThC14.1	3245		WeC21.1	1946
W					
Wache, Alexander	WeB12.2	887	Wang, Yibo	ThC12.3	3178
Wachi, Akifumi	WeA01.13	74	Wang, Yijin	WeB05.5	675
Wadhwa, Samir	WeC11.6	1634	Wang, Yiwei	ThPo1.5	1988
Wafi, Moh. Kamalul	FrB04.4	4149	Wang, Yujia	FrB02.5	4078
Wahid, MD Ferdous	WeB01.2	510	Wang, Zhenyu	WeB08	CC
Waleed, Danial	WeA04.16	480		WeB08	O
Walsh, Daniel	FrA01.1	3505		WeB08.3	769
Walterman, Jacob	ThPo1.12	1995	Wang, Zibo	ThB15.5	2545
Walton, Claire	ThPo1.35	*	Wang, Zifan	ThC14.5	3270
Wan, Yan	WeC16.1	1777	Wang, Zili	ThC18.6	3403
Wan, Yin	ThC04.6	2905	Wardi, Yorai	Fra02.17	3734
Wang, Changhao	WeA02.5	143		Fra03.20	3879
Wang, Chenghao	ThC03.2	2838	Washburn, Scott	ThB07.3	2260
Wang, Chenyang	ThPo1.22	2005	Waters, Kristy	ThB10.4	2356
	FrC19.4	5466	Weaver, Catherine	WeA03.17	352
Wang, Chieh (Ross)	ThPo1.5	1988	Wedernikow, Elisabeth	WeA01.18	104
Wang, Chongzhi	ThC11.6	3160	Weerasekara Mudiyanselage, Janaka		
Wang, Dandan	WeA02.8	167	Madhusankha		
	FrB06.5	4236	Wei, Haoyu	ThPo1.24	2007
Wang, David	FrC08.3	5067	Wei, Lai	ThB17.5	2612
Wang, Dongming	WeA04.17	486	Wei, Qinshuang	WeC18.2	1843
Wang, Han	FrB01.4	4032	Wei, Shiqing	ThB07.1	2248
Wang, Haoran	WeC10.4	1586	Wei, Tianhao	ThC18.1	3371
	ThC10.5	3112	Wei, Wenpeng	ThB19.4	2672
Wang, Hong	ThPo1.5	1988	Wei, Zhenyu	ThC17.5	3365
Wang, Ji	ThB15.3	2533	Wei, Zhenyu	WeA02.17	226
Wang, Jiawei	ThB07.4	2266	Weintraub, Isaac	WeB10.5	833
Wang, Jing	FrB20.3	4741	Weishaupt, Sven	ThC03.5	2858
Wang, Jinxiang	ThC17.5	3365	Wen, Ruixin	WeA02.10	180
Wang, Junkai	WeA03.15	338	Weng, Andrew	ThPo1.42	*
Wang, Junmin	WeB07.3	731		ThC21.3	3492
Wang, Lei	WeA02.11	186	Werner, Herbert	WeB15.6	1018
	ThB04.3	2152	Westwick, David	ThB10	C
				ThB10.1	2338
				FrB10.1	4359

Wickramasuriya, Maneesha	ThPo1.11	1994	Xu, Xiaodong	FrC15	CC	
Wiig, Martin Syre	ThC11.5	3152		FrC15.2	5307	
Wik, Torsten	ThB06.2	2218	Xu, Yicheng	WeC05.2	1392	
	FrB17.5	4651	Xu, Yuezhu	FrC10.4	5143	
Williams, Alan	FrB08.6	4314	Xu, Zeyuan	WeC01	C	
Wilson, Dan	FrB15.4	4566		WeC01.2	1256	
Wiltz, Adrian	ThB13.2	2458	Xu, Zhe	WeA01.6	33	
Winkler, Alexander	FrC13.2	5232		WeA01.10	56	
Witczak, Marcin	WeB20.4	1198		WeB01.4	522	
Witrant, Emmanuel	ThC15.3	3296		FrB08	C	
Wollherr, Dirk	FrC07.5	5042		FrB08.2	4289	
Wong, Clement	ThC21.3	3492	Xu, Zhi	ThB05.1	2176	
Wu, Alex (Xinting)	WeC19.6	1904	Xu, Zhuo	WeA02.5	143	
Wu, Di	WeB06.1	687	Xu, Zihao	FrB17.1	4624	
Wu, Guoquan	WeB01.5	528	Xu, Zirui	WeA02.12	192	
Wu, Jingjie	FrC13.5	5250	Xue, Bai	FrA01.14	3590	
Wu, Jingyi	FrC19.3	5460		FrA04.20	4005	
Wu, Liang	ThPo1.8	1991	Xue, Tonglai	FrB20.3	4741	
Wu, Pengying	WeB03.4	594				
Wu, Ruixin	FrC15.2	5307				
Wu, Taoran	FrA01.14	3590	Yamazaki, Sachio	WeA03.12	318	
	FrA04.20	4005	Yan, Yitao	FrC09.2	5100	
Wu, Tumin	FrB15.4	4566	Yan, Yuntian	FrC07.5	5042	
Wu, Wencen	WeA02.2	123	Yang, Haiying	FrB08.4	4302	
Wu, Wuwei	ThC18.4	3391	Yang, Jingbo	ThB17.5	2612	
Wu, Xinyang	WeA01.18	104	Yang, Liren	WeB19.6	1172	
Wu, Yan	FrB20.3	4741	Yang, Lisheng	ThC16.4	3334	
Wu, Zhe	WeB01.5	528	Yang, Lixing	ThB15.5	2545	
	WeC01.2	1256	Yang, Shuo	WeA03.16	344	
	FrB02.5	4078	Yang, Tiange	ThB12.5	2440	
Wu, Zheng-Guang	WeA02.11	186	Yang, Yanhua	ThC11.4	3146	
Wurman, Peter	WeA03.17	352	Yang, Yefeng	FrA03.9	3809	
			Yang, Yejiang	WeA04.2	388	
				FrA01.16	3604	
Xi, Xiangming	WeC05.5	1411	Yang, Ying	WeC08.6	1525	
Xiang, Weiming	WeA04.2	388	Yang, Yulong	ThC04.4	2891	
	FrA01.16	3604	Yang, Zewen	WeB02.4	560	
Xiao, Feng	FrC11.5	5189	Yao, Bin	WeA04.8	427	
	FrC20.3	5498		FrA02	CC	
Xiao, Ming	WeB01.5	528		FrA02.18	3740	
Xiao, Tianqi	ThC08.1	3013	Yao, Jingshi	ThC08.3	3025	
Xiao, Wei	WeC07.1	1455	Yao, Ningshi	WeB19.1	1139	
	WeC07.3	1468	Ye, Mengbin	FrB11.3	4409	
Xibilia, Maria Gabriella	WeB04.6	644	Ye, Yongqiang	ThC06.2	2950	
Xie, Le	FrA01.6	3537	Yechiel, Oded	ThPo1.14	1997	
Xie, Lei	FrA01.4	3524	Yedavalli, Rama K.	WeB18	C	
Xie, Lihua	WeC17.3	1819		WeB18.1	1103	
Xie, Siyu	WeC04.4	1367		WeB18.2	1109	
Xie, Yifan	ThC12.4	3184		FrC05	CC	
Xin, Ming	ThB01.3	2035		FrC05.2	4948	
Xiong, Yongkang	ThC06.2	2950	Yegin, M. Oguz	ThC15.2	3290	
Xu, Eric	ThB17.4	2604	Yemini, Michal	ThC02.6	2822	
Xu, Hao	WeB11.5	869	Yi, Baozhao	WeC06.1	1423	
Xu, Jie	WeC03.2	1317	Yi, Jingang	WeB03.2	581	
Xu, Jinming	FrC12.1	5195		ThC12.1	3166	
Xu, Jun	WeC05.5	1411		FrA01	CC	
Xu, Liangcai	FrC06.2	4986		FrB14.3	4524	
Xu, Xiangru	FrB04.5	4155	Yi, Peng	WeA02.19	239	

	WeB11.4	863	Zarrouki, Baha	ThPo1.21	2004
Yildiz, Yildiray	WeC10.3	1580		ThPo1.22	2005
	FrC04.1	4907		ThPo1.23	2006
Yilmaz, Cemal Tugrul	ThC05	C		Frc19	C
	ThC05.5	2936		Frc19.4	5466
Yin, Guodong	ThC17.5	3365	Zavala, Victor M.	FrB09.3	4333
Yin, Xunyuan	ThC08.3	3025	Zavlanos, Michael M.	ThC02.3	2802
	FrC15.2	5307		ThC14.5	3270
Yin, Yafeng	WeC07.5	1480	Zeilinger, Melanie N.	ThB12.3	2426
Yong, Sze Zheng	WeC19	C	Zeiringer, Thomas	WeA04.6	414
	WeC19.5	1897	Zekraoui, Salim	WeB15.4	1006
	ThB12	CC	Zemouche, Ali	WeC04.1	1350
	ThB12.1	2412		WeC04.2	1355
Yoo, Chang Geun	FrC19.6	5480		ThPo1.18	2001
Yoon, Se Young (Pablo)	WeA01	CC		ThPo1.41	2021
	WeA01.4	21		ThB18.3	2636
	FrA03.19	3873		FrB20.6	4759
Yoshikawa, Nobuyuki	WeA03.12	318		Frc04	CC
You, Fengqi	WeA02.3	129		Frc04.3	4919
	ThC08.1	3013	Zeng, Shen	Frc06.5	5004
You, Keyou	ThB07.5	2273	Zeng, Wente	WeB06.4	707
	FrA02.14	3716	Zeng, Zhexuan	ThPo1.4	1987
Yousefian, Farzad	ThB05	C	Zergeroglu, Erkan	ThB19.2	2660
	ThB05.2	2182	Zhan, Jingyuan	WeC15.1	1738
	ThB05.6	2206	Zhan, Sikang	WeB17.2	1071
	ThC05	CC	Zhang, Allan	WeC09.3	1543
Yu, Beomyeol	WeC09.2	1537	Zhang, Dong	WeB06	O
Yu, Huan	WeB07.5	743		WeC06	O
	FrC15.6	5333		WeC21	C
Yu, Kevin	ThB08	C		WeC21	O
	ThB08	O		WeC21.3	1959
	ThB08.1	2285		ThB06	C
Yu, Yanwen	ThC03.4	2851		ThB06	O
Yu, Yue	ThB07.1	2248		ThB06.3	2224
Yu, Ziquan	ThB11.4	2393		ThC21	O
Yuan, Ye	ThPo1.4	1987	Zhang, Fan	WeC04.1	1350
Yuan, Yukun	WeA02	CC	Zhang, Feitian	WeB14.5	981
	WeA02.15	214	Zhang, Fumin	WeA02.2	123
Yuan, Zhenyi	FrB06.3	4224		WeA03.15	338
Yucelen, Tansel	WeB02.1	542		FrB04	C
Yue, Zuogong	ThPo1.4	1987		FrB04	O
Yuh, Madeleine	ThC13.4	3223		FrB09.4	4339
Yuksel, Serdar	WeC11.3	1616	Zhang, Guohui	ThPo1.5	1988
	FrA04.5	3909	Zhang, Hang	WeC17.4	1825
	FrB05.1	4170	Zhang, Hang	FrB04.5	4155
Yumuk, Erhan	FrA04.2	3891	Zhang, Hongwei	WeB17.6	1097
Z					
Zaccaria, Valentina	WeC08.1	1494	Zhang, Jiadi	Fra02.4	3656
Zaheer, Muhammad Hamad	WeA01.4	21	Zhang, Jiawei	FrB07.5	4268
Zak, Stanislaw H.	FrC14.2	5270	Zhang, Jingting	WeC06.1	1423
Zaman, Muhammad Aneeq uz	FrA04.7	3921	Zhang, Jingting	Fra03.3	3768
Zamani, Majid	ThC19.5	3436	Zhang, Jiyang	WeC08.3	1506
	FrB18.1	4657	Zhang, Jun	WeA04	C
	FrC09.5	5119		WeB14.4	975
Zampieri, Sandro	FrB11.4	4416	Zhang, Jun	ThC10.1	3088
Zare, Armin	WeB16.1	1024	Zhang, Kunwu	WeB12.5	905
Zarei-Jalalabadi, Mahboubeh	ThB20.2	2697	Zhang, Lei	WeA01.10	56
			Zhang, Liguo	WeC15.1	1738
			Zhang, Mairui	FrC19.6	5480

Zhang, Ping	ThB04.4	2158	Zhou, Duo.....	WeB19.5	1164
Zhang, Qian.....	FrA01.6	3537	Zhou, Hao.....	WeB03.1	574
Zhang, Runyu.....	WeC17.2	1813	Zhou, Jing.....	WeB20.1	1180
.....	FrB01.6	4044	Zhou, Kangjie	WeB03.4	594
Zhang, Senlin	WeC17.4	1825	Zhou, Lei.....	FrC13.5	5250
Zhang, Shiqi	ThC18.4	3391	Zhou, Meng	FrB20.3	4741
Zhang, Shuo	ThB03.1	2104	Zhou, Mi.....	FrA02.5	3662
Zhang, Shuyuan	FrA04.20	4005	Zhou, Ruikun	FrB01.2	4020
Zhang, Wei	WeB17.3	1077	.....	FrB21.5	4789
Zhang, Weiyang	FrA01.5	3531	Zhou, Siqi	WeA03.5	272
Zhang, Wenlong	WeA01.10	56	.....	WeC01.1	1249
.....	FrB14	O	.....	FrC03.3	4883
Zhang, Xiangyu	FrA03.19	3873	Zhou, Siyu	WeC16.1	1777
Zhang, Yanyu	FrC07.6	5049	Zhou, Tong.....	WeA04.19	498
Zhang, Yanze	WeB03.1	574	Zhou, Xingyu	WeB07.3	731
Zhang, Yifei.....	WeC11.4	1622	Zhou, Xingyuan	FrC13.3	5238
Zhang, Yihuai.....	FrC15.6	5333	Zhou, Yunxiu.....	FrB11.6	4428
Zhang, Yintao	ThB11.4	2393	Zhu, Chunchu	FrB14.3	4524
Zhang, Youmin.....	ThB11.4	2393	Zhu, Daokuan	FrB06.5	4236
Zhang, Yuhao	FrB04.5	4155	Zhu, Guoming	FrB07.1	4242
Zhang, Yunsong	WeB14.5	981	Zhu, Hao.....	ThC14.1	3245
Zhang, Yunzhi.....	FrB03.2	4096	Zhu, Pengxiang	WeC03.2	1317
Zhang, Yusen	WeC21.4	1965	Zhu, Pingping	FrA03.5	3783
Zhang, Zhibo	ThB08.2	2297	Zhu, Qiang	WeB14.3	969
Zhang, Ziqiao.....	WeA02.2	123	Zhu, Yancheng	FrA02.3	3650
Zhao, Changhong	FrB06.3	4224	Zhu, Yongye	FrC03.5	4895
Zhao, Chengcheng	WeC17.1	1807	Zhu, Yuchuan	FrB03.2	4096
Zhao, Chenguang	WeB07.5	743	Zhusubaliyev, Zhanybai.....	FrC18.3	5419
Zhao, Congran	FrC20	CC	Zikatanov, Ludmil	FrC07.4	5036
.....	FrC20.1	5486	Zinage, Vrushabh	ThB13.4	2470
Zhao, Dexin	WeB14.5	981	.....	FrC09	C
Zhao, Hanxu	WeC15.1	1738	Zlotnik, Anatoly	FrB05.5	4196
Zhao, Haoran	WeB13.2	925	.....	FrC16.4	5357
Zhao, Jianguo	WeB14	O	Zou, Changfu	ThB06.2	2218
Zhao, Jiarui	FrB12.3	4446	.....	FrB17.5	4651
Zhao, Jishu	WeB11.4	863	Zou, Jianxiao	WeC08.3	1506
Zhao, Junfeng	WeB07	O	Zou, Yuanyuan	WeB04.6	644
Zhao, Long	FrC12.4	5213	.....	ThB12.5	2440
Zhao, Pan	WeC12.3	1652	Zuo, Lei	ThC16	C
.....	WeC19.1	1873	.....	ThC16	O
Zhao, Qiongsong	ThC06.2	2950	Zuo, Lei	ThC16.4	3334
Zhao, Ruxiu	WeB06.2	695	.....	.....	.....
Zhao, Tian	WeB20.6	1212	.....	.....	.....
Zhao, Weiye	WeB13.4	937	.....	.....	.....
.....	FrA01.5	3531	.....	.....	.....
.....	FrA03.15	3847	.....	.....	.....
Zhao, Ye	WeC03.6	1343	.....	.....	.....
Zhao, Zhengen	WeC08.6	1525	.....	.....	.....
Zheng, Andrew	ThC18.5	3397	.....	.....	.....
Zheng, Jian	WeB19.2	1146	.....	.....	.....
Zheng, Lihao	ThB05.3	2188	.....	.....	.....
Zheng, Ronghao	WeC17.4	1825	.....	.....	.....
Zheng, Yang	ThB07.4	2266	.....	.....	.....
Zhong, Hongli	ThC10.2	3094	.....	.....	.....
Zhong, Qing-Chang	ThC06.1	2944	.....	.....	.....
Zhong, Zhengang	ThC19.2	3417
Zhong, Zhixiong	ThC10.2	3094
Zhou, Bei	FrA01.4	3524

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OPENING RECEPTION

Tuesday, July 9, 6:30 PM – 8:30 PM

Westin Harbour Castle, Harbour Ballroom

AWARDS CEREMONY

Thursday, July 11, 11:45 AM – 12:45 PM

Westin Harbour Castle, Frontenac Ballroom

CONFERENCE BANQUET

Thursday, July 11, 6:30 PM – 9:30 PM

Royal Ontario Museum

CLOSING RECEPTION

Friday, July 12, 6:30 – 8:30 PM

Westin Harbour Castle, Harbour Ballroom



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