

**It was heartwarming to find strong
community interest in the conference, despite the
COVID-19 pandemic.**

“Accuracy Prevents Robustness in Perception-Based Control,” by Abed Al-Rahman Al Makdah*, Vaibhav Katewa, and Fabio Pasqualetti; “Coordinated Control of UAVs for Human-Centered Active Sensing of Wildfires,” by Esmaeil Seraj* and Matthew Gombolay; “Carrots or Sticks? The Effectiveness of Subsidies and Tolls in Congestion,” by Bryce L. Ferguson*, Philip N. Brown, and Jason R. Marden; and “A Fully Distributed Motion Coordination Strategy for Multirobot Systems With Local Information,” by Pian Yu* and Dimos V. Dimarogonas. The student nominees are in asterisks (*). The winner of the Best Student Paper Award was Sang-Woo Park.

ACC is our conference, and it is managed by volunteers from our Societies. Hence, we are very thankful to the large community of dedicated volunteers who support ACC activities, including the Operating Committee (OpComm) (each of whom played a key role in 2020 ACC’s success), the review team (including the reviewers, program

committee, associate editors, and conference editorial board) for maintaining the high quality of the ACC program, the AACC (its officers as well as the Steering Committee) for sharing their collective wisdom on the mechanics of putting together a conference, and the current and past OpComms for being generous in sharing their ideas, time, and knowledge. Finally, thanks to Bob Judd, to whom we are indebted for helping with the hotel and site selection process and the many contracts (and in this special year, for renegotiating with the hotel as we transitioned to a fully online conference).

It was heartwarming to find strong community interest in the conference, despite the COVID-19 pandemic. Most of the authors of the more than 800 papers saw value in submitting their final papers to the ACC and registering, while paying the full conference fees in the beginning. Due to the volunteer spirit in our community, we were able to lower the overall registration rates and refund a substantial portion of

the fees back to the registrants. We are very grateful to the support and guidance from the OpComm members and AACC board and officers throughout the complex (and at times, uncertain) transition process. Due to the volunteer spirit and a sense of ownership, the community should continue to see vibrant ACCs in the coming years.

Next year’s ACC (acc2021.a2c2.org) will be held Wednesday–Friday, May 26–28, 2021 in New Orleans, Louisiana, at the Hilton New Orleans Riverside Hotel. Nestled against the banks of the Mississippi River, the hotel is within walking distance of the French Quarter, the Audubon Aquarium, the Butterfly Garden and Zoo, and the National World War II Museum. Countless restaurants, art galleries, and more attractions are within arm’s reach of the hotel. We encourage you to consider extending your stay and exploring the Big Easy, with its rich history, music, culture, and people. The general chair for the conference is George Chiu.

Santosh Devasia
General Chair, ACC 2020

Martha Grover
Program Chair, ACC 2020

Kam K. Leang
*(Virtual) Local Arrangements
Chair, ACC 2020*

The 32nd Chinese Control and Decision Conference

The Chinese Control and Decision Conference (CCDC) is an annual international conference that has been held successfully for 31 years. The 32nd CCDC was held virtually from August 22 to 24. CCDC 2020 was coorganized by Northeastern University, the China and Technical Com-

mittee on Control and Decision of Cyber-Physical Systems, and the Chinese Association of Automation, China. The local organizer was Anhui University, China. The conference was technically cosponsored by the IEEE Control Systems Society, Technical Committee on Control Theory of Chinese Association of Automation, and State Key Laboratory of Synthetical Automation for Process Industries, China.

TECHNICAL PROGRAM

CCDC 2020 received 1306 full paper submissions. After going through a rigorous review process (during which all the members in the Technical Program Committee worked professionally, timely, responsibly, and diligently), 1003 papers were accepted for presentation in 98 oral sessions and nine interactive conference sessions. A total of 1536 delegates attended the virtual conference.

In addition to the normal technical sessions, the technical program also included four keynote addresses, seven distinguished lectures, and four forums covering the state of the art in both theory and applications in control, decision, automation, robotics, and emerging technologies as well as young talent cultivation. Four keynotes were presented:

- 1) "Control and Optimization for Integration of Renewables," by Prof. Anuradha Annaswamy, Massachusetts Institute of Technology, United States
- 2) "Systems and Control Theory for Advanced Manufacturing," by Prof. Richard D. Braatz, Massachusetts Institute of Technology, United States
- 3) "Digital Retina: A System Framework to Improve Cloud Vision Computing to Brain Like Vision Computing," by Prof. Wen Gao, Peking University, China
- 4) "Control Theory of Switches and Clocks," by Prof. Rodolphe Sepulchre, University of Cambridge, United Kingdom

The following distinguished lectures were delivered:

- » "Dynamic Optimization and Control of Nonlinear Systems," by Prof. Jun Fu of Northeastern University
- » "Gradient-Free Distributed Optimization and Nash Equilibrium Seeking for a Multi-Agent System with Unknown Cost Function," by Prof. Guoqiang Hu of Nanyang Technological University
- » "Multiactuation Schemes and Information Constraints for Vibration Control of Large-Scale Systems," by Prof. Hamid Reza Karimi of Politecnico di Milano
- » "Interesting Problems in Estimation and Control on Smart Road Vehicles," by Prof. Rajesh Rajamani of the University of Minnesota
- » "Control Design and Analysis for Underactuated Robotic Systems," by Prof. Xin Xin of Okayama Prefectural University

- » "About Cyber Security in Discrete-Event Dynamic Systems: From Modeling and Analysis of Smart Attacks to Attack-Resilient Supervisory Control," by Prof. Rong Su of Nanyang Technological University
- » "On Intelligent Decision Framework for Smart Buildings," by Prof. Qianchuan Zhao of Tsinghua University.

Forums, including Forum on "Three-Comprehensive" Talent Cultivation in Automation, were organized and chaired by Prof. Jianchang Liu of Northeastern University: Prof. Ge Yu of Northeastern University presented Blockchain Frontier Technology Forum, Prof. Qiuye Sun of Northeastern University delivered Outstanding Doctors Forum-AI-Driven Automation, and Wei Zhang of Northeastern University

第32届中国控制与决策会议
The 32nd Chinese Control and Decision Conference

2020年8月22-24日, 中国·合肥 | 22-24 August 2020, Hefei, China

主办单位/Organizers:
东北大学 Northeastern University, China
中国自动化学会信息物理系统控制与决策专业委员会 Technical Committee on Control and Decision of Cyber Physical Systems, CAA

承办单位/Local Organizer:
安徽大学 Anhui University, China

协办单位/Technical Co-Sponsors:
IEEE控制论系统协会 IEEE Control Systems Society
中国自动化控制理论专业委员会 Technical Committee on Control Theory, CAA
流程工业综合自动化国家重点实验室 State Key Laboratory of Synthetical Automation for Process Industries, China

22 Aug AM

08:30-09:00	Opening Ceremony	09:00-10:00	Keynote Address 1 Title: Control and Optimization for Integration of Renewables in Smart Grids Speaker: Anuradha Annaswamy
10:10-11:10	Keynote Address 2 Title: Systems and Control Theory for Advanced Manufacturing Speaker: Richard D. Braatz	11:20-12:20	Keynote Address 3 Title: Digital Retina: A System Framework to Improve Cloud Vision Computing to Brain Like Vision Computing Speaker: Wen Gao

22 Aug PM

13:30-14:30	Distinguished Lecture 1 Title: Dynamic Optimization and Control of Nonlinear Systems Speaker: Jun Fu	14:40-15:40	Distinguished Lecture 2 Title: Gradient-Free Distributed Optimization Methods for a Multi-Agent System with Unknown Cost Function Speaker: Guoqiang Hu
15:50-16:50	Distinguished Lecture 3 Title: Multiactuation Schemes and Information Constraints for Vibration Control of Large-Scale Systems Speaker: Hamid Reza Karimi	17:00-18:00	Keynote Address 4 Title: Control Theory of Switches and Clocks Speaker: Rodolphe Sepulchre
13:30-16:30	SatA01-12	13:30-16:30	Interactive Session SatAIS

Collaborating Partners: 控制与决策, Control and Decision

The CloudVenue of the Chinese Control and Decision Conference 2020.



The Chinese Control and Decision Conference 2020 General Chair Guang-Hong Yang during the opening ceremony.

The 32nd Chinese Control and Decision Conference (CCDC 2020)

- 1306 Submissions
- Processed by TPC with 141 Members
- 1003 Papers Accepted
- 98 Oral Sessions
- 9 Interactive Sessions

Papers written in English **were published** in **IEEE Xplore** on 11 August 2020

Thanks to **All the TPC members** for their dedication, diligence and commitments

Technical Program Committee Chair Changyun Wen giving an address online.



Qunjing Wang delivering a welcome address on behalf of the local organizer of the Chinese Control and Decision Conference.

Control and Optimization for Integration of Renewables

Anuradha Annaswamy

Active-adaptive Control Laboratory
Department of Mechanical Engineering
Massachusetts Institute of Technology

Anuradha Annaswamy presenting her keynote address.



Organizing Committee Chair Fuli Wang presenting an opening address.



Richard D. Braatz giving his keynote address.



Anuradha Annaswamy delivering a congratulations address online.

北京大学数字媒体研究所 INSTITUTE OF DIGITAL MEDIA, PEKING UNIVERSITY

鹏城实验室 PENGCHENG LABORATORY

Digital Retina – A System Framework for Improving Cloud Vision System to Brain-like Vision System

Wen Gao (高文)
Peking University (北京大学), and
PengCheng Lab (鹏城实验室)

Wen Gao delivering his keynote address.



Rodolphe Sepulchre presenting his keynote address.



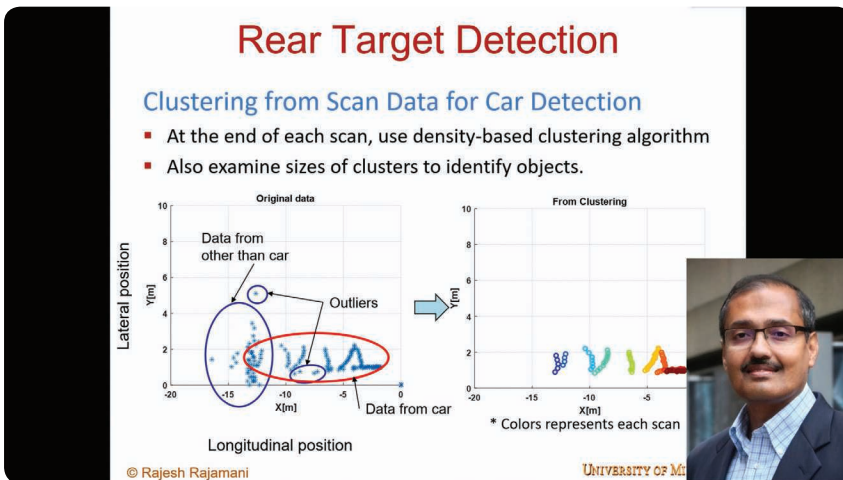
Hamid Reza Karimi delivering his distinguished lecture.



Jun Fu giving his distinguished lecture.



Guoqiang Hu giving his distinguished lecture.



Rajesh Rajamani presenting his distinguished lecture.



Xin Xin delivering his distinguished lecture.

Outstanding Paper Award was held in the evening of August 23.

The Zhang Si-Ying (CCDC) Outstanding Youth Paper Award serves to recognize Academician Zhang Si-Ying's highly regarded perseverance, character, and academic contribution. It also serves to inspire, motivate, and encourage young scholars in their research. For a paper to be eligible for the award, the first author must not be older than 35 on the day of award presentation at the conference. The Zhang Si-Ying (CCDC) Outstanding Youth Paper Award winner receives an award of ¥10,000 together with a certificate, and each of the remaining finalists receives an

gave Forum on Young Scholar Development. All the sessions (including keynotes, distinguished lectures, forum sessions, oral sessions, and interactive sessions) were well attended and produced active discussions.

The USB flash disk containing all the papers presented at the conference will be sent to each registered delegate and can also be downloaded from the

official website. Official conference proceedings papers written in English have been published by IEEE and are included in IEEE *Xplore*.

AWARDS CEREMONY

The awards ceremony presenting the Zhang Si-Ying (CCDC) Outstanding Youth Paper Award and the 2019 Chinese Journal of Control and Decision

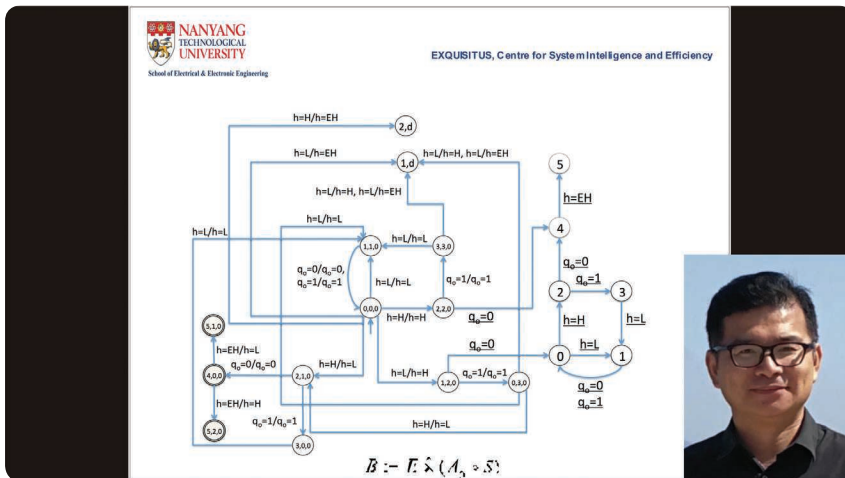
Distinguished lectures were delivered, including “Dynamic Optimization and Control of Nonlinear Systems,” by Prof. Jun Fu of Northeastern University.

award of ¥3,000 and the Certificate of Finalist. The Award Committee for the CCDC 2020 was composed of five members: Annaswamy, Fu,

Prof. Zhong-Ping Jiang of the United States, Prof. Changyun Wen of Singapore, and Prof. Guang-Hong Yang of China. For CCDC 2020, 119 papers

were selected for consideration for the Zhang Si-Ying Outstanding Youth Paper Award based on reviewers’ comments, nominations, and evaluations from the Technical Program Committee members. These papers were sent to famous experts, including some members of the International Advisory Committee, for further evaluation. Based on the evaluations and recommendation, the Technical Program Committee shortlisted the following four papers as the finalists:

- 1) “Real-Time Optimal Power Allocation for Smart Grid System Via Deep Neural Network: A Learning Based Approach,” by Fanghong Guo, Bowen Xu, Wen-An Zhang, Dan Zhang, and Li Yu of Zhejiang University of Technology
- 2) “Distributed Frequency Controller for MT-HVDC Systems Via Adaptive Dynamic Programming,” by Zhongjie Hu, Zhi-Wei Liu, Xiong Hu, and Ming Chi of Huazhong University of Science and Technology
- 3) “Spectral Analysis of Network Coupling on Power System



Rong Su giving his distinguished lecture.

正在讲话: 赵千川

腾讯会议

studies: Comparison with other methods

Case	Method	PUMP-A		PUMP-A		PUMP-A		PUMP-A		PUMP-B		PUMP-B		Δ (L/s)	P^* (KW)
		ω_1	Q_1	ω_2	Q_2	ω_3	Q_3	ω_4	Q_4	ω_5	Q_5	ω_6	Q_6		
Case 1 $Q_0 = 86$	BRS	0.7340	43.476	0.7304	42.524	0	0	0	0	0	0	0	0	0	25.378
	SC	0.7199	39.623	0	0	0	0	0	0	0.9	46.377	0	0	0	32.970
	SLSQP	0.7322	42.995	0.7322	42.995	0	0	0	0	0	0	0	0	-0.01	25.377
	GA	0.8046	59.632	0	0	0	0	0	0	0	0.7528	26.342	0	0	26.902
	TA	0.7354	43.831	0	0	0	0	0	0	0	0.7269	21.296	21.296	0.423	27.288
Case 2 $Q_0 = 117$	BRS	0.8285	58.509	0.8284	58.491	0	0	0	0	0	0	0	0	0	38.757
	SC	0.9066	74.038	0	0	0	0	0	0	0.9	42.962	0	0	0	45.697
	SLSQP	0.8285	58.509	0.8285	58.509	0	0	0	0	0	0	0	0	0.018	38.764
	GA	0.7835	48.045	0.8798	68.960	0	0	0	0	0	0	0	0	-0.005	39.539
	TA	0.7790	46.901	0.7803	47.255	0	0	0	0	0.7710	23.201	0	0	0.357	39.614
Case 3 $Q_0 = 248$	BRS	0.9051	61.208	0.9111	62.552	0.9076	61.775	0.9107	62.465	0	0	0	0	0	101.322
	SC	0.9	60.036	0.9	60.036	0.9046	61.098	0	0	0.9	33.415	0.9	33.415	0	33.415
	SLSQP	0.9086	61.991	0.9086	61.991	0.9086	61.991	0.9086	61.991	0	0	0	0	0	0
	GA	0.9516	71.161	0.8425	45.289	0.9798	76.739	0.8780	54.792	0	0	0	0	0	0
	TA	0.8833	56.087	0.8762	54.349	0.8762	54.349	0.8832	56.076	0.8665	27.381	0	0	0	0
Case 4 $Q_0 = 288$	BRS	0.9264	60.082	0.9417	63.626	0.9597	67.610	0.9667	69.121	0.8972	27.561	0	0	0	27.561
	SC	0.9	53.510	0.9	53.510	0.9	53.510	0.9	53.510	1.0	44.156	0.9086	29.086	0	29.086
	SLSQP	0.9742	70.722	0.9742	70.722	0.9742	70.722	0.9742	70.722	0.8402	5.106	0	0	0	5.106
	GA	0.9497	65.410	0.8780	47.457	0.9587	67.390	0.9593	67.523	0.9717	40.189	0	0	0	40.189
	TA	0.9193	58.378	0.9193	58.378	0.9193	58.378	0.9120	56.568	0.9018	28.494	0.8973	27.561	0.018	27.561

*BRS is our insect intelligent building APP

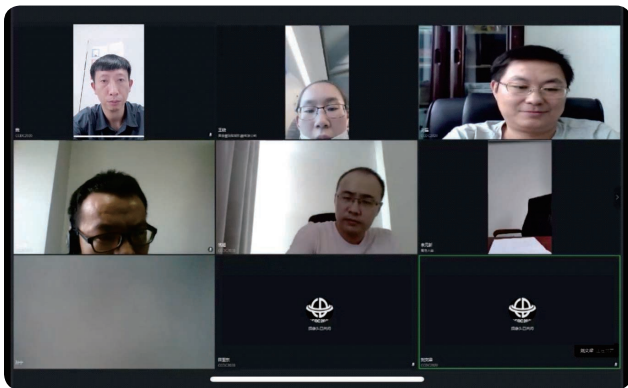
Qianchuan Zhao presenting his distinguished lecture.



Jianchang Liu leading the Forum on “Three-Comprehensive” Talent Cultivation in Automation.



The Blockchain Frontier Technology Forum.



The Outstanding Doctors Forum-AI-Driven Automation.

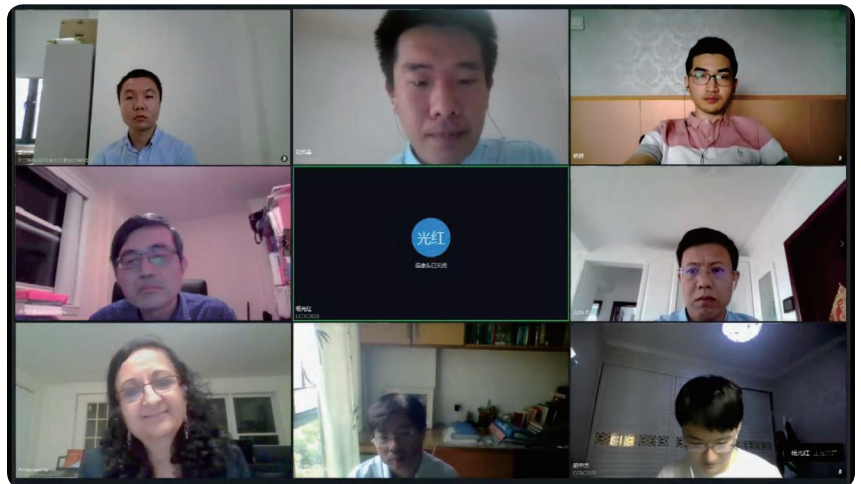


Wei Zhang of Northeastern University chairing the Forum on Young Scholar Development.

Synchronization With Varying Phases and Voltages,” by Peng Yang, Feng Liu, Zhaojian Wang, Shiyong Wu, and Hangyin Mao of Tsinghua University

- 4) “Analytic Hierarchy Process (AHP) in Portfolio Selection Based on Information Granularity,” by Kaixin Zhao, Yaping Dai, Ye Ji, and Jiayi Sun of Beijing Institute of Technology.

During the conference, all the Award Committee members attended the oral presentations of the four finalist papers. Each member independently assessed their originality, technical quality, and written and oral presentations. On the basis of these assessments, Yang et al. won the CCDC 2020 Zhang Si-Ying Outstanding Youth Paper Award. Guang-Hong Yang introduced the award selection criteria and process and presented online the awards; certificates were given to all the finalists



The Chinese Control and Decision Conference 2020 Award Committee assessing the oral presentations of the four finalists.

and the winner during the presentation ceremony.

All papers published in *Chinese Journal of Control and Decision* from 2017 to 2018 were sent to distinguished experts in the relevant areas for

evaluations for the 2019 Outstanding Paper Award of the journal. Based on their comments and recommendations, four papers, authored, respectively, by Haiyan Chen of Nanjing University of Aeronautics and



The Zhang Si-Ying (Chinese Control and Decision Conference) Outstanding Youth Paper Award.



The winners of the 2019 Chinese Journal of Control and Decision Outstanding Paper Award.

Astronautics, Xiongwei Zhou of Central South University, Xiaoming You of Shanghai University of Engineering Science, and Jingming Yang of Yanshan University, received the award.

THE 33RD CHINESE CONTROL AND DECISION CONFERENCE

The 33rd CCDC (CCDC 2021) will be held in Kunming, China, May 22–24, 2021. Keynote addresses on the state of the art of the theories and applications in control and decision will be delivered by Prof. Thomas Parisini of Imperial College London, United Kingdom, Prof. Xiaohong Guan of Xi'an Jiaotong University, China, and Prof. Guangren Duan, Harbin Institute of Technology, China. The Organizing Committee will invite additional prominent professors/academicians as speakers for keynotes and distinguished lectures for CCDC 2021. Information for CCDC 2021 will consistently be updated on the conference website: <http://www.ccdc.neu.edu.cn>.

Changyun Wen
Zhong-Ping Jiang
*International Technical
Program Chairs*

The 2020 International Conference on Unmanned Aircraft Systems

The 2020 International Conference on Unmanned Aircraft Systems (ICUAS'20), initially scheduled for June 9–12, finally took place September 1–4 in Athens, Greece. It was a hybrid conference, allowing for virtual (video playback and remote live) and physical onsite presentations. This

year marks the first time the annual conference has left the United States, going international, to Athens, Greece.

The COVID-19 pandemic forced the Organizing Committee to delay the conference from June (ICUAS is normally held in June) to early September. This decision was justified and well thought out. It was based on the continuous monitoring of the world situation in terms of how the pandemic was

spreading, but also on how Greece was handling the pandemic (taking very strict measures to contain it) well in advance. However, in late April/early May, it was obvious that the only viable solution for the conference to actually occur was to move it to September, hoping, at first, for a physical presence only conference. Regardless, pandemic challenges forced us to adopt the hybrid conference.

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