Daniel Liberzon

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University of Illinois Urbana-Champaign
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Positions

University of Illinois Urbana-Champaign, Urbana, IL, 2000–present

Department of Electrical and Computer Engineering: *Richard T. Cheng Professor,* 2020–present; *Professor,* 2012–2020; *Associate Professor,* 2006–2012; *Assistant Professor,* 2000–2006

Coordinated Science Laboratory: *Professor,* 2012–present; *Associate Professor,* 2006–2012; *Research Assistant Professor,* 2000–2006

Department of Mathematics: *Affiliate Professor,* 2021–present

Yale University, New Haven, CT, 1998–2000

Postdoctoral Associate, Laboratory for Control Science and Engineering (director: A. Stephen Morse), Department of Electrical Engineering

Education

Brandeis University, Waltham, MA, 1993–1998

Graduate student, Department of Mathematics

Ph.D. awarded in Feb 1998

Advisor: Roger W. Brockett, Division of Engineering and Applied Sciences, **Harvard University,** Cambridge, MA

Ph.D. thesis: "Asymptotic Properties of Nonlinear Feedback Control Systems"

Moscow State University, Moscow, Russia, 1989–1993

Undergraduate student, Department of Mechanics and Mathematics

Advisor: Andrei A. Agrachev (currently at S.I.S.S.A., Trieste, Italy)

Awards and Honors

- Richard T. Cheng Professorship, Electrical and Computer Engineering Department, UIUC, 2020

- Best Paper Award, 22nd ACM International Conference on Hybrid Systems: Computation and Control (HSCC 2019), with G. Yang and J. P. Hespanha

- IFAC Fellow, elected in 2016

- IEEE Fellow, Class of 2013

- Associate at the Center for Advanced Study, UIUC, 2010

- AACC Donald P. Eckman Award, 2007

- Xerox Award for Faculty Research, UIUC College of Engineering, 2007

- IFAC Young Author Prize, 2002

- NSF CAREER Award, 2002

- UIUC List of Teachers Ranked as Excellent by Students, Spring 2022, Fall 2021, Fall 2020, Fall 2019 (two courses), Fall 2018 (two courses), Spring 2018, Fall 2017, Fall 2016 (two courses), Spring 2016, Fall 2015 (two courses), Spring 2015 (two courses), Fall 2013, Spring 2013, Fall 2012 (two courses), Spring 2012, Spring 2010, Fall 2009, Spring 2009, Fall 2007, Spring 2007, Fall 2005, Spring 2005, Fall 2004, Spring 2002

- Senior Member of IEEE, since 2004

- Outstanding Reviewer for Automatica, 2003 and 2005, and IEEE Transactions on Automatic Control, 2003 (not formally announced awards)

RESEARCH INTERESTS

- Switched and hybrid systems

- Nonlinear systems and control theory

- Control with limited information

- Uncertain and stochastic systems

FUNDED PROJECTS

- "Switching control with minimal data," NSF CMMI-2106043, 2021-2024

- "Switched control systems with limited information: an entropy approach to stabilization and disturbance attenuation," NSF CMMI-1662708, 2017-2021

- "Optimal network resource allocation for monitoring continuous and hybrid systems (with Sayan Mitra), AFOSR FA9550-17-1-0236, 2017-2020

- "Switched control systems with limited information: an entropy approach," UIUC Research Board, 2016–2018

- "Limited-information control of hybrid systems via reachable set propagation," NSF CNS-1217811, 2012–2016

- "Hybrid small-gain theorems for nonlinear networked and quantized control systems" (with Z.-P. Jiang at NYU-Poly), NSF ECCS-1231196, 2012–2016

- "Dynamical systems and nonlinear control theory" (with V. Zharnitsky), UIUC Initiative for Mathematical Sciences and Engineering small grants program, 2012–2013

- "Switched dynamical systems: small-gain analysis and quantized feedback control," UIUC Research Board, 2012–2013

- "A new approach to design of nonlinear observers robust to measurement disturbances, with applications to quantized feedback control" (PI: H. Shim at Seoul National University), National Research Foundation of Korea (Global Research Network program), 2011–2014

- "Invertibility of hybrid systems," NSF EECS-0821153, 2008–2012

- "Compositional technology for safety-critical modular systems" (PI: P. Voulgaris), NSF CNS-0834409, 2008–2009

- "Control and sensing under limited information" (with Y. Ma), NSF EECS-0701676, 2007–2011

- "Verification of probabilistic hybrid systems: stability and beyond" (with N. Lynch at MIT), NSF CNS-0614993, 2006–2010

- "Hybrid control of nonlinear systems," NSF ECS-0134115 CAR, 2002–2007

- "Cooperative networked control of dynamical peer-to-peer vehicle systems" (PI: G. Dullerud), DARPA/AFOSR MURI F49620-02-1-0325, 2002–2007

- "A hybrid systems view of inverse problems in power system dynamics" (PI: I. Hiskens), NSF ECS-0114725, 2001–2004

TEACHING

University of Illinois at Urbana-Champaign, Department of Electrical and Computer Engineering, 2000–present

- Hybrid Systems and Control (ECE 586 DL, newly developed course, graduate)

- Optimum Control Systems (ECE 553, graduate)

- Analysis of Nonlinear Systems (ECE 528, graduate)

- Nonlinear and Adaptive Control (ECE 517, graduate)

- Control System Theory and Design (ECE 515, graduate)

- Introduction to Optimization (ECE 490, undergraduate)

- Control Systems I (ECE 486, undergraduate)

Brandeis University, Department of Mathematics, 1994–1997

- Applied Linear Algebra (MATH 15a, undergraduate)

- Integral Calculus (MATH 10b, undergraduate)

- Differential Calculus (MATH 10a, undergraduate)

- Precalculus (MATH 5a, undergraduate)

- Delivered lectures on probability theory to high school students participating in the annual Brandeis Summer Odyssey directed research program

PROFESSIONAL ACTIVITIES

- Senior Editor for Automatica (Nonlinear Systems and Control area), 2017–2022

- Associate Editor for Mathematics of Control, Signals, and Systems, since 2011

- Program Chair of the 4th IFAC Conference on Modelling, Identification and Control of Nonlinear Systems (MICNON), 2024

- General Chair of the 57th Allerton Conference on Communication, Control, and Computing, 2019

- Program Chair of the 56th Allerton Conference on Communication, Control, and Computing, 2018

- Associate Editor for the IEEE Transactions on Automatic Control, 2007–2010

- Student Best Paper Award committee of the IEEE Conference on Decision and Control, 2000, 2010, and 2011

- IFAC Technical Committees on Robust Control (2003–2008), Discrete Event and Hybrid Systems (2005–2008), and Nonlinear Systems (2006–2008)

- International Program Committees of the Conference on Hybrid Systems: Computation and Control (HSCC), 2000, 2007, 2008, 2009, 2021, 2023, IFAC Conference on Analysis and Design of Hybrid Systems (ADHS), 2015, 2021, IFAC Symposium on Nonlinear Control Systems (NOLCOS), 2007, 2010, 2013, 2016, IFAC Workshop on Distributed Estimation and Control in Networked Systems (NecSys), 2013, 2016, IFAC Conference on Modelling, Identification and Control of Nonlinear Systems (MICNON), 2015, Symposium on Mathematical Theory of Networks and Systems (MTNS), 2002, 2010, IEEE Conference on Decision and Control (CDC), 2000, 2002, 2007, Mediterranean Conference on Control and Automation, 2006

- Member of the editorial board for the journal Nonlinear Analysis: Hybrid Systems and Applications, 2005–2007

- Guest editor of special issue dedicated to Alexander Fradkov's 70th birthday, International Journal of Control, 2020

- Guest editor of special issue "Switching and logic in adaptive control", International Journal of Adaptive Control and Signal Processing, 2001

- Associate Editor on the IEEE Control Systems Society Conference Editorial Board, 1999–2000

- Organizer of invited sessions at the IEEE Conference on Decision and Control, the American Control Conference, the International Symposium on Mathematical Theory of Networks and Systems (MTNS), and the Allerton Conference on Communication, Control, and Computing.

- Reviewer for the Mathematical Reviews of the American Mathematical Society, since 2005

- Reviewer of book proposals for Springer, Birkhäuser, and McGraw-Hill, grant proposals for NSF, AFOSR and several foreign funding agencies, and technical papers for numerous journals and conferences

- External reviewer for several Ph.D. and HDR dissertations in Canada, Europe, Israel, and Australia

STUDENTS AND POSTDOCS SUPERVISED

- Guilherme Scabin Vicinansa (Ph.D. student)

- Emre Eraslan (Ph.D. student)

- Shenyu Liu (Ph.D., 2020)
  Ph.D. thesis: "Nonlinear and Switched Systems: Geometric Motion Planning, Non-Monotonic Lyapunov Functions and Input-to-State Stability"
  Placement: postdoctoral researcher at University of California, San Diego (with J. Cortes and S. Martinez)
  Faculty position: Beijing Institute of Technology, China, 2022

- Guosong Yang (M.S., 2013, Ph.D., 2017)
  M.S. thesis: "A Lyapunov-Based Small-Gain Theorem for Interconnected Switched Systems"
  Ph.D. thesis: "Switched and Hybrid Systems with Inputs: Small-Gain Theorems, Control with Limited Information, and Topological Entropy"
  Placement: postdoctoral researcher at University of California, Santa Barbara (with J. P. Hespanha)
  Faculty position: Rutgers University, Piscataway, NJ, 2022

- James Schmidt (M.S., 2016)
  M.S. thesis: "Topological Entropy Bounds for Switched Linear Systems with Lie Structure"
  Placement: Ph.D. student in the Mathematics Department, UIUC

- Gokhan Sahan (postdoctoral researcher, 2014-2015)
  Placement: instructor, Izmir Institute of Technology, Turkey

- Charles Ying (M.S., 2013)
  M.S. thesis: "Almost Lyapunov Functions"
  Placement: control engineer, SNECMA, France

- Aneel Tanwani (M.S., 2008, Ph.D., 2011)
  M.S. thesis: "Invertibility of Switched Nonlinear Systems"
  Ph.D. thesis: "Invertibility and Observability of Switched Systems with Inputs and Outputs"
  Placement: postdoctoral researcher at INRIA Grenoble, France (with B. Brogliato and C. Prieur)
  Faculty position: CNRS researcher in LAAS, Toulouse, France, 2015

- Yoav Sharon (Ph.D., 2010)
  Ph.D. thesis: "Estimation and Control with Limited Information and Unreliable Feedback"
  Placement: postdoctoral researcher at M.I.T. (with A. Annaswamy)

- Stephan Trenn (postdoctoral researcher, 2009-2010)
  Placement: postdoctoral researcher at University of Würzburg, Germany (with F. Wirth)
  Faculty position: University of Groningen, Netherlands, 2017

- Matthias Müller (M.S., 2009)
  M.S. thesis: "Input-to-State Stability and Related Concepts for Switched Systems and Fault Coverage"
  Placement: Ph.D. student at University of Stuttgart, Germany (with F. Allgöwer)
  Faculty position: University of Stuttgart, Germany, 2017

- Debasish Chatterjee (M.S., 2004, Ph.D., 2007)
  M.S. thesis: "Stability Analysis of Deterministic and Stochastic Switched Systems via the Comparison Principle and Multiple Lyapunov Functions"
  Ph.D. thesis: "Studies on Stability and Stabilization of Randomly Switched Systems"
  Placement: postdoctoral researcher at ETH Zurich, Switzerland (with J. Lygeros)
  Faculty position: IIT Bombay, India, 2011

- Linh Vu (M.S., 2003, Ph.D., 2007)
  M.S. thesis: "Common Lyapunov Functions for Families of Commuting Nonlinear Systems"
  Ph.D. thesis: "Invertibility and Input-to-State Stability of Switched Systems and Applications in Adaptive Control"
  Placement: postdoctoral researcher at University of Washington, Seattle, WA (with K. Morgansen)

MAJOR PUBLICATIONS

Books

- *Calculus of Variations and Optimal Control Theory: A Concise Introduction,* Princeton University Press, 2012, ISBN 978-0-691-15187-8

- *Switching in Systems and Control,* Birkhäuser, Boston, 2003, volume in series Systems and Control: Foundations and Applications, ISBN 978-0-8176-4297-6

Journal articles

- "Integral-input-to-state stability of switched nonlinear systems under slow switching" (with S. Liu, A. Russo, and A. Cavallo), IEEE Transactions on Automatic Control, vol. 67, pp. 5841–5855, 2022

- "ISS and integral-ISS of switched systems with nonlinear supply functions" (with S. Liu and A. Tanwani), Mathematics of Control, Signals, and Systems, vol. 34, pp. 297–327, 2022

- "On topological entropy of interconnected nonlinear systems", IEEE Control Systems Letters, vol. 5, pp. 2210–2214, 2021

- "Robust synchronization of electric power generators" (with O. Ajala and A. D. Dominguez-Garcia), Systems and Control Letters, vol. 152, article 104937, pp. 1–9, 2021

- "A library of second-order models for synchronous machines" (with O. Ajala, A. D. Dominguez-Garcia, and P. Sauer), IEEE Transactions on Power Systems, vol. 35, pp. 4803–4814, 2020

- "Topological entropy of switched linear systems: general matrices and matrices with commutation relations" (with G. Yang, A. J. Schmidt, and J. P. Hespanha), Mathematics of Control, Signals, and Systems, vol. 32, pp. 411–453, 2020

- "Almost Lyapunov functions for nonlinear systems" (with S. Liu and V. Zharnitsky), Automatica, vol. 113, article 108758, pp. 1–13, 2020

- "Entropy and minimal bit rates for state estimation and model detection" (with S. Mitra), IEEE Transactions on Automatic Control, vol. 63, pp. 3330–3344, 2018

- "Unified stability criteria for slowly time-varying and switched linear systems" (with X. Gao, J. Liu, and T. Başar), Automatica, vol. 96, pp. 110–120, 2018

- "Feedback stabilization of a switched linear system with unknown disturbances under data-rate constraints" (with G. Yang), IEEE Transactions on Automatic Control, vol. 63, pp. 2107–2122, 2018

- "Lyapunov small-gain theorems for networks of not necessarily ISS hybrid systems" (with A. Mironchenko and G. Yang), Automatica, vol. 88, pp. 10–20, 2018

- "Robustness of Pecora-Carroll synchronization under communication constraints" (with B. Andrievsky and A. L. Fradkov), Systems and Control Letters, vol. 111, pp. 27–33, 2018

- "Control with minimal cost-per-symbol encoding and quasi-optimality of event-based encoders" (with J. Pearson and J. P. Hespanha), IEEE Transactions on Automatic Control, vol. 62, pp. 2286–2301, 2017

- "Energy control of a pendulum with quantized feedback" (with R. Seifullaev and A. L. Fradkov), Automatica, vol. 67, pp. 171–177, 2016

- "Adaptive control of passifiable linear systems with quantized measurements and bounded disturbances" (with A. Selivanov and A. L. Fradkov), Systems and Control Letters, vol. 88, pp. 62–67, 2016

- "Generalized switching signals for input-to-state stability of switched systems" (with A. Kundu and D. Chatterjee), Automatica, vol. 64, pp. 270–277, 2016

- "Nonlinear observers robust to measurement disturbances in an ISS sense" (with H. Shim), IEEE Transactions on Automatic Control, vol. 61, pp. 48–61, 2016

- "An asymptotic ratio characterization of input-to-state stability" (with H. Shim), IEEE Transactions on Automatic Control, vol. 60, pp. 3401–3404, 2015

- "Compensation of disturbances for MIMO systems with quantized output" (with I. Furtat and A. L. Fradkov), Automatica, vol. 60, pp. 239–244, 2015

- "Norm-controllability of nonlinear systems" (with M. Müller and F. Allgöwer), IEEE Transactions on Automatic Control, vol. 60, pp. 1825–1840, 2015

- "A Lyapunov-based small-gain theorem for interconnected switched systems" (with G. Yang), Systems and Control Letters, vol. 78, pp. 47–54, 2015

- "Lyapunov-based small-gain theorems for hybrid systems" (with D. Nešić and A. R. Teel), IEEE Transactions on Automatic Control, vol. 59, pp. 1395–1410, 2014

- "Finite data-rate feedback stabilization of switched and hybrid linear systems," Automatica, vol. 50, pp. 409–420, 2014

- "The bang-bang funnel controller for uncertain nonlinear systems with arbitrary relative degree" (with S. Trenn), IEEE Transactions on Automatic Control, vol. 58, pp. 3126–3141, 2013

- "On observability for switched linear systems: characterization and observer design" (with A. Tanwani and H. Shim), IEEE Transactions on Automatic Control, vol. 58, pp. 891–904, 2013

- "Input/output-to-state stability and state-norm estimators for switched nonlinear systems" (with M. Müller), Automatica, vol. 48, pp. 2029–2039, 2012

- "Supervisory control of uncertain systems with quantized information" (with L. Vu), International Journal of Adaptive Control and Signal Processing (special issue on recent trends in adaptive switching/mixing control), vol. 26, pp. 739–756, 2012

- "Switched nonlinear differential algebraic equations: solution theory, Lyapunov functions, and stability" (with S. Trenn), Automatica, vol. 48, pp. 954–963, 2012

- "Input-to-state stabilizing controller for systems with coarse quantization" (with Y. Sharon), IEEE Transactions on Automatic Control, vol. 57, pp. 830–844, 2012

- "On robust Lie-algebraic stability conditions for switched linear systems" (with A. A. Agrachev and Y. Baryshnikov), Systems and Control Letters, vol. 61, pp. 347–353, 2012

- "Rendezvous without coordinates" (with J. Yu and S. LaValle), IEEE Transactions on Automatic Control, vol. 57, pp. 421–434, 2012

- "Stabilizing randomly switched systems" (with D. Chatterjee), SIAM Journal on Control and Optimization, vol. 49, pp. 2008–2031, 2011

- "An inversion-based approach to fault detection and isolation in switching electrical networks" (with A. Tanwani and A. D. Dominguez-Garcia), IEEE Transactions on Control Systems Technology, vol. 19, pp. 1059–1074, 2011

- "Supervisory control of uncertain linear time-varying systems" (with L. Vu), IEEE Transactions on Automatic Control, vol. 56, pp. 27–42, 2011

- "Invertibility of nonlinear switched systems" (with A. Tanwani), Automatica, vol. 46, pp. 1962–1973, 2010

- "A unified framework for design and analysis of networked and quantized control systems" (with D. Nešić), IEEE Transactions on Automatic Control, vol. 54, pp. 732–747, 2009

- "Nonlinear control with limited information," Communications in Information and Systems (Roger Brockett Legacy special issue), vol. 9, pp. 41–58, 2009

- "Verifying average dwell time of hybrid systems" (with S. Mitra and N. Lynch), ACM Transactions on Embedded Computing Systems, vol. 8, pp. 1–37, 2008

- "Lyapunov conditions for input-to-state stability of impulsive systems" (with J. P. Hespanha and A. R. Teel), Automatica, vol. 44, pp. 2735–2744, 2008

- "Invertibility of switched linear systems" (with L. Vu), Automatica, vol. 44, pp. 949–958, 2008

- "Input-to-state stabilization of linear systems with quantized state measurements" (with D. Nešić), IEEE Transactions on Automatic Control, vol. 52, pp. 767–781, 2007

- "Input-to-state stability of switched systems and switching adaptive control" (with L. Vu and D. Chatterjee), Automatica, vol. 43, pp. 639–646, 2007

- "On stability of randomly switched nonlinear systems" (with D. Chatterjee), IEEE Transactions on Automatic Control, vol. 52, pp. 2390–2394, 2007

- "Quantization, time delays, and nonlinear stabilization," IEEE Transactions on Automatic Control, vol. 51, pp. 1190–1195, 2006

- "Stability analysis of deterministic and stochastic switched systems via a comparison principle and multiple Lyapunov functions" (with D. Chatterjee), SIAM Journal on Control and Optimization, vol. 45, pp. 174–206, 2006

- "Lie-algebraic stability conditions for nonlinear switched systems and differential inclusions" (with M. Margaliot), Systems and Control Letters, vol. 55, pp. 8–16, 2006

- "Quantized control via locational optimization" (with F. Bullo), IEEE Transactions on Automatic Control, vol. 51, pp. 2–13, 2006

- "Stabilization of nonlinear systems with limited information feedback" (with J. P. Hespanha), IEEE Transactions on Automatic Control, vol. 50, pp. 910–915, 2005

- "Common Lyapunov functions for families of commuting nonlinear systems" (with L. Vu), Systems and Control Letters, vol. 54, pp. 405–416, 2005

- "Nonlinear norm-observability notions and stability of switched systems" (with J. P. Hespanha, D. Angeli, and E. D. Sontag), IEEE Transactions on Automatic Control, vol. 50, pp. 154–168, 2005

- "Output-input stability implies feedback stabilization," Systems and Control Letters, vol. 53, pp. 237–248, 2004

- "Switched systems, common Lyapunov functions, and gradient algorithms" (with R. Tempo), IEEE Transactions on Automatic Control, vol. 49, pp. 990–994, 2004

- "Hybrid feedback stabilization of systems with quantized signals," Automatica, vol. 39, pp. 1543–1554, 2003

- "On stabilization of linear systems with limited information," IEEE Transactions on Automatic Control, vol. 38, pp. 304–307, 2003

- "Overcoming the limitations of adaptive control by means of logic-based switching" (with J. P. Hespanha and A. S. Morse), Systems and Control Letters, vol. 49, pp. 49–65, 2003

- "Hysteresis-based switching algorithms for supervisory control of uncertain systems" (with J. P. Hespanha and A. S. Morse), Automatica, vol. 39, pp. 263–272, 2003

- "Output-input stability and minimum-phase nonlinear systems" (with A. S. Morse and E. D. Sontag), IEEE Transactions on Automatic Control, vol. 47, pp. 422–436, 2002

- "Supervision of integral-input-to-state stabilizing controllers" (with J. P. Hespanha and A. S. Morse), Automatica, vol. 38, pp. 1327–1335, 2002

- "Universal construction of feedback laws achieving ISS and integral-ISS disturbance attenuation" (with E. D. Sontag and Y. Wang), Systems and Control Letters, vol. 4, pp. 111–127, 2002

- "Lie-algebraic stability criteria for switched systems" (with A. A. Agrachev), SIAM Journal on Control and Optimization, vol. 40, pp. 253–269, 2001

- "Multiple model adaptive control with safe switching" (with B. D. O. Anderson, T. S. Brinsmead, and A. S. Morse), International Journal of Adaptive Control and Signal Processing (invited paper), vol. 15, pp. 445–470, 2001

- "Multiple model adaptive control, part 2: Switching" (with B. D. O. Anderson, T. S. Brinsmead, F. De Bruyne, J. P. Hespanha, and A. S. Morse), International Journal on Robust and Nonlinear Control (invited paper), vol. 11, pp. 479–496, 2001

- "Multiple model adaptive control, part 1: Finite controller coverings" (with B. D. O. Anderson, T. S. Brinsmead, F. de Bruyne, J. P. Hespanha, and A. S. Morse), International Journal on Robust and Nonlinear Control (invited paper), vol. 10, pp. 909–929, 2000

- "Quantized feedback stabilization of linear systems" (with R. W. Brockett), IEEE Transactions on Automatic Control, vol. 45, pp. 1279–1289, 2000

- "Nonlinear feedback systems perturbed by noise: steady-state probability distributions and optimal control" (with R. W. Brockett), IEEE Transactions on Automatic Control, vol. 45, pp. 1116–1130, 2000

- "Spectral analysis of Fokker-Planck and related operators arising from linear stochastic differential equations" (with R. W. Brockett), SIAM Journal on Control and Optimization, vol. 38, pp. 1453–1467, 2000

- "Stability of switched systems: a Lie-algebraic condition" (with J. P. Hespanha and A. S. Morse), Systems and Control Letters, vol. 37, pp. 117–122, 1999

- "Basic problems in stability and design of switched systems" (with A. S. Morse), IEEE Control Systems Magazine, vol. 19, pp. 59–70, 1999

- "Logic-based switching control of a nonholonomic system with parametric modeling uncertainty" (with J. P. Hespanha and A. S. Morse), Systems and Control Letters, vol. 38, pp. 167–177, 1999

Book chapters

- "Stabilization of deterministic control systems under random sampling: overview and recent developments" (with A. Tanwani and D. Chatterjee), Uncertainty in Complex Networked Systems—in Honor of Roberto Tempo (T. Başar, Ed.), Systems & Control: Foundations & Applications, Birkhäuser, pp. 209–246, 2018

- "Observer design for switched linear systems with state jumps" (with A. Tanwani and H. Shim), Lecture Notes in Control and Information Sciences, vol. 457 (M. Djemai and M. Defoort, Eds.), Springer, pp. 179–203, 2015

- "Input-to-state stabilization with quantized output feedback" (with Y. Sharon), Lecture Notes in Computer Science, vol. 4981 (M. Egerstedt and B. Mishra, Eds.), Springer, pp. 500–513, 2008

- "Stability analysis of hybrid systems via small-gain theorems" (with D. Nešić), Lecture Notes in Computer Science, vol. 3927 (J. Hespanha and A. Tiwari, Eds.), Springer, pp. 421–435, 2006

- "Verifying average dwell time by solving optimization problems" (with S. Mitra and N. Lynch), Lecture Notes in Computer Science, vol. 3927 (J. Hespanha and A. Tiwari, Eds.), Springer, pp. 476–490, 2006

- "On quantization and delay effects in nonlinear control systems," Lecture Notes in Control and Information Sciences, vol. 331 (P. J. Antsaklis and P. Tabuada, Eds.), Springer, pp. 219–229, 2005

- "Switched systems," Handbook of Networked and Embedded Control Systems (D. Hristu-Varsakelis and W. S. Levine, Eds.), Birkhäuser, 2005

- "Lie algebras and stability of switched nonlinear systems," Unsolved Problems in Mathematical Systems Theory and Control (V. D. Blondel and A. Megretski, Eds.), Princeton University Press, pp. 203–207, 2004

- "Nonlinear stabilization by hybrid quantized feedback," Lecture Notes in Computer Science, vol. 1790 (N. Lynch and B. H. Krogh, Eds.), Springer-Verlag, pp. 243–257, 2000

Selected lectures

- *Plenary lecture* "Nonlinear control with limited data: estimation, control and synchronization," 61st EEE Conference on Decision and Control, Cancun, Mexico, 2022

- School of Automation, Beijing Institute of Technology, online seminar, 2022

- Online Seminar on the Interaction of Control and Information, 2021

- Research Center for Automatic Control of Nancy (CRAN), University of Lorraine, France, 2019

- Electrical and Computer Engineering Seminar, Purdue University, 2019

- Decision and Control Laboratory, Georgia Institute of Technology, Atlanta, GA, 2019

- Intensive short course "Switched Systems and Control," EECI Graduate School on Control, University of Paris-Saclay, France, 2018

- Invited speaker, International Conference on Frontiers of Adaptive and Nonlinear Control (FRAD-CON) dedicated to A. L. Fradkov's 70th birthday, St. Petersburg, Russia, 2018

- Online seminar, USF Forum on Robotics & Control Engineering, 2018

- Invited speaker, mini-workshop "Entropy, Information and Control," Oberwolfach Research Institute for Mathematics, Germany, 2018

- ECE Graduate Seminar, University of Illinois at Chicago, 2017

- Decision & Optimisation Department Seminar, LAAS-CNRS, Toulouse, France, 2017

- Center for Information and Systems Engineering, Boston University, 2017

- College of Engineering Control Seminar, University of Michigan, Ann Arbor, MI, 2017

- Three invited lectures, Department of Electrical and Electronic Engineering, University of Melbourne, Australia, 2016

- *Plenary lecture* "Nonlinear control with limited information," 2nd Indian Control Conference, Hyderabad, India, 2016

- Indian Institute of Technology, Bombay, India, 2015

- Invited speaker, workshop "Half Century of Progress in Systems and Control Theory: A Workshop Dedicated to A. Stephen Morse's 75th Birthday," 54th IEEE Conference on Decision and Control, Osaka, Japan, 2015

- Intensive short course "Switched Systems and Control," EECI Graduate School on Control, University of Paris-Saclay, France, 2015

- Institute for Problems of Mechanical Engineering of the Russian Academy of Sciences, St. Petersburg, Russia, 2015

- Invited speaker, 16th Midwest Optimization Meeting, Loyola University, Chicago, IL, 2014

- *Semi-plenary lecture* "Control of switched systems with limited information," 21st International Symposium on Mathematical Theory of Networks and Systems (MTNS), Groningen, the Netherlands, 2014

- Decision and Control Laboratory, Georgia Institute of Technology, Atlanta, GA, 2014

- Center for Information and Systems Engineering, Boston University, 2014

- *Semi-plenary lecture* "Norm-controllability, or how a nonlinear system responds to large inputs," 9th IFAC Symposium on Nonlinear Control Systems (NOLCOS), Toulouse, France, 2013

- Intensive short course "Switched Systems and Control," HYCON-EECI Graduate School on Control, Supeléc, France, 2013

- Department of Mathematics, University of Kaiserslautern, Germany, 2013

- Institute for Systems Theory and Automatic Control, University of Stuttgart, Germany, 2013

- Series of invited lectures, Institute for Problems of Mechanical Engineering of the Russian Academy of Sciences, St. Petersburg, Russia, 2013

- Invited speaker, 2nd Midwest Workshop on Control and Game Theory, University of Notre Dame, South Bend, IN, 2013

- Invited speaker, INDAM Meeting on Geometric Control and sub-Riemannian Geometry, Cortona, Italy, 2012

- Center for Control, Dynamical Systems, and Computation, University of California at Santa Barbara, 2012

- Department of Mathematics and Statistics, Loyola University, Chicago, IL, 2011

- Invited lecturer, Third Traditional Summer School on Control, Information, and Optimization, Moscow, Russia, 2011

- Invited speaker, ICMS Workshop on Stabilization of Dynamical Systems and Processes, Edinburgh, Scotland, 2011

- Invited speaker, DIMACS Workshop on Perspectives and Future Directions in Systems and Control Theory (SontagFest), Rutgers University, New Brunswick, NJ, 2011

- Decision and Control Laboratory, Georgia Institute of Technology, Atlanta, GA, 2011

- Featured main speaker, tutorial workshop "Switching in Systems and Control," organized by the Israeli Association for Automatic Control, Herzlia, Israel, 2009

- Intensive short course "Switched Systems and Control," HYCON-EECI Graduate School on Control, Supeléc, France, 2009

- Department of Electrical and Computer Engineering (co-sponsored by Control Systems Society, IEEE Montreal Section), Concordia University, Montreal, Canada, 2009

- Signals and Systems Colloquium, University of Melbourne, Australia, 2009

- *Plenary lecture* "Meeting the need for robustified nonlinear system theory concepts," American Control Conference, Seattle, WA, 2008

- *Semi-plenary lecture* "The role of Lie brackets in stability of linear and nonlinear switched systems," 18th International Symposium on Mathematical Theory of Networks and Systems (MTNS), Blacksburg, VA, 2008

- Invited speaker, workshop "The Continuing Legacy of Roger W. Brockett," 47th IEEE Conference on Decision and Control, Cancun, Mexico, 2008

- Invited speaker, Workshop on the Frontiers in Distributed Communication, Sensing and Control, Yale University, New Haven, CT, 2008

- Supeléc, Gif-sur-Yvette, France, 2008

- GdR MACS Hybrid Systems Workshop, Paris, France, 2008

- INSA de Rouen, France, 2008

- LIDS Colloquium, Massachusetts Institute of Technology, 2007

- Division of Engineering and Applied Sciences, Harvard University, 2007

- Intensive short course "Switched Systems and Control," HYCON-EECI Graduate School on Control, Supeléc, France, 2007

- Institute for Systems Research, University of Maryland at College Park, 2006

- Tel-Aviv University, Israel, 2005

- Weizmann Institute of Science, Rehovot, Israel, 2005

- Technion—Israel Institute of Technology, Haifa, Israel, 2005

- Invited speaker, Workshop on Integrated Control, Estimation and Communication, California Institute of Technology, Pasadena, CA, 2005

- University of Tokyo, Japan, 2005

- Kyoto University, Japan, 2005

- College of Engineering, University of Michigan, Ann Arbor, MI, 2004

- University of Rome "La Sapienza," Italy, 2004

- University of Florence, Italy, 2004

- University of Siena, Italy, 2004

- S.I.S.S.A., Trieste, Italy, 2004

- Politecnico di Torino, Italy, 2004

- Politecnico di Milano, Italy, 2004

- Department of Electrical and Computer Engineering, University of California at Santa Barbara, 2004

- Center for Applied Mathematics, University of Notre Dame, South Bend, IN, 2004

- Principal invited lecturer, DISC Summer School "Modeling and Control of Hybrid Systems," Veldhoven, Netherlands, 2003

- Department of Applied Mathematics, University of Waterloo, Canada, 2003

- Co-organizer and principal speaker, tutorial workshop "Logic-Based Control," 10th Mediterranean Conference on Control and Automation, Lisbon, Portugal, 2002

- Co-organizer and principal speaker, tutorial workshop "Control Using Logic and Switching," 40th IEEE Conference on Decision and Control, Orlando, FL, 2001

- GRASP Laboratory, University of Pennsylvania, Philadelphia, PA, 2001

- Department of Electrical and Computer Engineering, Queen's University, Kingston, Canada, 2001

- LIDS Colloquium, Massachusetts Institute of Technology, 2001

- Department of Electrical and Computer Engineering, University of Toronto, Canada, 2001

- Department of Electrical and Computer Engineering, University of California at Santa Barbara, 2000

- Department of Mathematics, Rutgers University, New Brunswick, NJ, 1999

- Department of Mechanical Engineering, Princeton University, 1999

- Division of Engineering and Applied Sciences, Harvard University, 1998

- Department of Mathematics, Rutgers University, New Brunswick, NJ, 1998

- Teaching Assistants Workshop, Brandeis University, 1997

Consulting

- Supervisory control for energy-efficient BIS chiller plants, University of Connecticut, Storrs, 2015–2017

Visiting positions

- Electrical and Electronic Engineering visiting researcher, University of Melbourne, Australia, Nov 2016

- HYCON visiting researcher, Laboratory of Signals and Systems, Supeléc, France, Feb–Apr 2008

- Super-Robust Computation Project visiting researcher, University of Tokyo, Japan, Jan 2005

Personal

- Married, with two children

- Naturalized US citizen

- Languages: Russian (native), English (fluent), French