Ricardo G. Sanfelice

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Short Bio:

Ricardo G. Sanfelice received the B.S. degree in Electronics Engineering from the Universidad de Mar del Plata, Buenos Aires, Argentina, in 2001, and the M.S. and Ph.D. degrees in Electrical and Computer Engineering from the University of California, Santa Barbara, CA, USA, in 2004 and 2007, respectively. In 2007 and 2008, he held postdoctoral positions at the Laboratory for Information and Decision Systems at the Massachusetts Institute of Technology and at the Centre Automatique et Systèmes at the École de Mines de Paris. In 2009, he joined the faculty of the Department of Aerospace and Mechanical Engineering at the University of Arizona, Tucson, AZ, USA, where he was an Assistant Professor. In 2014, he joined the University of California, Santa Cruz, CA, USA, where he is currently Professor in the Department of Electrical and Computer Engineering. Prof. Sanfelice is the recipient of the 2013 SIAM Control and Systems Theory Prize, the National Science Foundation CAREER award, the Air Force Young Investigator Research Award, the 2010 IEEE Control Systems Magazine Outstanding Paper Award, and the 2020 Test-of-Time Award from the Hybrid Systems: Computation and Control Conference. Prof. Sanfelice is a Fellow of IEEE.

Research Interests:

Modeling, stability, robust control, observer design, and simulation of nonlinear and hybrid systems with applications to power systems, robotics, aerospace, and biology.

1 Education

Ph.D., Electrical and Computer Engineering
University of California, Santa Barbara. Spring 2007.
Dissertation Title: "Robust hybrid control systems."

M.S., Electrical and Computer Engineering
University of California, Santa Barbara. Winter 2004.

B.S., Electronic Engineering
Universidad de Mar del Plata, Buenos Aires, Argentina. Fall 2001.
Thesis Title: "Novel current control method for AC induction motors."

2 Professional Positions

Director
Center for Information Technology Research in the Interest of Society and the Banatao Institute (CITRIS) Aviation Initiative, University of California. July 2022-present.

Director
Cyber-Physical Systems Research Center, University of California Santa Cruz, Department of Computer Engineering, Santa Cruz, California. August 2017-present.

Professor
University of California Santa Cruz, Department of Electrical and Computer Engineering, Santa Cruz, California. July 2018-present.

Graduate Director
University of California Santa Cruz, Department of Electrical and Computer Engineering, Santa Cruz, California. Fall 2018-present.

Associate Professor
University of California Santa Cruz, Department of Computer Engineering, Santa Cruz, California. May 2014-June 2018.

Assistant Professor
University of Arizona, Department of Aerospace and Mechanical Engineering, Department of Electrical and Computer Engineering, Tucson, Arizona. Affiliate Member at the Program in Applied Mathematics, University of Arizona, Tucson, Arizona. January 2009-May 2014.

Postdoctoral
Centre Automatique et Systèmes, Ecole des Mines de Paris, Paris, France. September-December 2008.

Laboratory for Information and Decision Systems, Massachusetts Institute of Technology, Cambridge, Massachusetts. August 2007 to August 2008.

Graduate
Center for Control, Dynamical Systems, and Computation, University of California, Santa Barbara. September 2002 to July 2007.

Undergraduate
Laboratory of Instrumentation and Control, University of Mar del Plata, Buenos Aires, Argentina. March 1998 to December 2002.

Electronics Technician
Enelec S.A., Mar del Plata, Buenos Aires, Argentina. January 1997 to February 2002.

3 Honors

Fellow of the Institute of Electrical and Electronics Engineers (IEEE), 2022.

Best Student Paper Award Finalist (as advisor), American Control Conference, 2022.

Test-of-Time Award from the Hybrid Systems: Computation and Control Conference, 2020.

Plenary Speaker, Congreso Argentino de Control Automático (AADECA), 2020.

Plenary Speaker, XVII Spanish Control Engineering Symposium, 2020.

Best Student Paper Award Finalist (as advisor), International Conference on Automation Science and Engineering (CASE), 2019.

Blavatnik National Award for Young Scientists Campus Nominee, 2018.

Best Student Paper Award Finalist (as advisor), American Control Conference, 2014.

Crown College Fellow, University of California, Santa Cruz, 2014.

Senior Capstone Design Competitions Award (as advisor) "Avilés Best Project That Exemplifies the Innate Art and Beauty of Engineering", University of Arizona, 2014.

SIAM Control and Systems Theory Prize (SIAM), 2013.
"For contributions to analysis and syntheses of hybrid feedback control systems."

Senior Capstone Design Competitions Award (as advisor) "Best Honeywell Engineering Design", University of Arizona, 2013.

Senior Member of the Institute of Electrical and Electronics Engineers (IEEE), 2013.

Faculty Early Career Development (CAREER) Award, National Science Foundation, 2012.

Air Force Office of Scientific Research Young Investigator Award (YIP), AFOSR, 2012.

Educator of the Year for Higher Education, Society of Hispanic Professional Engineers, 2012.
In recognition of outstanding contributions to the education of Latinos in Science and Eng.

Plenary Speaker, Society of Hispanic Professional Engineers National Conference, 2012.

Teaching Excellence Award, University of Arizona, Tucson, AZ, 2012.

ASEE Air Force Summer Faculty Fellow, 2011.

Plenary Spearker, DYSCO Network Study Days, Liege, Belgium, 2011.

IEEE Control Systems Magazine Outstanding Paper Award, IEEE, 2010.

ASEE Air Force Summer Faculty Fellow, 2010.

Teaching Excellence Award, University of Arizona, Tucson, AZ, 2010.

Faculty Small Grants, Office of Vice President for Research, University of Arizona, Tucson, AZ, 2009.

Best Paper of Session Award, American Automatic Control Council, Minneapolis, MN, 2006.

President's Work-Study Award, University of California, Santa Barbara, 2003-2004.

Highest GPA of the Year Award, University of Mar del Plata, Argentina, 2001.

CONICET Research Scholarship, University of Mar del Plata, Argentina, 2000-2001.

4 Teaching Experience

Instructor. Graduate Course: "Analysis and Design of Hybrid Control Systems." 2021 IGSC/EECI Graduate School on Control, online. June 28-July 2, 2021.

Instructor. Undergraduate/Graduate Course: "Introduction to Cyber-Physical Systems." Department of Electrical and Computer Engineering, University of California, Santa Cruz. Spring 2022.

Instructor. Undergraduate Course: "Robot Automation" Department of Computer Engineering, University of California, Santa Cruz. Fall 2021.

Instructor. Undergraduate/Graduate Course: "Introduction to Cyber-Physical Systems." Department of Electrical and Computer Engineering, University of California, Santa Cruz. Spring 2021.

Instructor. Undergraduate Course: "Robot Automation" Department of Computer Engineering, University of California, Santa Cruz. Fall 2020.

Lecturer. Workshop: "Model Predictive Control of Hybrid Dynamical Systems." IFAC World Congress, Berlin, Germany. July 2020.

Instructor. Graduate Course: "Analysis and Design of Hybrid Control Systems." 2020 IGSC/EECI Graduate School on Control, online. June 15-19, 2020.

Instructor. Graduate Course: "Hybrid Dynamical Systems." Department of Electrical and Computer Engineering, University of California, Santa Cruz. Spring 2020.

Lecturer. Workshop: "Model Predictive Control of Hybrid Dynamical Systems." IEEE Decision and Control Conference, Nice, France. December 2019.

Instructor. Graduate Course: "Analysis and Design of Hybrid Control Systems." 2019 IGSC/EECI Graduate School on Control, University of L'Aquila, Italy. May 13-18, 2019.

Instructor. Undergraduate/Graduate Course: "Introduction to Cyber-Physical Systems." Department of Electrical and Computer Engineering, University of California, Santa Cruz. Winter 2019.

Lecturer. Workshop: "Computationally-Aware Cyber-Physical Systems." IEEE Decision and Control Conference, Miami Beach, Florida, USA. December 2018.

Instructor. Graduate Course: "Introduction to Feedback Control Systems" Department of Electrical and Computer Engineering, University of California, Santa Cruz. Fall 2018.

Instructor. Graduate Course: "Hybrid Control" University of Bologna, Italy. May 14 - June 12, 2018.

Instructor. MOOC Course: "Cyber-Physical Systems: Modeling and Simulation" Coursera, Department of Computer Engineering, University of California, Santa Cruz. Fall 2017 - present. Online: https://www.coursera.org/learn/cyber-physical-systems-1

Instructor. Undergraduate Course: "Robot Automation" Department of Computer Engineering, University of California, Santa Cruz. Fall 2017.

Instructor. Graduate Course: "Introduction to Feedback Control Systems" Department of Computer Engineering, University of California, Santa Cruz. Fall 2017.

Instructor. Undergraduate/Graduate Course: "Introduction to Cyber-Physical Systems." Department of Computer Engineering, University of California, Santa Cruz. Winter 2017.

Instructor. Graduate Course: "Analysis and Design of Hybrid Control Systems." 2017 IGSC/EECI Graduate School on Control, CNRS, Laboratoire des Signaux et Systemes (INSIS & INS2I) & European Embedded Control Institute (EECI), SUPELEC, Gif-sur-Yvette, France, March 20-24 (21 hours of teaching), 2017.

Lecturer. Workshop: "Feedback Control of Hybrid Systems." IEEE Decision and Control Conference, Las Vegas. December 2016.

Instructor. Undergraduate Course: "Robot Automation" Department of Computer Engineering, University of California, Santa Cruz. Fall 2016.

Instructor. Graduate Course: "Hybrid Dynamical Systems." Department of Computer Engineering, University of California, Santa Cruz. Spring 2016.

Lecturer. Tutorial: "Control Theoretical Tools for Analysis and Design of Cyber-Physical Systems." CPSWeek 2016, Vienna, Austria. April 11, 2016.

Instructor. Undergraduate/Graduate Course: "Introduction to Cyber-Physical Systems." Department of Computer Engineering, University of California, Santa Cruz. Winter 2016.

Lecturer. DISC Summer School on "Control of Cyber-Physical Systems." Centerparcs park Zandvoort, Zandvoort, The Netherlands, June 1-4, 2015.

Instructor. Graduate Course: "Hybrid Dynamical Systems." Department of Computer Engineering, University of California, Santa Cruz. Winter 2015.

Instructor. Graduate Course: "Analysis and Design of Hybrid Control Systems." 2015 IGSC/EECI Graduate School on Control, CNRS, Laboratoire des Signaux et Systemes (INSIS & INS2I) & European Embedded Control Institute (EECI), SUPELEC, Gif-sur-Yvette, France, May 18-22 (21 hours of teaching), 2015.

Instructor. Undergraduate Course: "Introduction to Cyber-Physical Systems." Department of Computer Engineering, University of California, Santa Cruz. Fall 2014.

Instructor. Graduate Course: "Analysis and Design of Hybrid Control Systems." 2014 EECI Graduate School on Control, CNRS, Laboratoire des Signaux et Systemes (INSIS & INS2I) & European Embedded Control Institute (EECI), SUPELEC, Gif-sur-Yvette, France, May 5-9 (21 hours of teaching), 2014.

Instructor. Graduate Course: "Robust Hybrid Control Systems." Instituto Technologico Buenos Aires (ITBA), Buenos Aires, Argentina, October 21-25 (21 hours of teaching), 2013.

Instructor. Graduate Course: "Robust Hybrid Control Systems." 2013 EECI Graduate School on Control, CNRS, Laboratoire des Signaux et Systemes (INSIS & INS2I) & European Embedded Control Institute (EECI), SUPELEC, Gif-sur-Yvette, France, May 20-24 (21 hours of teaching), 2013.

Instructor. Graduate Course: "Robust Hybrid Control Systems." 2011 EECI Graduate School on Control, CNRS, Laboratoire des Signaux et Systemes (INSIS & INS2I) & Euro-

pean Embedded Control Institute (EECI), SUPELEC, Gif-sur-Yvette, France, May 2-5 (21 hours of teaching), 2011.

Instructor. Graduate Course: "Introduction to Advanced Control Theory." Department of Aerospace and Mechanical Engineering, University of Arizona. Fall 2012.

Instructor. Undergraduate Course: "Stability and Control of Space Vehicles." Department of Aerospace and Mechanical Engineering, University of Arizona. Fall 2010, Fall 2011, Fall 2012, and Fall 2013.

Instructor. Graduate Course: "Hybrid Control Systems." Department of Aerospace and Mechanical Engineering, University of Arizona. Fall 2009, Fall 2011, and Fall 2013.

Instructor. Undergraduate Course: "Control System Design." Department of Aerospace and Mechanical Engineering, University of Arizona. Spring 2009, Spring 2010, Spring 2011, and Spring 2012.

Lecturer. Workshop: "Robust Hybrid Control Systems." 50th Joint Conference on Decision and Control and European Control Conference, Orlando. December 2011.

Lecturer. Workshop: "Robust Hybrid Control Systems." October 2008. Centre Automatique et Systèmes, Ecole des Mines de Paris, Paris, France.

Lecturer. Workshop: "Robust Hybrid Control Systems." November 2008. University of Rome, Tor Vergata, Rome, Italy.

Lecturer. Workshop: "Robust Hybrid Control Systems." 27th American Control Conference, Seattle. June 2008.

Lecturer. Mini-workshop: "Robust Hybrid Control Systems and Applications." Fall 2007. Laboratory for Information and Decision Systems. Massachusetts Institute of Technology.

Lecturer and grader. Graduate Course: "Robust Hybrid Control Systems." Department of Electrical and Computer Engineering. University of California, Santa Barbara. Spring 2007.

Lecturer. Workshop: "Robust Hybrid Systems: Theory and Applications." 45th IEEE Conference on Decision and Control, San Diego. December 2006.

Teaching assistant. Undergraduate Courses: "Nonlinear Phenomena and Chaos," Spring 2003; "Digital control systems", Winter 2003; "Control systems", Fall 2002. Department of Electrical and Computer Engineering. University of California, Santa Barbara.

Teaching assistant. Undergraduate Course: "Statistics." University of Mar del Plata,

Buenos Aires, Argentina. 2001.

5 Professional Memberships

Institute of Electrical and Electronics Engineers (IEEE).

Society for Industrial and Applied Mathematics (SIAM).

6 Research Projects

Projects as Single/Lead PI:

Air Force Office of Scientific Research, *Verification and Validation of Autonomous Systems with Hybrid Dynamics under Uncertainty.* Sep 28, 2020 - Sep 27, 2022.

IEEE Foundation, *Outreach Proposal to Disseminate Results in Cyber Physical Systems from Developing Countries to the Bay are and Nearby Communities.* July 1, 2021 - June 30, 2022.

ST Microelectronics, *Incorporating STMicroelectronics Drone Kit in UC Santa Cruz?s Robotics Engineering Program.* July 1, 2020 - June 30, 2021.

National Science Foundation, *Collaborative Research: CPS: Medium: Constraint Aware Planning and Control for Cyber-Physical Systems.* Oct 1, 2020 - Sep 30, 2023.

National Science Foundation, *Hybrid Predictive Control for Distributed Multi-agent Systems.* Aug 1, 2017 - Jul 31, 2021.

Air Force Office of Scientific Research, *Systematic Tools for Satisfying Temporal Logic Specifications in Hybrid Dynamical Systems: A Control Theoretical Approach.* Dec 15, 2018 - Dec 14, 2021.

National Science Foundation, *Collaborative Research: Computationally Aware Cyber-Physical Systems.* Oct 1, 2015 - Aug 31, 2020.

CITRIS, *Hybrid Algorithms For Real-Time Identification And Manipulation Of Deformable Soft Tissues.* July 1, 2017 - June 30, 2018.

Air Force Office of Scientific Research, *Reconfigurable Algorithms for High Performance and Robust Autonomy in Complex Networks.* Sep 1, 2015 - Aug 31, 2018.

Air Force Research Laboratory, *Game-theoretical Tools for the Design of Decentralized Control Algorithms for Hybrid Systems with Uncertainty.* Apr 15, 2016 - Apr 14, 2018.

National Science Foundation, Faculty Early Development Award, *CAREER: Enabling Design of Future Smart Grids via Input/Output Hybrid Systems Tools.* Mar 1, 2012 - Feb 28, 2018.

Center for Research on Open Source Systems (CROSS), *A Data-Driven Open Source Software for Enabling Safe and Efficient Navigation of Autonomous Vehicles.* Apr 1 2016 - March 31 2018.

Center for Research on Open Source Systems (CROSS), *Strong Consistency in Dynamic Wireless Networks to Enable Safe and Efficient Navigation of Autonomous Vehicles.*

UCSC Silicon Valley Initiatives Research Award, *Distributed Hybrid Control Algorithms for Robust Integration of UAS in the NAS: Theory and Experiments.* Jan 1 - Dec 31, 2015.

Air Force Office of Scientific Research, Young Investigator Program, *Robust Feedback Control of Reconfigurable Multi-agent Systems in Uncertain Adversarial Environments.* Jul 1, 2012 - Jun 30, 2015.

Honeywell, *Robust Decision-making Control for Autonomous Recovery of Aerospace Vehicles under Sensor Limitations and Failures.* May 13, 2012 - May 11, 2013.

Connection One (NSF Center), *Hybrid Control of High-Speed Unmanned Surface Vessels for Oceanic and Atmospheric Research.* Nov 28, 2012 - Jun 1, 2014.

Mathworks, *Attitude Control for Optimal Generation of Energy from Multiple Energy Sources.* Jul 1, 2011 - Jun 20, 2012.

National Science Foundation, *Workshop: 1st Southwest Workshop on Theory and Applications of Cyber-physical Systems.* Aug 1 2010 - Jul 31, 2011.

The Center for Insect Science, Department of Neuroscience, The University of Arizona, *Multidisciplinary Studies of Insect Flight to Develop Building Penetration Systems.* Jun 1, 2010 - May 31, 2011.

UA Vicepresident for Research, *Robust Coordinated Control of Groups of Heterogeneous Autonomous Vehicles.* May 18, 2009 - May 17, 2011.

Projects as co-PI:

Army Office of Research, *Secure and Resilient Design of Internet of Battlefield Things.* July 1, 2020 - July 30, 2023.

Air Force Office of Scientific Research, *Center of Excellence: Assured Autonomy in Contested Environments*. January 1, 2019 - December 31, 2024.

CITRIS, *Cloud-based Anytime Computation of Reachable Tubes for Provably Safe Unmanned Aerial Systems Traffic Management*. March 1, 2018 - Feb 28, 2019.

Air Force Research Laboratory, *Assured Autonomous Spacecraft GN&C via Hybrid Control* (SBIR). Fall 2017 - December 2017.

AFRL/AFOSR STTR, *Interference and Jamming Mitigation in Satellite Communications Using Spectrum Sensing and Dynamic Frequency Hopping*

CITRIS, *Secure Algorithms for Cloud-Connected Autonomous Robots Interacting with Humans*. Mar 30, 2016 - Mar 29, 2018.

AFRL (STTR), *Cognitive Radio Spectrum Management and Waveform Adaptation for High-capacity Satellite Communications*. Phase I. Mar 1, 2012 - Feb 28, 2013.

The Center for Insect Science, Department of Neuroscience, The University of Arizona, *Dynamical Modeling and Analysis of Olfactory Decision-making Circuit in Manduca sexta for Control of Autonomous Aerial Vehicles*. Nov 2010 - Oct 2011.

7 Publications

Last updated on May 9, 2022. An up-to-date publication list including hyperlinks is available at https://hybrid.soe.ucsc.edu/biblio

7.1 Books

[B-2] R.G. Sanfelice. *Hybrid Feedback Control*. Princeton University Press, New Jersey, 2021. https://press.princeton.edu/books/hardcover/9780691180229/hybrid-feedback-control

[B-1] R. Goebel, R. G. Sanfelice, and A. R. Teel. *Hybrid Dynamical Systems: Modeling, Stability, and Robustness*. Princeton University Press, New Jersey, 2012. http://press.princeton.edu/titles/9759.html

7.2 Book Chapters

[BC-10] R.G. Sanfelice. *Feedback Control of Hybrid Dynamical Systems*. Springer, 2020.

[BC-9] R.G. Sanfelice. *Hybrid Model Predictive Control*. Springer, 2020.

[BC-8] R. G. Sanfelice. *Networked Hybrid Dynamical Systems: Models, Specifications, and Tools*, chapter 16. Number Lecture Notes in Control and Information Sciences, Volume 475. Springer International Publishing, Cham, 2018.

[BC-7] R. G. Sanfelice. *Hybrid Model Predictive Control*, pages pp. 199–220. Birkhäuser, Basel, edition 1, 2018.

[BC-6] Y. Li and R. G. Sanfelice. *Incremental Graphical Asymptotic Stability for Hybrid Dynamical Systems*. Springer, Volume 473 of the series Lecture Notes in Control and Information Sciences, pp. 231-262, 2016.

[BC-5] R. G. Sanfelice. *Analysis and Design of Cyber-Physical Systems: A Hybrid Control Systems Approach*. Cyber Physical Systems: From Theory to Practice: CRC Press, page 3–31, 2015.

[BC-4] R. G. Sanfelice. *Feedback Control of Hybrid Dynamical Systems*. Encyclopedia of Systems and Control: Springer, 2015.

[BC-3] R. G. Sanfelice. *Control of Hybrid Dynamical Systems: An Overview of Recent Advances*, pages 146–177. Wiley, April 2013.

[BC-2] A. R. Teel, R. G. Sanfelice, and R. Goebel. *Hybrid Control Systems*. Springer, 2009.

[BC-1] C. Cai, R. Goebel, R. G. Sanfelice, and A. R. Teel. *Hybrid systems: limit sets and zero dynamics with a view toward output regulation*, chapter Hybrid systems: limit sets and zero dynamics with a view toward output regulation, pages 241–261. Springer-Verlag, 2008.

7.3 Thesis and Dissertations

[T-2] R. G. Sanfelice. Robust hybrid control systems. Ph.D. Dissertation, University of California, Santa Barbara, 2007.

[T-1] R. G. Sanfelice. Novel current control for AC motors. B.S. Thesis, Universidad Nacional de Mar del Plata, 2001.

7.4 Journal Articles

[J-63] M. Maghenem and R.G.Sanfelice. On the converse safety problem for differential inclusions: Solutions, regularity, and time-varying barrier functions. *To appear in IEEE Transactions on Automatic Control*, 68, January 2023.

[J-62] R. Postoyan, R.G. Sanfelice, and W. P. M. H. Heemels. Explaining the ‘‘mystery’’ of periodicity in inter-transmission times in two-dimensional event-triggered controlled system. *To appear in the IEEE Transactions on Automatic Control*, February 2023.

[J-61] M. Maghenem, A. Melis, and R.G.Sanfelice. Necessary and sufficient conditions for the nonincrease of functions of solutions to constrained differential inclusions. *To appear in ESAIM: Control, Optimisation and Calculus of Variations*, 2022.

[J-60] P. Bernard and R.G. Sanfelice. Observer design for hybrid dynamical systems with approximately known jump times. *To appear in Automatica*, 2022.

[J-59] A. Alessandri and R.G Sanfelice. Hysteresis-based switching observers for linear systems using quadratic boundedness. *Automatica*, 136, Fabruary 2022.

[J-58] J. I. Poveda, M. Benosman, A. R. Teel, and R. G. Sanfelice. Robust coordinated hybrid source seeking with obstacle avoidance in multi-vehicle autonomous systems. *IEEE Transactions on Automatic Control*, 67, February 2022.

[J-57] B. P. Malladi, R. G. Sanfelice, and E.A. Butcher. Robust hybrid supervisory control for spacecraft close proximity missions. *To appear in Annual Reviews in Control*, 52, January 2021.

[J-56] A. Isaly, B.C. Allen, R.G. Sanfelice, and W. Dixon. Encouraging volitional pedaling in fes-assisted cycling using barrier functions. *To appear in Frontiers in Robotics and AI*, 2021.

[J-55] M. Maghenem and R. G. Sanfelice. Sufficient conditions for forward invariance and contractivity in hybrid inclusions using barrier functions. *Automatica*, 124, 2021.

[J-54] J. Chai, P. Casau, and R. G. Sanfelice. Analysis and design of event-triggered control algorithms using hybrid systems tools. *International Journal of Robust and Nonlinear Control*, April 2020.

[J-53] J. Chai and R. G. Sanfelice. Forward invariance of sets for hybrid dynamical systems (part ii). *To appear in IEEE Transactions on Automatic Control*, 2020.

[J-52] B. P. Malladi, E.A. Butcher, and R. G. Sanfelice. Rigid body pose hybrid control using dual quaternions: Global asymptotic stabilization and robustness. *Journal of Guidance, Control, and Dynamics*, 02/2020 2020.

[J-51] H. Han and R. G. Sanfelice. Linear temporal logic for hybrid dynamical systems: Characterizations and sufficient conditions. *Nonlinear Analysis: Hybrid Systems*, 36, 05/2020 2020.

[J-50] B. Altin and R.G. Sanfelice. Hybrid systems with delayed jumps: Asymptotic stability via robustness and lyapunov conditions. *IEEE Transactions on Automatic Control*, 08/2020 2020.

[J-49] R. Goebel and R. G. Sanfelice. A unifying convex analysis and switching system approach to consensus with undirected communication graphs. *Automatica*, 111, 01/2020 2020.

[J-48] P. Casau, C. G. Mayhew, R.G. Sanfelice, and C. Silvestre. Robust global exponential stabilization on the n-dimensional sphere with applications to trajectory tracking for quadrotors. *Automatica*, 110, 12/2019 2019.

[J-47] P. Bernard and R.G. Sanfelice. Hybrid dynamical systems with hybrid inputs: Definition of solutions and applications to interconnections. *International Journal of Robust and Nonlinear Control*, 10/2019 2019.

[J-46] P. Casau, R. Cunha, R.G. Sanfelice, and C. Silvestre. Hybrid control for robust and global tracking on a smooth manifold. *IEEE Transactions on Automatic Control*, 65:1870–1885, 07/2019 2019.

[J-45] S. Phillips and R. G. Sanfelice. Robust distributed synchronization of networked linear systems with intermittent information. *Automatica*, 105:323–333, 07/2019 2019.

[J-44] F. Ferrante, F. Gouaisbaut, R. G. Sanfelice, and S. Tarbouriech. $\mathcal{L}_2$ state estimation with guaranteed convergence speed in the presence of sporadic measurements. *IEEE Transactions on Automatic Control*, 08/2019 2019.

[J-43] Y. Li and R. G. Sanfelice. Finite time stability of sets for hybrid dynamical systems. *Automatica*, 100:200–211, 02/2019 2019.

[J-42] J. Chai and R. G. Sanfelice. Forward invariance of sets for hybrid dynamical systems (Part I). *IEEE Transactions on Automatic Control*, 64:2426–2441, 06/2019 2019.

[J-41] R. Goebel and R. G. Sanfelice. Pointwise asymptotic stability in a hybrid system and well-posed behavior beyond zeno. *SIAM Journal on Control and Optimization*, 56:1358–1385, 04/2018 2018.

[J-40] X. Lou, Y. Li, and R. G. Sanfelice. Robust stability of hybrid limit cycles with multiple jumps in hybrid dynamical systems. *IEEE Transactions on Automatic Control*, 63(4):1220–1226, 04/2018 2018.

[J-39] Y. Li, S. Phillips, and R. G. Sanfelice. Robust distributed estimation for linear systems under intermittent information. *IEEE Transactions on Automatic Control*, 63(4):973–988, 04/2018 2018.

[J-38] D. W. Smith and R. G. Sanfelice. A hybrid feedback control strategy for autonomous waypoint transitioning and loitering of unmanned aerial vehicles. *Nonlinear Analysis: Hybrid Systems*, 26:115–136, 2017.

[J-37] P. Casau, R. G. Sanfelice, and C. Silvestre. Hybrid stabilization of linear systems with reverse polytopic input constraints. *IEEE Transactions on Automatic Control*, 62(12):6473–6480, 2017.

[J-36] R. Naldi, M. Furci, R. G. Sanfelice, and L. Marconi. Robust global trajectory tracking for underactuated VTOL aerial vehicles using inner-outer loop control paradigms. *IEEE Transactions on Automatic Control*, 62(1):97–112, January 2017.

[J-35] P. Nanez, R. G. Sanfelice, and N. Quijano. On an invariance principle for differential-algebraic equations with jumps and its application to switched differential-algebraic equations. *Mathematics of Control Signal and Systems*, 185, 2017.

[J-34] D. A. Copp and R. G. Sanfelice. A zero-crossing detection algorithm for robust simulation of hybrid systems jumping on surfaces. *Simulation Modelling Practice and Theory*, 68:1–17, November 2016.

[J-33] K. Zhang, J. Sprinkle, and R. G. Sanfelice. Computationally-aware switching criteria for hybrid model predictive control of cyber-physical systems. *IEEE Transactions on Automation Science and Engineering*, 13:479–490, 2016.

[J-32] J. J. B. Biemond, W. P. M. H. Heemels, R. G. Sanfelice, and N. van de Wouw. Distance function design and lyapunov techniques for the stability of hybrid trajectories. *Automatica*, 73:38–46, November 2016.

[J-31] F. Ferrante, F. Gouaisbaut, R. G. Sanfelice, and S. Tarbouriech. State estimation of linear systems in the presence of sporadic measurements. *Automatica*, 73:101–109, November 2016.

[J-30] Y. Li, S. Phillips, and R. G. Sanfelice. Basic properties and characterizations of incremental stability prioritizing flow time for a class of hybrid systems. *Systems and Control Letters*, 90:7–15, April 2016.

[J-29] R. G. Sanfelice and L. Praly. Convergence of nonlinear observers on $\mathbb{R}^n$ with a riemannian metric (part ii). *IEEE Transactions on Automatic Control*, 61(10):2848–2860, October 2016.

[J-28] K. Zhang, J. Sprinkle, and R. G. Sanfelice. Computationally aware control of autonomous vehicles: A hybrid model predictive control approach. *Autonomous Robots*, 39:503–517, December 2015.

[J-27] Y. Li and R. G. Sanfelice. Interconnected observers for robust decentralized estimation with performance guarantees and optimized connectivity graph. *IEEE Transactions on Control of Network Systems*, 3:1–11, 2016.

[J-26] P. Casau, R. G. Sanfelice, R. Cunha, D. Cabecinhas, and C. Silvestre. Robust global trajectory tracking for a class of underactuated vehicles. *Automatica*, 58:90–98, August 2015.

[J-25] S. Phillips and R. G. Sanfelice. Robust asymptotic stability of desynchronization in impulse-coupled oscillators. *IEEE Transactions on Control of Network Systems*, 3:127–136, June 2016.

[J-24] Y. Li and R. G. Sanfelice. A finite-time convergent observer with robustness to piecewise-constant measurement noise. *Automatica*, 57:222–230, July 2015.

[J-23] T. A. F. Theunisse, J. Chai, R. G. Sanfelice, and M. Heemels. Robust global stabilization of the DC-DC boost converter via hybrid control. *IEEE Transactions on Circuits and Systems I*, 62:1052–1061, April 2015.

[J-22] P. Casau, R. G. Sanfelice, R. Cunha, and C. Silvestre. A globally asymptotically stabilizing trajectory tracking controller for fully actuated rigid bodies using landmark-based information. *International Journal of Robust and Nonlinear Control*, 25:3617–3640, 2015.

[J-21] D. Tolic, R. G. Sanfelice, and R. Fierro. Input-output triggered control using lp stability over finite horizons. *International Journal of Robust and Nonlinear Control*, pages 2299–2327, June 2015.

[J-20] R. G. Sanfelice. Input-output-to-state stability tools for hybrid systems and their interconnections. *IEEE Transactions on Automatic Control*, 59(5):1360–1366, May 2014.

[J-19] Q. Shu and R. G. Sanfelice. Dynamical properties of a two-gene network with hysteresis. *Special Issue on Hybrid Systems and Biology, Elsevier Information and Computation*, 236:102–121, August 2014.

[J-18] R. G. Sanfelice, S. Z. Yong, and E. Frazzoli. On minimum-time paths of bounded curvature with position-dependent constraints. *Automatica*, 50(2):537–546, February 2014.

[J-17] R. G. Sanfelice. On the existence of control Lyapunov functions and state-feedback laws for hybrid systems. *IEEE Transactions on Automatic Control*, 58(12):3242–3248, December 2013.

[J-16] R. G. Sanfelice and C. Prieur. Robust supervisory control for uniting two output-feedback hybrid controllers with different objectives. *Automatica*, 49(7):1958–1969, July 2013.

[J-15] R. Naldi and R. G. Sanfelice. Passivity-based control for hybrid systems with applications to mechanical systems exhibiting impacts. *Automatica*, 49(5):1104–1116, May 2013.

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[C-68] S. Phillips and R. G. Sanfelice. A framework for modeling and analysis of robust stability for spiking neurons. In *Proceedings of the American Control Conference*, pages 1414–1419, June 2014.

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[C-66] J. Chai and R. G. Sanfelice. A robust hybrid control algorithm for a single-phase dc/ac inverter with variable input voltage. In *Proceedings of the 2014 American Control Conference*, pages 1420–1425, 2014.

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[C-64] G. Gil, R. G. Sanfelice, and P. E. Nikravesh. Local linearization method in the integration of multibody equations. In *Proceedings of the ECCOMAS Thematic Conference Multibody Dynamics*, 2013.

[C-63] G. Gil, R. G. Sanfelice, and P. E. Nikravesh. Numerical integration scheme using singular perturbation method. In *Proceedings of the ASME 2013 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference*, 2013.

[C-62] R. G. Sanfelice. Pointwise minimum-norm control laws for hybrid systems. In *Proceedings of the IEEE Conference on Decision and Control*, pages 2665–2670, 2013.

[C-61] Y. Li and R. G. Sanfelice. A robust finite-time convergent hybrid observer for linear systems. In *Proceedings of the IEEE Conference on Decision and Control*, pages 3349–3354, 2013.

[C-60] Q. Shu and R. G. Sanfelice. On the stability of hybrid limit cycles and isolated equilibria in a genetic network with binary hysteresis. In *Proceedings of the IEEE Conference on Decision and Control*, pages 4080–4085, 2013.

[C-59] T. A. F. Theunisse, J. Chai, R. G. Sanfelice, and W.P.M.H. Heemels. Hybrid control of the boost converter: Robust global stabilization. In *Proceedings of the IEEE Conference on Decision and Control*, pages 3635–3640, 2013.

[C-58] R. Naldi, M. Furci, R. G. Sanfelice, and L. Marconi. Global trajectory tracking for underactuated VTOL aerial vehicles using cascade control paradigms. In *Proceedings of the IEEE Conference on Decision and Control*, pages 4212–4217, 2013.

[C-57] Q. Shu, C. Ardilla, R. G. Sanfelice, and J. P. Vande Geest. A hybrid model of a genetic regulatory network in mammalian sclera. In *Proceedings of the Hybrid Systems and Biology Workshop*, 2013.

[C-56] X. Tian, J. H. Koessler, and R. G. Sanfelice. Juggling on a bouncing ball apparatus via hybrid control. In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems*, pages 1848–1853, 2013.

[C-55] Y. Kouhi, N. Bajcinca, and R. G. Sanfelice. Suboptimality bounds for linear quadratic problems in hybrid linear systems. In *Proceedings of the European Control Conference*, pages 2663–2668, 2013.

[C-54] D.R. Wibben, R. Furfaro, and R. G. Sanfelice. Optimal lunar landing and retargeting using a hybrid control strategy. In *Proceedings of AAS/AIAA Space Flight Mechanics Meeting*, February 2013.

[C-53] R. G. Sanfelice, D. A. Copp, and P. Nanez. A toolbox for simulation of hybrid systems in Matlab/Simulink: Hybrid Equations (HyEQ) Toolbox. In *Proceedings of Hybrid Systems: Computation and Control Conference*, pages 101–106, 2013.

[C-52] Y. Li and R. G. Sanfelice. A coupled pair of Luenberger observers for linear systems to improve rate of convergence and robustness to measurement noise. In *Proceedings of the American Control Conference*, pages 2503–2508, June 2013.

[C-51] S. Phillips and R. G. Sanfelice. Results on the asymptotic stability properties of desynchronization in impulse-coupled oscillators. In *Proceedings of the American Control Conference*, pages 3278–3283, June 2013.

[C-50] P. Casau, R. G. Sanfelice, R. Cunha, D. Cabecinhas, and C. Silvestre. Global trajectory tracking for a class of underactuated vehicles. In *Proceedings of the American Control Conference*, pages 419–424, June 2013.

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[C-46] D. Tolic, R. G. Sanfelice, and R. Fierro. Self-triggering in nonlinear systems: A small gain theorem approach. In *Proceedings of the 20th Mediterranean Conference on Control and Automation*, pages 941–947, 2012.

[C-45] S. Phillips, R. G. Sanfelice, and R. S. Erwin. On the synchronization of two impulsive oscillators under communication constraints. In *Proceedings of the American Control Conference*, pages 2443–2448, 2012.

[C-44] D. A. Copp and R. G. Sanfelice. On the effect and robustness of zero-crossing detection algorithms in simulation of hybrid systems jumping on surfaces. In *Proceedings of the American Control Conference*, pages 2449–2454, 2012.

[C-43] M. Robles, R. G. Sanfelice, and G. Campa. Attitude control for optimal generation of energy from multiple energy sources. In *Proceedings of the ASEE Conference*, Chicago, IL, 2012.

[C-42] R. G. Sanfelice. Control Lyapunov functions and stabilizability of compact sets for hybrid systems. In *Proceedings of the Joint Conference on Decision and Control and European Control Conference*, pages 7404–7409, 2011.

[C-41] R. Naldi and R. G. Sanfelice. Passivity-based controllers for a class of hybrid systems with applications to mechanical systems interacting with their environment. In *Proc. Joint Conference on Decision and Control and European Control Conference*, pages 7416–7421, 2011.

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[C-39] R. G. Sanfelice, J. J. B. Biemond, N. van de Wouw, and W. P. M. H. Heemels. Tracking control for hybrid systems via embedding of known reference trajectories. In *Proc. 30th American Control Conference*, pages 869–874, 2011.

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[C-36] C. G. Mayhew, R. G. Sanfelice, and A. R. Teel. On quaternion-based attitude control and the unwinding phenomenon. In *Proc. 30th American Control Conference*, pages 299–304, 2011.

[C-35] M. Robles and R. G. Sanfelice. Hybrid controllers for tracking of impulsive reference trajectories: A hybrid exosystem approach. In *Proc. 14th International Conference Hybrid Systems: Control and Computation*, pages 231–240, 2011.

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[C-17] S. E. Tuna, R. G. Sanfelice, M. J. Messina, and A. R. Teel. Hybrid MPC: Open-minded but not easily swayed. In *Assessment and Future Directions of Nonlinear Model Predictive Control*, volume Lecture Notes in Control and Information Sciences 358, pages 17–34. Springer Berlin / Heidelberg, 2007.

[C-16] R. G. Sanfelice, A. R. Teel, and R. Sepulchre. A hybrid systems approach to trajectory tracking control for juggling systems. In *Proc. 46th IEEE Conference on Decision and Control*, pages 5282–5287, New Orleans, LA, 2007.

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[C-2] R. Goebel, J.P. Hespanha, A.R. Teel, C. Cai, and R. G. Sanfelice. Hybrid systems: generalized solutions and robust stability. In *Proc. 6th IFAC Symposium in Nonlinear Control Systems*, pages 1–12, 2004.

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7.6 Peer-reviewed Videos

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Online: https://www.mathworks.com/company/events/webinars/wbnr78811.html

8 Patents

[2] HyNTP: An Adaptive Hybrid Network Time Protocol for Clock Synchronization in Heterogeneous Distributed Systems, University of California, Santa Cruz, California, USA. *US Patent 20210409139*. 2021. Online: https://patents.google.com/patent/US20210409139A1.

[1] A Robust Hybrid Control Algorithm for a Single-Phase DC/AC Inverter, University of California, Santa Cruz, California, USA. *US Patent 9876442B2*. 2015. Online: https://patents.google.com/patent/US20160105128.

9 Research Advising and Mentoring

Mentor of postdoctoral researchers. Mentor of graduate, undergraduate, and high school students, including students from underrepresented groups. Mentor of seven freshman students through the *Arizona Assurance Scholars Program*, which provides academic, financial and social support for low-income Arizona residents as a way to ensure success, retention and graduation from the University of Arizona (since 2009). See "Academic and Service Work" section.

Postdoctoral Researchers

Kunal Garg, University of California, Santa Cruz. Spring 2021-present.

Adeel Akhtar, University of California, Santa Cruz. Spring 2021-present.

Berk Altın, University of California, Santa Cruz. Fall 2016-Winter 2021.

Mohamed Maghenem, University of California, Santa Cruz. Winter 2017-Fall 2020.

Adnane Saoud, University of California, Santa Cruz. Winter 2020-Winter 2021.

Graduate Students

Xi Luo, University of California, Santa Cruz. Spring 2022-present. M.S. Student.

Eric Partika, University of California, Santa Cruz. Spring 2021-present. M.S. Student.

Zachary Lamb, University of California, Santa Cruz. Fall 2021-present. M.S. Student.

Masoumeh Ghanbarpour, University of California, Santa Cruz. June 2019-present. Ph.D. Student.

Nathan Wu, University of California, Santa Cruz. June 2019-present. Ph.D. Student.

Iman Nodozi, University of California, Santa Cruz. Fall 2019-Summer 2021.

Santiago Jimenez Leudo, University of California, Santa Cruz. Fall 2018-present. Ph.D. Student.

Ryan Johnson, University of California, Santa Cruz. Fall 2018-present. Ph.D. Student.

Nan Wang, University of California, Santa Cruz. Fall 2018-present. Ph.D. Student.

Pegah Ojaghi, University of California, Santa Cruz. Fall 2017-Summer 2020.

Dawn Hustig-Schultz, University of California, Santa Cruz. Spring 2017-present. Ph.D. Student.

Marcello Guarro, University of California, Santa Cruz. Fall 2016-Spring 2021. Graduated with Ph.D.

Yegeta Zeleke, University of California, Santa Cruz. Fall 2016-Fall 2019.

Brendan Short, University of California, Santa Cruz. Fall 2015-Summer 2018.
Graduated with M.S. thesis option.

Haoyue Gao, University of California, Santa Cruz. Fall 2017-Summer 2019.
Graduated with M.S. thesis option.

Roger Berman, University of California, Santa Cruz. Winter-Spring 2019.
Graduated with M.S. report option.

Hyejin Han, University of California, Santa Cruz. Fall 2015-Summer 2021. Graduated with Ph.D.

Ryan Rodriguez, University of California, Santa Cruz. Fall 2015-Spring 2017.

Nathalie Risso, University of Arizona. Fall 2013-Fall 2019. Graduated with Ph.D.

Jun Chai, University of California, Santa Cruz. Fall 2012-Summer 2018. Graduated with Ph.D.
(received M.S. on Spring 2014).

BharaniPrabha Malladi, University of Arizona. Summer 2012-Summer 2019. Graduated with Ph.D.

Sean Phillips, University of California, Santa Cruz. Fall 2011-Fall 2017. Ph.D. Student (received M.S. on Fall 2013). Graduated with Ph.D.

Jeffrey Koessler, University of Arizona. Spring 2010-present. Summer 2011-Spring 2014.
Ph.D. Student.

Pedro Casau, Instituto Superior Tecnologico, Lisbon, Portugal. Spring 2013-Winter 2017.
Graduated with Ph.D.

Pablo Nanez, Universidad de los Andes. Fall 2011-Fall 2016.
Graduated with Ph.D.

Yuchun Li, University of California, Santa Cruz. Fall 2010-Spring 2016.
Graduated with Ph.D.

Harsh Bhakta, University of California, Santa Cruz. Fall 2019-present. M.S. Student.

Adam Ames, University of California, Santa Cruz. Fall 2018-present. M.S. Student.

David Kooi, University of California, Santa Cruz. Fall 2018-present. M.S. Student.

Jerry Chiang, University of California, Santa Cruz. Spring 2017-Spring 2018. M.S. Student.

Sumukh Atreya, University of California, Santa Cruz. Spring 2017-Winter 2018.
Graduated with M.S. report option.

Daniel Lavell, University of California, Santa Cruz. Fall 2016-Winter 2018.
Graduated with M.S. thesis option.

Kevin-Patxi Le Bras, University of California, Santa Cruz. Winter 2016-Summer 2017.
Graduated with M.S. report option.

Alexander Jacobs, University of Arizona. Fall 2012-Spring 2013.
Graduated with M.S. thesis option

Qin Shu, University of Arizona. Fall 2011-Summer 2012.
Graduated with M.S. thesis option

Xiaolu Tian, University of Arizona. Spring 2011-Spring 2013.
Graduated with M.S. thesis option

Manuel Robles, SHPE member, University of Arizona. Fall 2010-Spring 2012.
Graduated with M.S. thesis option

Ryan Jones, University of Arizona. Spring 2012. M.S. Student.

Tom Cleary, University of Arizona. Spring 2010. M.S. Student.

Jennifer Champion, University of Arizona. Spring 2010-Fall 2010. M.S. Student.

Sertac Karaman, Massachusetts Institute of Technology. Summer 2007-Summer 2008. Ph.D. Student.

Rowland O'Flaherty, University of California, Santa Barbara. Fall 2006-Summer 2008.
M.S. Student.

Undergraduate Students

John Anthenien, University of California, Santa Cruz. Winter 2022-present.

Jake Nations, University of California, Santa Cruz. Fall 2021-present.

Jovita Martinez, University of California, Santa Cruz. Summer 2021-Spring 2022.

Joshua Pena, University of California, Santa Cruz. Spring 2018.

Adam Ames, University of California, Santa Cruz. Fall 2017-Spring 2018.

Angela Rodriguez, University of California, Santa Cruz. Summer 2017-present.

Jeremy Crowley, University of California, Santa Cruz. Fall 2015-Summer 2018.

Calvin John, University of California, Santa Cruz. Winter 2016-Spring 2017.

Daniel Lavell, University of California, Santa Cruz. Fall 2014-Summer 2016.

David Ramirez, University of Arizona. Summer 2013-Spring 2014.

Robert Miller, University of Arizona. Spring 2013-Spring 2014.

Harrison Stovall, University of Arizona. Fall 2012-Spring 2014.

Colin Lasharr, University of Arizona. Fall 2012-Spring 2014.

Nicholas Valverde, University of Arizona. Fall 2011-Spring 2014.

Savannah Rodgers, University of Arizona. Spring 2013.

Ryan Dang, University of Arizona. Spring 2013.

Karl Stemm, University of Arizona. Fall 2011-Spring 2012.

Timothy Lomayesva, University of Arizona. Summer 2011.

Nikolas Kaplan, University of Arizona. Fall 2010-Summer 2012.

Eduardo Moreno, SHPE member, University of Arizona. Spring 2011-Fall 2011.

German Castillo, SHPE member, University of Arizona. Fall 2010-Spring 2011.

Sean Phillips, University of Arizona. Fall 2010-Spring 2011.

David Copp, University of Arizona. Fall 2010-Spring 2011.

Sergio Valenzuela, SHPE member, University of Arizona. Fall 2009.

Manuel Robles, SHPE member, University of Arizona. Fall 2009.

Ryan Jones, University of Arizona. Fall 2009-Fall 2011.

Tom Cleary, University of Arizona. Spring 2009.

Justin Pearson, University of California, Santa Barbara. Summer 2006.

Jose Cornejo, INSET Program, University of California, Santa Barbara. Summer 2006.

Richard Quinto, RISE Program, University of California, Santa Barbara. Summer 2006.

High School Students

Thomas Pryor, Catalina Foothills High School. Summer 2013.

Paulina Solis, Latin America Summer Program. Summer 2013.

Thomas Pryor, Henry Lei, and David Odgen; Catalina Foothills High School. Summer 2012.

Jonathan Brubaker, Jorge Cardenas, Robert Codona, Dylan Kirk, Dianni Reyes, Ray Brown Jr., Dustin Head, and Jon Carson; Palo Verde Magnet High School. Fall 2011-Spring 2012.

Karl Stemm and Nicholas Valverde, Palo Verde Magnet High School. Summer 2010, Summer 2011.

Sahel Gomez, Latin America Summer Program. Summer 2011.

Irina Orlova and Chaunteal Rasmussen, Palo Verde Magnet High School. Summer 2010.

Monica Jacinto, Summer Sessions Research Mentorship Program, University of California, Santa Barbara. Summer 2005.

Mitch Forman, Summer Sessions Research Mentorship Program, University of California, Santa Barbara. Summer 2004.

10 Supervised Thesis and Dissertations

Supervised Ph.D. Dissertations

Marcello Guarro, University of California, Santa Cruz. Fall 2021. Title: Hybrid Clock Synchronization in Networked Control Systems.

Hyejin Han, University of California, Santa Cruz. Fall 2021. Title: Temporal Logic Specifications for Hybrid Dynamical Systems.

Nathalie Risso, University of Arizona, Tucson. Fall 2019. Title: Set-valued Dynamical Systems.

BharaniPrabha Malladi, University of Arizona, Tucson. Spring 2019. Title: Hybrid Control and Estimation for Spacecraft Close Proximity Missions.

Jun Chai, University of California, Santa Cruz. Spring 2018. Title: Analysis and Control Design for Forward Invariance in Hybrid Systems.

Sean Phillips, University of California, Santa Cruz. Winter 2018. Title: Robust Coordinate and Control of Networked Ssystems with Intermittent Communication.

Pedro Casau, Instituto Superior Tecnologico, Lisbon, Portugal. Winter 2017. Title: Synergistic Hybrid Feedback Control with Application to Autonomous Air Vehicles.

Pablo Nanez, Universidad de los Andes, Colombia. Fall 2016. Title: Invariance Principles and Passivity Notions for Switched DAE and Hybrid DAE Systems.

Yuchun Li, University of California, Santa Cruz. Spring 2016. Title: Observers with Performance Guarantees and Robustness to Measurement Noise for Linear Systems.

Supervised M.S. Thesis and Reports

Harsh Bhatka, M.S., University of California, Santa Cruz. Fall 2021. Title: MPC-based Switching Logic and Uniting Control Strategy for a Quadrotor.

Daniel Lavell, M.S., University of California, Santa Cruz. Winter 2018. Title: A Hybrid PID Design for Asymptotic Stabilization with Intermitten Measurements.

Jun Chai, M.S., University of Arizona. Spring 2014. Title: Invariance Tools For Hybrid Dynamical Systems.

Sean Phillips, M.S., University of Arizona. Fall 2013. Title: Modeling and Analysis of Robust Stability for Spiking Neurons.

Alexander Jacobs, M.S., University of Arizona. Spring 2013. Title: Autonomous Aquatic Vessel for Weather Data Acquisition.

Xiaolu Tian, M.S., University of Arizona. Fall 2012. Title: Juggling on a Bouncing Ball Apparatus Via Hybrid Control.

Qin Shu, M.S., University of Arizona. Fall 2012. Title: Hybrid Systems for Genetic Regulatory Networks.

Manuel Robles, M.S., University of Arizona. Spring 2012. Title: Hybrid Tracking Control of Impulsive Reference Signals.

11 Invited Presentations

[120] Project Review Talk. Air Force Office of Research, University of California, Santa Cruz, California, USA. April 7, 2022. AFOSR Center of Excellence Review Meeting. Title: "Recent Advances in Estimation, Safety, and Control."

[119] Invited Talk. Air Force Research Laboratory, Albuquerque, New Mexico, USA. January 31, 2022. Title: "Certifying Safety for Dynamical Systems: Sufficiency, Necessity, and Regularity."

[118] Invited Talk. Online Seminar on Input-to-State Stability and its Applications, via Zoom. November 18, 2021. Title: "Observers for Hybrid Dynamical Systems: Models, Necessary Conditions, and Systematic Design."

[117] Project Review Talk. Air Force Office of Research, University of Florida, USA (virtual). November 9, 2021. AFOSR Center of Excellence Review Meeting. Title: "Adaptive Safety for Hybrid Systems."

[116] Invited Talk. Monterey Bay DART Symposium, via Zoom. October 9, 2021. Title: "Security: Research and Development."

[115] Project Review Talk. Air Force Office of Research, Destin, Florida, USA. September 22, 2021. Annual Contractor's Meeting. Title: "Systematic Tools for Satisfying Temporal Logic Specifications in Hybrid Dynamical Systems."

[114] Project Review Talk. Air Force Office of Research, Washington DC, Virginia, USA (virtual). September 14, 2021. Annual Contractor's Meeting. Title: "Verification and Validation of Autonomous Systems with Hybrid Dynamics under Uncertainty."

[113] Invited Talk. Verizon Tech Talk, via Zoom. August 26, 2021. Title: "An Introduction to Hybrid Dynamical Systems: Modeling, Dynamical Properties, and Feedback Control."

[112] Invited Talk. DREAM/CPAR Seminar, via Zoom. May 3, 2021. Title: "Hybrid Feedback Control: Capabilities, Strategies, and Systematic Design."

[111] Invited Talk. UCSC Basin Day, via Zoom. April 9, 2021. Title: "Introduction to the Hybrid Systems Lab."

[110] Invited Talk. AFOSR Mini-Workshop on Test and Evaluation of Autonomy an AI Influenced Systems, via Zoom. April 5, 2021. Title: "Verification and Validation of Autonomous Systems with Hybrid Dynamics Under Uncertainty."

[109] Invited Talk. University of Southern California CCI-MHI Cyber-Physical Systems Webinar Series, via Zoom. February 10, 2021. Title: "Hybrid Feedback Control with Robotic Applications."

[108] Invited Talk. Raytheon Technologies Research Center Seminar Series on "Intelligent Cyber-Physical Systems," via Zoom. February 10, 2021. Title: "Hybrid Feedback Control with Robotic Applications."

[107] Invited Talk. Mines Paristech Seminar Series, via Zoom. February 2, 2021. Title: "Tools for the Analysis and Design of Hybrid Systems with Applications to Power Systems."

[106] Invited Talk. CITRIS Day Panel "Remote Health and Safety," via Zoom. November 12, 2020. Title: "Cyber-Physical Systems during the Pandemic."

[105] Plenary Talk. Congreso Argentino de Control Automático (AADECA). Buenos Aires, Argentina (virtual). October 28th, 2020. Title: "Stability and Robustness via Hybrid Feedback Control with Applications."

[104] Invited Talk. IPAM Workshop II: Safe Operation of Connected and Autonomous Vehicle Fleets, via Zoom. October 26, 2020. Title: "Set-Based Hybrid Predictive Control for Collision Detection and Evasion in Autonomous Vehicles."

[103] Project Review Talk. Air Force Office of Research, Washington DC, Virginia, USA (virtual). September 22, 2020. Annual Contractor's Meeting. Title: "Verification and Validation of Autonomous Systems with Hybrid Dynamics under Uncertainty."

[102] Project Review Talk. Air Force Office of Research, Washington DC, Virginia, USA (virtual). August 4, 2020 . Annual Contractor's Meeting. Title: "Systematic Tools for Satisfying Temporal Logic Specifications in Hybrid Dynamical Systems."

[101] Invited Talk. IEEE Power & Energy Society General Meeting. Montreal, Canada (virtual). August 5, 2020. CAREER Awardees Panel. Title: "An Overview of Recent Advances and Future Challenges in Hybrid Feedback Control Design."

[100] Invited Talk. Air Force Research Laboratory, Albuquerque, New Mexico, USA (virtual). June 25th, 2020. Title: "Model Predictive Control of Hybrid Dynamical Systems."

[99] Invited Talk. Center of Excellence Review Meeting. University of California, Santa Cruz, California, USA. April 14th, 2020. Title: "Nonsmooth Systems."

[98] Plenary Talk. XVII Simposio de Ingenieria de Control y VI Seminario de Innovacion Docente en Automatica. Murcia, Spain, Europe. January 29th, 2020. Title: "Stability and Robustness via Hybrid Feedback Control with Robotic Applications."

[97] Invited Talk. Department of Aerospace Engineering and Engineering Mechanics. The University of Texas at Austin, Austin, Texas, USA. January 30th, 2020. Title: "Safety for Hybrid Systems."

[96] Invited Talk. Department of Mechanical and Civil Engineering. California Institute of Technology. Pasadena, California, USA. December 3rd, 2019. Title: "Model Predictive Control of Hybrid Dynamical Systems."

[95] Invited Talk. Department of Electrical and Computer Engineering. University of California, Los Angeles, Los Angeles, California, USA. December 2nd, 2019. Title: "Model Predictive Control of Hybrid Dynamical Systems."

[94] Invited Talk. AFOSR Monterey Nonlinear Control Workshop. Naval Postgraduate School, Monterey, California, USA. October 8th, 2019. Title: "Model Predictive Control of Hybrid Dynamical Systems."

[93] Invited Talk. Center of Excellence Review Meeting. Durham, North Carolina, USA. October 14th, 2019.

[92] Invited Talk. Department of Electrical and Computer Engineering. Brigham Young University, Utah, USA. March 26th, 2019. Title: "Hybrid Control Tools for Robust Estimation & Synchronization."

[91] Invited Talk. Department of Information Engineering. University of L'Aquila, Italy, Europe. May 15th, 2019. Title: "Hybrid Feedback Control: Analysis and Design."

[90] Research Review Talk. Air Force Center of Excellence Kick-off Meeting. University of Florida, Florida, USA. May 13th, 2019. Title: "Hybrid Control under Intermittency."

[89] Research Review Talk. Air Force Center of Excellence Kick-off Meeting. University of Florida, Florida, USA. May 13th, 2019. Title: "Hybrid Dynamical Systems."

[88] Research Review Talk. UCSC Extension, Santa Clara, California, USA. May 10th, 2019. Title: "Hybrid Feedback Control Methods."

[87] Research Review Talk. AFOSR Contractor's Meeting. Washington DC, USA. June 20th, 2019. Title: "Systematic Tools for Satisfying Temporal Logic Specifications in Hybrid Dynamical Systems."

[86] Invited Talk. NSF Career Workshop, UC Santa Cruz, California, USA. February 21st, 2019. Title: "My Perspectives on Writing a Successful Career Proposal."

[85] Workshop Presentation. CruzHacks, Santa Cruz, California, USA. January 19, 2019. Title: "Protecting Cyber-Physical Systems."

[84] Research Review Talk. AFOSR Contractors Meeting, Washington DC, USA. September 27, 2018. Title: "Hybrid Control Algorithms for Estimation and Synchronization in Complex Networks."

[83] Research Overview Talk. CITRIS & ITESM Seed Funding Opportunities, Berkeley, California, USA. September 6, 2018. Title: "Hybrid Algorithms for Real-time Identification and Manipulation of Deformable Soft Tissues."

[82] Invited Talk. American Control Conference (ACC), Milwaukee, Wisconsin, USA. June 28, 2018. NSF CAREER Awardees Invited Session. Title: "An Overview of Recent Advances and Future Challenges in Hybrid Feedback Control Design."

[81] Invited Talk. CITRIS Silicon Valley Forum, San Jose, California, USA. May 3, 2018. Title: "Envisioning Global Energy Solutions: Renewable Energy for the Future and Making the Power Grid Smart."

[80] Invited Talk. UC Cyber Security Summit, University of California, Santa Cruz, California, USA. April 25, 2018. Title: "Secure Algorithms for Cyber-Physical Systems."

[79] Research Overview Talk. Ford Motor Company, San Jose, California, USA. January 12, 2018. Title: "Introduction to the Hybrid Systems Laboratory and Cyber-Physical Research Center."

[78] Invited Talk. National Science Foundation, Washington DC, Virginia, USA. November 14, 2017. Workshop "Unmanned and Autonomous Systems" within Annual Cyber-physical Systems Program Contractor's Meeting. Title: "Overcoming Algorithm Design Challenges in Networked Autonomous Systems via Hybrid Predictive Control."

[77] Project Review Talk. National Science Foundation, Washington DC, Virginia, USA. November 13, 2017. Lightning Talk within Annual Cyber-physical Systems Program Contractor's Meeting. Title: "Computationally-Aware Cyber-Physical Systems."

[76] Project Review Talk. Air Force Office of Research, Washington DC, Virginia, USA. September 14, 2017. Annual Contractor's Meeting. Title: "Synchronization in Networks of Hybrid Systems."

[75] Invited Talk. 1st IEEE Conference on Control Technology and Applications (CCTA), Kona, Hawaii, USA. August 29, 2017. NSF CAREER Awardees Invited Session. Title: "An Overview of Recent Advances and Future Challenges in Hybrid Feedback Control Design."

[74] Invited Talk. CITRIS Day Panel "Pioneering Platforms and Applications", UCSC Extension, Santa Clara, California. November 8, 2017. Title: "Cyber-Physical Systems: Platforms and Applications."

[73] Invited Talk. Workshop on Contraction for Dynamical Systems. Université de Lyon, Lyon, France, Europe. July 6, 2017. Title: "Challenges and Recent Results on Contraction-type Properties in Hybrid Systems."

[72] Invited Talk. NASA Ames Research Center, Mountain View, California, USA. May 18, 2017. Title: "Computationally Aware Control: Trading Accuracy by Computational Performance."

[71] Invited Talk. Mathematics Department, University of California, Santa Cruz, California, USA. February 21, 2017. Title: "Structural Properties and Tools for Robustness in Hybrid Systems."

[70] Research Center Talk. Presentation of Cyber-Physical Systems Research Center to Epson, Hitachi, Airspace, Ford Motor Company, ST, and OnSemi. 2017.

[69] Invited Talk. Bay Area Robotics Symposium, Stanford, California, USA. November 18, 2016. Title: "Hybrid Predictive Control with Applications."

[68] Research Overview Talk. Computer Engineering Department, CMPE200: Faculty Research Presentation, University of California, Santa Cruz, California, USA. November 7, 2016. Title: "Feedback Control of Hybrid Dynamical Systems: from Cells to Power Networks."

[67] Invited Talk. Instituto Superior Tecnologico, Lisbon, Portugal, Europe. November 3, 2016. Title: "A Brief Introduction to Hybrid Systems and Control."

[66] Research Review Talk. National Science Foundation, Washington DC, USA. November 1, 2016. Title: "Computationally-Aware Cyber-Physical Systems."

[65] Invited Talk. LAAS, Toulouse, France, Europe. October 27, 2016. Title: "Robust Hybrid Feedback Control Design for Networked Systems."

[64] Invited Talk. Electrical and Computer Engineering Department, Boston University, Boston, USA. April 1, 2016. Title: "Robust Hybrid Feedback Control Design for Networked Systems."

[63] Invited Talk. Electrical and Computer Engineering Department, University of Southern California, California, USA. February 2, 2016. Title: "Constructive Feedback Control Design for Hybrid Dynamical Systems."

[62] Invited Talk. Electrical and Computer Engineering Department, University of California, Los Angeles, California, USA. February 1, 2016. Title: "Constructive Feedback Control Design for Hybrid Dynamical Systems."

[61] Invited Talk. Electrical Engineering and Computer Science Department, University of California, Berkeley, California, USA. November 30, 2015. Title: "Constructive Feedback Control Design for Hybrid Dynamical Systems."

[60] Invited Talk. Computer Engineering Department, CMPE200: Faculty Research Presentation, University of California, Santa Cruz, California, USA. November 24, 2015. Title: "Feedback Control of Hybrid Dynamical Systems: from Cells to Power Networks."

[59] Invited Talk. Rotary Club, Santa Cruz, California, USA. November 20, 2015. Title: "Autonomy in Robotic Networks: Challenges and Opportunities Ahead."

[58] Invited Talk. Electrical and Computer Engineering Department, Cambridge University, Cambridge, United Kingdom. May 20, 2015. Title: "Nonlinear Observers with a Contracting Riemannian Distance: Necessary and Sufficient Conditions."

[57] Invited Talk. Air Force Research Laboratory, Albuquerque, New Mexico, USA. April 30, 2015. Title: "Hybrid Control for Aerospace Robotics: From Hybrid Systems Theory to Robust Global Tracking Algorithms for Underactuated Vehicles, and Back."

[56] Invited Talk. Electrical and Computer Engineering Department, University of California, Santa Barbara, California, USA. April 17, 2015. Title: "Nonlinear Observers with a Contracting Riemannian Distance: Necessary and Sufficient Conditions."

[55] Invited Talk. Electrical Engineering and Computer Science Department, Merced, California, USA. February 26, 2015. Title: "Hybrid Control for Aerospace Robotics: From Hybrid Systems Theory to Robust Global Tracking Algorithms for Underactuated Vehicles, and Back."

[54] Invited Talk. Aerospace Engineering Department, Stanford, California, USA. January 14, 2015. Title: "Hybrid Control for Aerospace Robotics: From Hybrid Systems Theory to Robust Global Tracking Algorithms for Underactuated Vehicles, and Back."

[53] Research Overview Talk. Computer Engineering Department, CMPE200: Faculty Research Presentation, University of California, Santa Cruz, California, USA. November 25, 2014. Title: "Feedback Control of Hybrid Dynamical Systems: from Cells to Power Networks."

[52] Invited Talk. Applied Mathematics Department, Naval Postgraduate School, Monterey, California, USA. July 10, 2014. Title: "Analysis and Control of Hybrid Dynamical Systems."

[51] Invited Talk. Applied Mathematics Department, Naval Postgraduate School, Monterey, California, USA. July 10, 2014. Title: "Analysis and Control of Hybrid Dynamical Systems."

[50] Research Review Talk. YIP Awardees Meeting, Air Force Office for Scientific Research, Washington DC, USA. June 24, 2014. Title: "Distributed Estimation over Networks with Performance and Robustness."

[49] Invited Talk. Department of Electrical and Computer Engineering, University of Illinois, Urbana-Champaign, USA. February 19, 2014. Title: "Nonlinear Observers with a Contracting Riemannian Distance: Necessary and Sufficient Conditions."

[48] Invited Talk. Department of Electrical and Computer Engineering, University of Bologna, Bologna, Italy, Europe. December 6, 2013. Title: "Robust Stability and Control of Hybrid Dynamical Systems."

[47] Invited Talk. Department of Mechanical Engineering, TU/e, Eindhoven, The Netherlands, Europe. December 4, 2013. Title: "Robust Stability and Control of Hybrid Dynamical Systems."

[46] Research Overview Talk. Engineering 102, University of Arizona, Arizona, USA. November 12, 2013. Title: "Introduction to the Hybrid Dynamics and Control Laboratory."

[45] Invited Talk. Instituto Technologico Buenos Aires (ITBA), Buenos Aires, Argentina, South America. October 22, 2013. Title: "Feedback Control of Hybrid Dynamical Systems: from Cells to Power Networks."

[44] Research Review Talk. AFOSR Contractors Meeting, Washington DC, USA. August 6, 2013. Title: "Distributed Estimation with Performance and Robustness Guarantees."

[43] Plenary Talk. SIAM Annual Meeting/Control and Applications Conference, San Diego, CA, USA. July 10, 2013. Title: "Feedback Control of Hybrid Dynamical Systems: from Cells to Power Networks."

[42] Invited Talk. Arizona State University, Phoenix, Arizona, USA. June 24, 2013. Title: "Feedback Control of Hybrid Dynamical Systems: from Cells to Power Networks."

[41] Invited Talk. University of New Mexico, Albuquerque, New Mexico, USA. June 21, 2013. Title: "Feedback Control of Hybrid Dynamical Systems: from Cells to Power Networks."

[40] Invited Talk. Air Force Research Laboratory, Albuquerque, New Mexico, USA. June 20, 2013. Title: "Robust Global Attitude Tracking via Quaternion-Based Hybrid Control."

[39] Invited Lectures. Applied Math Program, Department of Mathematics, The University of Arizona, Tucson, Arizona, USA. April 17 and 24, 2013. (2 Lectures.) Titles: "Problems in Modeling and Analysis of Hybrid Dynamical Systems – Lecture 1: Introduction" and "Problems in Modeling and Analysis of Hybrid Dynamical Systems – Lecture 2: Open problems."

[38] Research Overview Talk. Engineering 102, University of Arizona, Arizona, USA. March 26, 2013. Title: "Introduction to the Hybrid Dynamics and Control Laboratory."

[37] Research Review Talk. Connection One Semi-annual Meeting and Workshop, Tucson, Arizona, USA. January 18, 2013. Title: "Hybrid Control of High-Speed Unmanned Surface Vessels for Oceanic and Atmospheric Research."

[36] Invited Talk. Yuma Proving Ground Meeting, Tucson, Arizona, USA. November 28, 2012. Title: "Robust Hybrid Control Algorithms for Multi-agent Systems."

[35] Distinguished Lecture. Educator of the Year, Society of Hispanic Professional Engineers National Conference, Forth Worth, Texas, USA. November 16, 2012. Title: "A Hybrid Systems Theory for Robustness and its Applications."

[34] Invited Talk. Engineering Research Symposium on Computer Science and Engineering, Society of Hispanic Professional Engineers National Conference, Forth Worth, Texas, USA. November 16, 2012. Title: "A Hybrid Systems Theory for Robustness and its Application to the Analysis and Simulation of Smart Grids."

[33] Research Overview Talk. Engineering 102, University of Arizona, Arizona, USA. November 6, 2012. Title: "Introduction to Hybrid Control Systems."

[32] Invited Talk. Air Force Research Laboratory, Albuquerque, New Mexico, USA. June 8, 2012. Title: "On Interconnections of Hybrid Systems with Inputs and Outputs."

[31] Invited Talk. Hybrid Architecture and Constraints Workshop, Paris, France, Europe. June 5, 2012. Title: "Control and Interconnections of Hybrid Systems."

[30] Invited Talk. Supelec, Gif-sur-Yvette, France, Europe. May 31, 2012. Title: "Modeling and Control of Hybrid Dynamical Systems."

[29] Invited Talk. Raytheon Missile Systems, Tucson, Arizona, USA. February 23, 2012. Title: "Hybrid Control for Aerospace Vehicles."

[28] Invited Talk. Raytheon Missile Systems meeting, University of Arizona, Tucson, Arizona, USA. February 7, 2012. Title: "Hybrid Control Algorithms in Low Cost Embedded System Platforms."

[27] Research Review Talk. Connection One Semi-annual Meeting and Workshop, Phoenix, Arizona, USA. January 26, 2012. Title: "Hybrid Control of High-Speed Unmanned Surface Vessels for Oceanic and Atmospheric Research."

[26] Invited Talk. University of Michigan, Ann Arbor, Michigan, USA. November 4, 2011. Title: "Interconnections and Control of Hybrid Systems."

[25] Invited Talk. University of Delaware, Delaware, USA. October 24, 2011. Title: "Robust Hybrid Control Algorithms for Complex Unmanned Systems Missions."

[24] Research Review Talk. Industry Partner Board Meeting. University of Arizona, Tucson, Arizona, USA. October 15, 2011. Title: "Robust Hybrid Control Algorithms for Aerospace Applications."

[23] Invited Talk. Honeywell, Phoenix, Arizona, USA. October 14, 2011. Title: "Robust Hybrid Control Algorithms for Aerospace Applications."

[22] Invited Talk. Raytheon Industry Day. University of Arizona, Tucson, Arizona, USA. October 12, 2011. Title: "Robust Hybrid Control Algorithms for Aerospace Applications."

[21] Invited Talk. Air Force Research Laboratory, Kirtland, Albuquerque, New Mexico, USA. August 18, 2011. Title: "Robust Hybrid Control Algorithms for Multi-agent Space Systems."

[20] Invited Talk. Sandia National Laboratories, Computer Science Research Institute, Albuquerque, New Mexico, USA. August 17, 2011. Title: "A Hybrid Systems Theory for Robustness and its Application to the Analysis and Simulation of Smart Grids."

[19] Invited Talk. Department of Electrical and Computer Engineering, University of New Mexico, Albuquerque, New Mexico, USA. July 28, 2011. Title: "On Interconnections of Hybrid Systems with Inputs and Outputs."

[18] Plenary Talk. DYSCO Network Study Days, Liege, Belgium, Europe. May 12, 2011. Title: "Hybrid Dynamical Systems: Modeling, Stability, and Robustness."

[17] Invited Talk. 2011 EECI Graduate School on Control, CNRS, Laboratoire des Signaux et Systemes (INSIS & INS2I) & European Embedded Control Institute (EECI), SUPELEC, Gif-sur-Yvette, France, Europe. May 2-5 (21 hours of teaching), 2011. Title: "Robust Hybrid Control Systems."

[16] Invited Talk. Institut fuer Systemtheorie und Regelungstechnik, University of Stuttgart, Stuttgart, Germany, Europe. May 6, 2011. Title: "A Dynamical Systems Approach to Modeling and Robust Stability Analysis of Hybrid Control Systems."

[15] Invited Talk. Raytheon Missile Systems, Tucson, Arizona, USA. February 2, 2011. Title: "Robust Hybrid Control Systems: Applications and Methods."

[14] Invited Talk. 2010 Workshop on Hybrid Dynamic Systems, University of Waterloo, Waterloo, Canada. July 30, 2010. Title: "Input/Output Notions and Tools For Analysis of Interconnections of Hybrid Dynamical Systems."

[13] Invited Talk. Air Force Research Laboratory, Kirtland, Albuquerque, New Mexico, USA. July 14, 2010. Title: "A Dynamical Systems Approach to Modeling and Robust Stability Analysis of Hybrid Control Systems."

[12] Invited Talk. Department of Neuroscience, The University of Arizona, Tucson, Arizona, USA. March 28, 2010. Title: "Investigations of Fundamentals of Emergent Flight Behaviors of Groups of Air Vehicles."

[11] Invited Lectures. Applied Math Program, Department of Mathematics, The University of Arizona, Tucson, Arizona, USA. February 17 and 24, 2010. (2 Lectures.) Titles: "Problems in Modeling and Analysis of Hybrid Dynamical Systems – Lecture 1: Introduction" and "Problems in Modeling and Analysis of Hybrid Dynamical Systems – Lecture 2: Open problems."

[10] Invited Talk. Department of Electrical and Computer Engineering, The University of Arizona, Tucson, Arizona, USA. February 10, 2010. Title: "Robust Stability Analysis of Hybrid Control Systems."

[9] Invited Talk. Department of Electrical and Computer Engineering, University of New Mexico, Albuquerque, New Mexico, USA. October 23, 2009. Title: "A Dynamical Systems Approach to Modeling and Robust Stability Analysis of Hybrid Control Systems."

[8] Invited Talk. Applied Math Program, Department of Mathematics, The University of Arizona, Tucson, Arizona, USA. October 15, 2009. Title: "A Dynamical Systems Approach to Modeling and Robust Stability Analysis of Hybrid Control Systems."

[7] Invited Talk. Department of Aerospace and Mechanical Engineering, The University of Arizona, Tucson, Arizona, USA. October 15, 2009. Title: "A Dynamical Systems Approach to Modeling and Robust Stability Analysis of Hybrid Control Systems."

[6] Invited Talk. Department of Electrical Engineering, Universidad de Mar del Plata, Buenos Aires, Argentina, South America. June 12, 2009. Title: "A Dynamical Systems Approach to Modeling and Robust Stability Analysis of Hybrid Control Systems."

[5] Invited Talk. Department of Mechanical Engineering, TU/e, Eindhoven, The Netherlands, Europe. November 2008.

[4] Invited Talk. Department of Electrical and Computer Engineering, Imperial College, London, UK. October 2008.

[3] Invited Talk. Centre Automatique et Systèmes, Ecole de Mines de Paris, Paris, France, Europe. October 2008.

[2] Invited Talk. Fifth World Congress of Nonlinear Analysts 2008 (WCNA-2008), Orlando, Florida, USA. July 2008.

[1] Invited Talk. Department of Mechanical and Aerospace Engineering, University of Florida, Gainesville, Florida, USA. May 2008.

12 Conference Participation

2022 IEEE Vision, Innovation, and Challenges Summit, San Diego, California USA, May, 2022.

IFAC World Congress, Berlin, Germany, July, 2020 (virtual).

American Control Conference, Denver, Colorado, 2020 (virtual).

Hybrid Systems: Computation and Control Conference, Sydney, Australia, 2020 (virtual).

IEEE Conference on Decision and Control, Nice, France, 2019.

AFOSR Monterey Nonlinear Control Workshop, Monterey, California, 2019.

American Control Conference, Philadelphia, 2019.

Center of Excellence Kick-off Meeting, University of Florida, 2019.

ACM International Conference on Hybrid Systems: Computation and Control, Montreal, Canada, 2019.

2nd Conference on Control Technology and Applications, Copenhagen, Denmark, 2018.

6th IFAC Conference on Nonlinear Model Predictive Control, Wisconsin-Madison, WI, USA, 2018.

IEEE Conference on Decision and Control, Miami Beach, Florida, 2018.

6th IFAC Conference on Analysis and Design of Hybrid Systems, Oxford, UK, 2018.

IFAC Workshop on Networked & Autonomous Air & Space Systems (NAASS), Santa Fe, New Mexico, USA, 2018.

American Control Conference, Milwaukee, WI, USA, 2018.

56th IEEE Conference on Decision and Control, Melbourne, Australia, 2017.

Hybrid Systems: Computation and Control, Pittsburgh, Pennsylvania, USA, 2017.

1st Conference on Control Technology and Applications, Big Island, Hawaii, USA, 2017.

American Control Conference, Seattle, WA, USA, 2017.

55th IEEE Conference on Decision and Control, Las Vegas, USA, 2016.

IFAC Nonlinear Control Systems Symposium, Monterey, CA, USA, 2016.

American Control Conference, Boston, MA, USA, 2016.

Hybrid Systems: Computation and Control, Vienna, Austria, 2016.

54th IEEE Conference on Decision and Control, Osaka, Japan, 2015.

Hybrid Systems: Computation and Control, Seattle, Washington, USA, 2015.

5th IFAC Conference on Analysis and Design of Hybrid Systems, Atlanta, Georgia, USA, 2015.

IFAC Conference on Analysis and Design of Hybrid Systems, Atlanta, Georgia, USA, 2015.

AAU STEM Faculty Learning Community, 2015.

Computation and Control Conference, Berlin, Germany,2014

Hybrid Systems: Computation and Control, Berlin, Germany, Europe, 2014

13th European Control Conference, Strasbourg, France, 2014.

3rd International Workshop on Hybrid Systems Biology, 2014.

53th IEEE Conference on Decision and Control, Los Angeles, USA, 2014.

SummerSim, Monterey, California, USA, 2014.

33th American Control Conference, Portland, Oregon, USA, 2014.

6th Arizona Faculty Doctoral Mentoring Institue, AZ, USA, 2013.

Hybrid Systems: Computation and Control, Philadelphia, Pennsylvania, USA, 2013.

52th IEEE Conference on Decision and Control, Florence, Italy, 2013.

SIAM Annual Meeting and SIAM Conference on Control and Its Applications, San Diego, USA, 2013.

32th American Control Conference, Washington DC, USA, 2013.

12th European Control Conference, Zurich, Switzerland. 2013.

Computation and Control Conference, Philadelphia, Pennsylvania, USA, 2013.

Hybrid Systems: Computation and Control, Beijing, China, 2012.

51th IEEE Conference on Decision and Control, Maui, HI, USA, 2012.

World Engineering Education Forum, Buenos Aires, Argentina, 2012.

Computation and Control Conference, Beijing, China, 2012.

50th IEEE Conference on Decision and Control, Orlando, FL, USA, 2011.

30th American Control Conference, San Francisco, USA, 2011.

Hybrid Systems: Computation and Control Conference, Chicago, IL, USA, 2011.

49th IEEE Conference on Decision and Control, Atlanta, GA, USA, 2010.

2010 Naval Science and Technology Partnership Conference, Washington DC, 2010.

29th American Control Conference, Baltimore, USA, 2010.

IEEE Multi-Conference on Systems and Control, Yokohama, Japan, 2010.

48th IEEE Conference on Decision and Control and 28th Chinese Control Conference, Shanghai, China, 2009.

47th IEEE Conference on Decision and Control, Cancun, Mexico, 2007.

27th American Control Conference, Seattle, USA, 2008.

Hybrid Systems: Computation and Control Conference, St. Louis, MO, USA, 2008.

47th IEEE Conference on Decision and Control, Cancun, Mexico. 2008.

46th IEEE Conference on Decision and Control, New Orleans, LA, USA, 2007.

26th American Control Conference, New York, USA, 2007.

45th IEEE Conference on Decision and Control, San Diego, CA, USA, 2006.

25th American Control Conference, Minneapolis, MN, USA, 2006.

Hybrid Systems:Computation and Control Conference, Santa Barbara, CA, USA, 2006.

44th IEEE Conference on Decision and Control and European Control Conference, Seville, Spain, 2005.

24th American Control Conference, Portland, OR, USA, 2005.

13 Conference Presentations

[39] Brief Talk. University of California, Santa Cruz AgTech Symposium, via Zoom. April 23, 2021. Title: "Agriculture Cyber-Physical Systems (ACPS): Opportunities and Challenges."

[38] An Algorithm to Generate Solutions to Hybrid Dynamical Systems with Inputs. *Proc. American Control Conference*, Philadelphia, PA 2019.

[37] Adaptive Backstepping of Synergistic Hybrid Feedbacks with Application to Obstacle Avoidance. *Proc. American Control Conference*, Philadelphia, PA 2019.

[36] Asymptotic Stability of Limit Cycles in Hybrid Systems with Explicit Logic States *Proc. American Control Conference*, Philadelphia, PA 2019.

[35] Cost Evaluation for Hybrid Inclusions: A Lyapunov Approach. *Proc. Conference on Decision and Control*, Miami Beach, Florida 2018.

[34] Robust Hybrid Supervisory Control for 3-DOF Spacecraft in Close-Proximity Operations. *Proc. IFAC Workshop on Networked & Autonomous Air & Space Systems*, Santa Fe, New Mexico, 2018.

[33] Passivity Tools for Hybrid DAE Systems with Applications to Switched DAE Systems. *Proc. IEEE Conference on Decision and Control*, Melbourne, Australia, 2017.

[32] A Hybrid Predictive Control Algorithm for Tracking in a Single-Phase DC/AC Inverter. *Proc. Conference on Control Technology and Applications*, Big Island, Hawaii, USA, 2017.

[31] Sufficient conditions for Asymptotic Stability and Feedback Control of Set Dynamical Systems. *Proc. American Control Conference*, Seattle, USA, 2017.

[30] Robust Asymptotic Stabilization of Hybrid Systems using Control Lyapunov Functions. *Proc. 19th International Conference on Hybrid Systems: Computation and Control*, Vienna, Austria, 2016.

[29] Exponential Stabilization of a Vectored-Thrust Vehicle Using Synergistic Potential Functions. *Proc. American Control Conference*, Boston, USA, 2016.

[28] Computationally Tractable Implementations of Pointwise Minimum Norm State-Feedback Laws for Hybrid Systems. *Proc. American Control Conference*, Boston, USA, 2016.

[27] How well-posedness of hybrid systems can extend beyond Zeno times. *Proc. IEEE Conference on Decision and Control*, Las Vegas, USA, 2015.

[26] Solution of a Riccati equation for the design of an observer contracting a Riemannian distance. *Proc. IEEE Conference on Decision and Control*, Tokyo, Japan, 2015.

[25] Hybrid Feedback Control Methods for Robust and Global Power Conversion. *Proc. 5th Conference on Analysis and Design of Hybrid Systems*, Atlanta, USA, 2015.

[24] On Robust Stability of Limit Cycles for Hybrid Systems With Multiple Jumps. *Proc. 5th Conference on Analysis and Design of Hybrid Systems*, Atlanta, USA, 2015.

[23] Asymptotic Properties of Solutions to Set Dynamical Systems. *Proc. IEEE Conference on Decision and Control*, Los Angeles, USA, 2014.

[22] Pointwise Minimum-norm Control Laws for Hybrid Systems. *Proc. IEEE Conference on Decision and Control*, Florence, Italy, 2013.

[21] A Robust Finite-time Convergent Hybrid Observer for Linear Systems. *Proc. IEEE Conference on Decision and Control*, Florence, Italy, 2013.

[20] On the Stability of Hybrid Limit Cycles and Isolated Equilibria in a Genetic Network with Binary Hysteresis. *Proc. IEEE Conference on Decision and Control*, Florence, Italy, 2013.

[19] Variational Analysis for Stabilizability of Hybrid Systems. *SIAM Conference on Control and Its Applications*, San Diego, USA, 2013.

[18] A Landmark-Based Controller for Global Asymptotic Stabilization on SE(3). *Proc. IEEE Conference on Decision and Control*, Maui, USA, 2012.

[17] Control Lyapunov functions and stabilizability of compact sets for hybrid systems. *Proc. Joint Conference on Decision and Control and European Control Conference*, Orlando, USA, 2011.

[16] Tracking Control for Hybrid Systems via Embedding of Known Reference Trajectories. *Proc. 30th American Control Conference*, San Francisco, USA, 2011.

[15] Results on input-to-output and input-output-to-state stability for hybrid systems and their interconnections. *49th IEEE Conference on Decision and Control*, Atlanta, USA, 2010.

[14] Uniting two output-feedback hybrid controllers with different objectives. *Proc. 29th American Control Conference*, Baltimore, USA, 2010.

[13] Nonlinear observer design with an appropriate Riemannian metric. *48th IEEE Conference on Decision and Control and 28th Chinese Control Conference*, Shanghai, China, 2009.

[12] On the optimality of Dubins paths across heterogeneous terrain. *Hybrid Systems: Computation and Control Conference*, St. Louis, USA, 2008.

[11] A hybrid control framework for robust maneuver-based motion planning. *27th American Control Conference*, Seattle, USA, 2008.

[10] A nested Matrosov theorem for hybrid systems. *27th American Control Conference*, Seattle, USA, 2008.

[9] A hybrid systems approach to trajectory tracking control for juggling systems. *Proc. 46th IEEE Conference on Decision and Control*, New Orleans, USA, 2007.

[8] A "throw-and-catch" hybrid control strategy for robust global stabilization of nonlinear systems. *26th American Control Conference*, New York, USA, 2007.

[7] On the continuity of asymptotically stable compact sets for simulations of hybrid systems. *45th IEEE Conference on Decision and Control*, San Diego, USA, 2006.

[6] Lyapunov analysis of sample-and-hold hybrid feedbacks. *45th IEEE Conference on Decision and Control*, San Diego, USA, 2006.

[5] A feedback control motivation for generalized solutions to hybrid systems. *Hybrid Systems: Computation and Control Conference*, Santa Barbara, USA, 2006.

[4] On the robustness to measurement noise and unmodeled dynamics of stability in hybrid systems. *Proc. 25th American Control Conference*, Minneapolis, USA, 2006.

[3] Robust hybrid controllers for continuous-time systems with applications to obstacle avoidance and regulation to disconnected set of points. *26th American Control Conference*, Minneapolis, USA, 2006.

[2] On hybrid controllers that induce input-to-state stability with respect to measurement noise. *44th IEEE Conference on Decision and Control and European Control Conference*, Seville, Spain, 2005.

[1] Results on convergence in hybrid systems via detectability and an invariance principle. *24th American Control Conference*, Portland, USA, 2005.

14 Poster Presentations

[27] ACM International Conference on Hybrid Systems: Computation and Control, Montreal, Canada, April 16-18, 2019. Title: "Safety Characterization in Hybrid Systems Using Barrier Functions."

[26] NorCal 2019, UC Berkeley, California. Title: "Safety Characterization in Hybrid Systems Using Barrier Functions."

[25] ARCS 2019, Philadelphia, Pennsylvania. Title: "Global and Robust Algorithms for Hybrid Optimization."

[24] Workshop on Brain Dynamics and Neurocontrol Engineering, St. Louis, MO, USA, June 25-27, 2017. Title: "Hybrid Systems Methods for Analysis of Networks of Spiking Neurons."

[23] Symposium on Robot Learning, Berkeley, CA, USA, May 1, 2017. Title: "Computationally Aware Cyber-Physical Systems."

[22] Symposium on Robot Learning, Berkeley, CA, USA, May 1, 2017. Title: "Hybrid Control Algorithm for Object Grasping Using Multiple Agents."

[21] Symposium on Robot Learning, Berkeley, CA, USA, May 1, 2017. Title: "Obstacle Detection and Avoidance Using Radar and Robust Hybrid Controller."

[20] Symposium on Robot Learning, Berkeley, CA, USA, May 1, 2017. Title: "A Hybrid Systems Approach to Tracking Control of a Fully Actuated Biped."

[19] Baskin School of Engineering Open House, Santa Cruz, CA, USA, March 17, 2017. Title: "Estimation and Synchronization of Multi-agent Systems Using Tools for hybrid Systems."

[18] 1st Annual CROSS Research Symposium, Santa Cruz, CA, USA, October 24-25, 2016.

[17] The 2016 American Control Conference, Boston, Massachusetts, USA, June 8, 2016. Title: "Robust global trajectory tracking for a class of underactuated vehicles."

[16] 12th Annual Graduate Research Symposium, Santa Cruz, CA, USA, April 29, 2016. Title: "Hybrid Control Algorithms for Robust Power Conversion in Smart Grids."

[15] 12th Annual Graduate Research Symposium, Santa Cruz, CA, USA, April 29, 2016. Title: "Estimation and Synchronization of Multi-agent Systems Using Tools for hybrid Systems."

[14] CITRIS at UC Santa Cruz Open House, Santa Cruz, CA, USA, April 12, 2016. Title: "Hybrid Control Algorithms for Robust Power Conversion in Smart Grids."

[13] CITRIS at UC Santa Cruz Open House, Santa Cruz, CA, USA, April 12, 2016. Title: "Estimation and Synchronization of Multi-agent Systems Using Tools for hybrid Systems."

[12] CROSS meeting, Santa Cruz, CA, USA, Winter, 2015. Title: "Strong Consistency in Dynamic Wireless Networks to Enable Safe and Efficient Navigation of Autonomous Vehicles."

[11] 6th Annual Cyber-Physical Systems Principal Investigators?? Meeting, Arlington, VA , USA, October 31, 2015. Title: "Computationally Aware Cyber-Physical Systems."

[10] UCSC Research Review Day, Santa Cruz, CA, USA, October 14, 2015. Title: "Hybrid Control Algorithms for Robust Power Conversion in Smart Grids."

[9] UCSC Research Review Day, Santa Cruz, CA, USA, October 14, 2015. Title: "Estimation and Synchronization of Multi-agent Systems Using Tools for hybrid Systems."

[8] CITRIS Day 2015, Berkeley, CA, USA, October 13, 2015. Title: "Estimation and Synchronization of Multi-agent Systems Using Tools for Hybrid Systems??????

[7] CITRIS Day 2015, Berkeley, CA, USA, October 13, 2015. Title: "Hybrid Control Algorithms for Robust Power Conversion in Smart Grids??????

[6] Dynamics Days US 2013, Denver, CO, USA. January 3-6, 2013. Title: "A New Method for Computing Lyapunov Exponents for the Chaotic Bouncing Ball."

[5] NSF Connection One Semi-Annual Meeting, Tucson, AZ, USA. January 17-18, 2013. Title: "On Desynchronization of Impulsive Oscillators for Coordination of Actions of Multiple Players."

[4] Cognitive RF Workshop, Kirtland AFB, Albuquerque, NM, USA. September 26-27, 2012. Title: "Adaptive Frequency Hopping and Synchronization-Based Algorithms for Rendezvous."

[3] NSF Connection One Semi-Annual Meeting, Scotsdale, AZ, USA. May 23-24, 2012. Title: "Hybrid Control of High-Speed Unmanned Surface Vessels for Oceanic and Atmospheric Research."

[2] NSF Connection One Semi-Annual Meeting, Scotsdale, AZ, USA. May 23-24, 2012. Title: "On the Synchronization of Impulsive Oscillators For Decentralized Rendezvous."

[1] Cognitive RF Workshop, Wright Patterson AFB, Dayton, OH, USA. September 21-22, 2011. Title: "Robust Hybrid Control Algorithms for Reconfigurable Multi-agent Space Systems."

15 Visiting Scholars

Jan De Priester, University of Eindhoven, The Netherlands. August 1st, 2019-October 16th, 2019.

Alessandro Melis, University of Bologna, Italy. October 2018-March 2019.

Pauline Bernard, Postdoc, University of California, Santa Cruz. Winter 2017-Spring 2017.

Jose Luis Mancilla-Aguilar, Professor, Instituto Technologico Buenos Aires. March 2018.

Francesco Ferrante, Postdoc, University of California, Santa Cruz. Fall 2016-Fall 2017.

Giulia Zucchini, University of Bologna, Italy. August 2017-March 2018.

Luca Torquati, University of Trento, Italy. August 2016-March 2017.

Stephan Trenn, Professor, Technische Universitat Kaiserslautern, Germany. August 2016.

Nathan van de Wouw, Professor, Tu/e, The Netherlands. August 2016.

Xuyang Lou, Professor, Jiangnan University, China. August 2014-August 2015.

Laurent Praly, Ecole des Mines de Paris, Paris, France. December 2014 and August 2016.

Francesco Ferrante, LAAS-CNRS, Toulouse, France. July 2014-August 2014.

Pablo Ñañez, Universidad de los Andes, Colombia. September 2012-present.

Francesco Fichera, LAAS-CNRS, Toulouse, France. January 2013-February 2013.

Thomas Theunisse, TU/e, Eindhoven, The Netherlands. September 2012-December 2012.

Pedro Casau, Instituto Superior Tecnico, Portugal. September 2011-December 2011, April 2013-July 2013, and December 2014.

Dr. Roberto Naldi, University of Bologna, Italy. October 2010 and January 2013.

Qian Ye, Graduate student, Jiangnan University, China. September 2010-September 2011.

16 Professional Activities

Electrical and Computer Engineering Department Heads Association Virtual Summit Panelist "Discussion on the State of IoT Education," Electrical and Computer Engineering Department Heads Association (ECEDHA), June 6, 2022.

TechCrunch University Showcase Panelist of "From OSAM to xGEO: New Frontiers in Space Exploration," The Aerospace Corporation, December 15, 2021.

Program Committee Member, Hybrid Systems: Computation and Control Conference. 2022.

Associate Editor for the European Control Association (EUCA) Conference Editorial Board. 2022.

Member of W. M. Keck Foundation Review Committee for internal submissions at UCSC. December, 2021.

Panelist of 2021 Monterey Bay DART Symposium, Security: Research and Development, via Zoom, October 19. 2021.

Program Committee Member, International Program Committee of the 7th IFAC Conference on Nonlinear Model Predictive Control, Bratislava, Slovakia. 2021.

Member of the IEEE Senior Member Elevation Program. 2021.

General Co-Chair, SIAM Control and Systems Theory Conference. 2021.

Associate Editor for the European Control Association (EUCA) Conference Editorial Board. 2021.

Associate Editor, International Program Committee of Analysis and Design of Hybrid Systems. 2021.

Organizer of invited session "Formal Methods for Hybrid Systems." IFAC World Congress, Berlin, Germany. July, 2020.

Organizer of pre-conference Workshop "Model Predictive Control of Hybrid Dynamical Systems." IFAC World Congress, Berlin, Germany. July, 2020.

Publication Chair for Hybrid Systems: Computation and Control. 2020.

Organizer of pre-conference Workshop "Model Predictive Control of Hybrid Dynamical Systems." IEEE Conference on Decision and Control, Nice, France. December, 2019.

Best Student Paper Award Committee Member, IEEE Conference on Decision and Control, 2019.

Organizer of the Control Theory and Automation Symposium - 2nd NorCal Control Workshop at University of California, Berkeley. April, 2019.

Faculty Advisor of Robotics Student Group Slugbotics, University of California, Santa Cruz.

Associate Editor, Automatica. April 2015-present.

Chair of IEEE CSS Technical Committee on Hybrid Systems. 2016-2019.

Conference Editorial Board Member of the IEEE Control Systems Society. 2015-2019.

Member of Best Paper Award Committee, Nonlinear Analysis: Hybrid Systems (journal), Elsevier, USA. 2016-present.

Faculty advisor of Student Group Slugbotics, University of California, Santa Cruz. 2016-present.

Faculty advisor of Society of Hispanic Professional Engineers (SHPE), University of California, Santa Cruz. 2016-present.

Organizer of Pre-Conference Workshop "Computationally-Aware Cyber-Physical Systems" at the 2018 IEEE Conference on Decision and Control, Miami Beach, FL, USA. December 2018.

Organizer of Workshop "Smart Power and Cyber-Physical Systems" at the 3rd Annual CROSS Research Symposium, University of California, Santa Cruz, CA, USA. October 2018.

Organizer of CITRIS/CPAR Control Theory and Automation Symposium – 1st NorCal Control Workshop. University of California, Santa Cruz, CA, USA. 2018.

Best Paper Award Committee Member, IEEE Control Systems Society. 2018.

Associate Editor for the 2018 IEEE Conference on Control Technology and Applications. 2018.

Program Committee Member, 6th IFAC Conference on Analysis and Design of Hybrid Systems (ADHS), Oxford, Cambridge, UK. 2018.

Program Committee Member, Hybrid Systems: Computation and Control Conference, Porto, Portugal. 2018.

Organizer of Workshop "Security in Network Systems" at the 2nd Annual CROSS Research Symposium, University of California, Santa Cruz, CA, USA. October 2017.

Technical Program Committee Member, IEEE Conference on Decision and Control. 2017.

Organizer of Workshop "Verification and Synthesis for Hybrid Systems" at UT Austin, TX, USA. June 1-2, 2017.

Chair of Best Student Paper Award, Hybrid Systems: Computation and Control Conference, Pittsburgh, USA. 2017.

Program Committee Member, Hybrid Systems: Computation and Control Conference, Pittsburgh, USA. 2017.

Program Committee Member, International Conference on Simulation, Modeling, and Programming for Autonomous Robots (SIMPAR), San Francisco, California, December 13-16, 2016.

Organizer of Pre-Conference Workshop "Feedback Control of Hybrid Systems" at the 2016 IEEE Conference on Decision and Control, Las Vegas, NV, USA. December 2016.

Organizer of Workshop "Data-Driven Dynamic Networked Systems" at the 1st Annual CROSS Research Symposium, University of California, Santa Cruz, CA, USA. October 2016.

Area Chair for Hybrid Systems, IFAC Nonlinear Control Systems Symposium, Monterey, CA. 2016.

National Organizing Committee Member, Nonlinear Control Symposium (NOLCOS), Monterey, California, USA. 2016.

Co-chair of IEEE CSS Technical Committee on Hybrid Systems. 2015.

Organizer of Pre-Conference Tutorial "Control Theoretical Tools for Analysis and Design of Cyber-Physical Systems" at the CPSWeek 2016, Vienna, Austria. April 2016.

Chair of the sessions "Switched Systems" and "Advances in Attitude Control Systems II", organizer of the session "Advances in Attitude Control Systems II", and co-chair of the session "Networked Control Systems III"–at the 2015 American Control Conference, Chicago, Illinois, USA.

Chair of session "Kalman Filtering" at the 2015 IEEE Conference on Decision and Control, Osaka, Japan.

Program Committee Member, 5th IFAC Conference on Analysis and Design of Hybrid Systems (ADHS), Atlanta, Georgia, USA. 2015.

Program Committee Member, Hybrid Systems: Computation and Control Conference, Berlin, Germany. 2014.

Program Committee Member, 13th European Control Conference, Strasbourg, France. 2014.

Program Committee Member, 3rd International Workshop on Hybrid Systems Biology (HSB 2014), Vienna, Austria. 2014.

Chair of sessions "Estimation II" and "Hybrid Systems" and organizer of the session "Advances in Attitude Control Systems II" at the 2014 American Control Conference, Portland, Oregon, USA.

Organizer of the sessions "Variational Analysis in Dynamics and Control I" and "Variational Analysis in Dynamics and Control II"; chair of the session "Variational Analysis in Dynamics and Control I" and co-chair of the session "Variational Analysis in Dynamics and Control II" at the 2014 IEEE Conference on Decision and Control, Los Angeles, California, USA.

Participant in the AAU STEM Faculty Learning Community, "How to Best Engage Students," Fall 2013 and Spring 2014.

Participant in the 6th Arizona Faculty Doctoral Mentoring Institute held at Arizona State University, March 4, 2013.

Program Committee Member, Hybrid Systems: Computation and Control Conference, Berlin, Germany. 2014.

Program Committee Member, 13th European Control Conference, Strasbourg, France. 2014.

Program Committee Member, Hybrid Systems: Computation and Control Conference, Philadelphia, Pennsylvania, USA. 2013.

Program Committee Member, 12th European Control Conference, Zurich, Switzerland. 2013.

Program Committee Member, Hybrid Systems: Computation and Control Conference, Beijing, China. 2012.

Organizer of Pre-Conference Workshop "Robust Hybrid Control System," Joint IEEE Conference on Decision and Control and European Control Conference, Orlando, USA. 2011.

Panelist of Mathworks: Bridging the Theory-Practice Gap Through Industry-Relevant Control Education – a Panel Discussion organized by G. Campa and A. Turevskiy from MathWorks, American Control Conference, San Francisco, California, USA. 2011.

Member of the Institute for Broadening Participation (IBP) for building partnerships to support diversity in STEM. 2011-present.

Consultant for Hydronalix, Sahuarita, Arizona. 2011.

Program Committee Member, Hybrid Systems: Computation and Control Conference, Chicago, USA. 2011.

Program Committee Member, IEEE International Symposium on Intelligent Control. 2010.

Committee Member, 2010 IEEE Multi-Conference on Systems and Control, Yokohama, Japan. 2010.

Organizer of Pre-Conference Workshop "Robust Hybrid Control Systems," American Control Conference, Seattle, USA, 2008.

Organizer of Pre-Conference Workshop "Robust Hybrid Systems: Theory and Applications," IEEE Conference on Decision and Control, San Diego, USA, 2006.

Reviewer of technical papers submitted to the journals: IEEE Transactions on Automatic Control; Automatica; Nonlinear Analysis Series A: Theory, Methods & Applications; ASME Journal of Computational and Nonlinear Dynamics.

Reviewer of technical papers submitted to the conferences: IEEE Conference on Decision and Control; Hybrid Systems: Computation and Control; American Control Conference; IFAC World Congress.

Co-chair of sessions "Linear System Observers" and "Hybrid Systems II" at the 2013 IEEE Conference on Decision and Control, Florence, Italy. 2013.

Co-chair of session "Hybrid Systems II" at the 2011 American Control Conference, San Francisco, CA, USA. 2011.

Organizer of the first Southwest Workshop on Theory and Applications of Cyber-Physical Systems. Tucscon, Arizona. 2011.

Chair of session "Synthesis II" at the Hybrid Systems: Computation and Control Conference, Chicago, IL, USA, 2011.

Co-chair of session "Hybrid Systems III" at the 49th IEEE Conference on Decision and Control, Atlanta, GA, USA. 2010.

Co-chair of session "Stabilization of Hybrid Systems" at the 48th IEEE Conference on Decision and Control/28th Chinese Control Conference, Shanghai, China. 2009.

Chair of session "Nonlinear Control Analysis and Applications II"and Organizer of workshops at the 2008 American Control Conference, Seattle, WA, USA. 2008.

Chair of session "Analysis of Hybrid Systems" and co-chair of sessions "Autonomous Robots" and "Hybrid and Quantized systems" at the 47th IEEE Conference on Decision and Control, Cancun, Mexico, USA. 2008.

Chair of sessions "Stability of hybrid systems" and "Applications of control theories in discrete event and hybrid systems" at the 46th IEEE Conference on Decision and Control, New Orleans, LA, USA. 2007.

Co-chair of session "Hybrid systems" at the 45th IEEE Conference on Decision and Control, San Diego, CA, USA. 2006.

17 Academic and Service Work

Director, Cyber-Physical Systems Research Center (CPSRC). University of California, Santa Cruz. Spring Summer 2017-present.

Committee Member, Executive Committee for Monterey Bay, Education, Science and Technology Center (MBEST). University of California, Santa Cruz. Spring 2020-present.

Committee Member, Graduate Advisor to Electrical and Computer Engineering. University

of California, Santa Cruz. Fall 2019.

Search Committee Member, Graduate Advisor to Electrical and Computer Engineering. University of California, Santa Cruz. Fall 2019.

Search Committee Member, CITRIS Assistant Director. University of California, Santa Cruz. Fall 2018.

Graduate Director, Electrical and Computer Engineering. University of California, Santa Cruz. Fall 2018-present.

Committee Member, Baskin School of Engineering Reshaping Committee. University of California, Santa Cruz. 2017-2018.

Reader for M.S. Project. Student: *Brad Thompson*. Department Computer Engineering, University of California, Santa Cruz. 2017.

Reader for M.S. Project. Student: *Sumukh Atreya*. Department Computer Engineering, University of California, Santa Cruz. 2017.

Reader for M.S. Project. Student: *Vijay Muthukumaran*. Department Computer Engineering, University of California, Santa Cruz. 2017.

Master Thesis Committee Member. Student: *Dawn Hustig-Schultz*. Department Computer Engineering, University of California, Santa Cruz. 2017.

Qualifying Exam Committee Member. Student: *Andres Perico*. Department of Mathematics, University of California, Santa Cruz. 2017.

Ph.D. Dissertation Committee Member. Student: *Siyang Qin*. Department Computer Engineering, University of California, Santa Cruz. 2017.

Reader for M.S. Project. Student: *Hsin-Liang Liu*. Department Computer Engineering, University of California, Santa Cruz. 2016.

Ph.D. Dissertation Committee Member. Student: *Steven Lessard*. Department Computer Engineering, University of California, Santa Cruz. 2016.

Ph.D. Dissertation Committee Member. Student: *Jeremy Coupe*. Department Computer Engineering, University of California, Santa Cruz. 2016.

Ph.D. Dissertation Committee Member. Student: *Christopher O'Donnell*. Department Computer Engineering, University of California, Santa Cruz. 2014.

Ph.D. Dissertation Committee Member. Student: *Sean Whitsitt*. Department of Electrical and Computer Engineering, University of Arizona. 2014.

Ph.D. Dissertation Committee Member. Student: *Diyang Chu*. Department of Electrical and Computer Engineering, University of Arizona. 2013.

Ph.D. Dissertation Committee Member. Student: *Francesco Fichera*. LAAS-CNRS, Toulouse, France. 2013.

Ph.D. Dissertation Committee Member. Student: *Gibin Gil*. Department of Aerospace and Mechanical Engineering, University of Arizona. 2013.

Ph.D. Dissertation Committee Member. Student: *Domagoj Tolic*. Department of Electrical and Computer Engineering, University of New Mexico. 2012.

Ph.D. Dissertation Committee Member. Student: *Joseph Dinius*. Program in Applied Mathematics, University of Arizona. 2012.

Ph.D. Dissertation Committee Member. Student: *Theresa Klein*. Department of Electrical and Computer Engineering, University of Arizona. 2011.

Ph.D. Dissertation Committee Member. Student: *Wei Wang*. Department of Electrical and Computer Engineering, University of Melbourne, Australia. 2011.

Master Thesis Committee Chair. Student: *Sean Phillips*. Department of Aerospace and Mechanical Engineering, University of Arizona. 2013.

Master Thesis Committee Chair. Student: *Alexander Jacobs*. Department of Electrical and Computer Engineering, University of Arizona. 2013.

Master Thesis Committee Chair. Student: *Xiaolu Tian*. Department of Aerospace and Mechanical Engineering, University of Arizona. 2013.

Master Thesis Committee Chair. Student: *Qin Shu*. Department of Aerospace and Mechanical Engineering, University of Arizona. 2012.

Master Thesis Committee Chair. Student: *Manuel Robles*. Department of Aerospace and Mechanical Engineering, University of Arizona. 2011.

Master Thesis Committee Member. Student: *Gunjan Maniar*. Department of Aerospace and Mechanical Engineering, University of Arizona. 2011.

Master Thesis Committee Member. Student: *Vince Glowacka*. Department of Aerospace and Mechanical Engineering, University of Arizona. 2009.

Graduate Study Program and Research Committee. Department of Aerospace and Mechanical Engineering, University of Arizona. 2009-present.

Shop Committee. Department of Aerospace and Mechanical Engineering, University of Arizona. 2009-present.

Arizona's Science, Engineering, and Mathematics Scholars (ASEMS) Mentor. Student: *Sheng-Shuan Yeh*. University of Arizona. 2012-2013, 2012-2014.

Arizona Assurance Mentor. Student: *Jasmine Thomas*. University of Arizona. 2013-2014.

Arizona Assurance Mentor. Student: *Phillip Mendoza*. University of Arizona. 2012-2013.

Arizona Assurance Mentor. Student: *Rafael Haro*. University of Arizona. 2011-2012.

Arizona Assurance Mentor. Student: *Austin Fox*. University of Arizona. 2011-2012.

Arizona Assurance Mentor. Student: *Aaron Jacobi*. University of Arizona. 2010-2011.

Arizona Assurance Mentor. Student: *Matthew Cartwright*. University of Arizona. 2010-2011.

Arizona Assurance Mentor. Student: *Carlos Lopez*. University of Arizona. 2009-2010.

Arizona Assurance Mentor. Student: *Sarah Ready*. University of Arizona. 2009-2010.

18 Outreach Activities

Lab demonstration involving Obstacle Avoidance using Model Predictive Control, Hybrid Systems Lab, University of California, Santa Cruz, CA. October 28, 2019.

Lab tour and demonstration, STEM Transfer Day, University of California, Santa Cruz, CA. April, 2019.

Lab tour and demonstration, STEM Transfer Day, University of California, Santa Cruz, CA. November 9, 2018.

Lab demonstration, Girls in Engineering, University of California, Santa Cruz, CA. July 7, 2018.

Lab tour and demonstration, Alumni Weekend, University of California, Santa Cruz, CA. April 28, 2018.

Lab tour and demonstration, STEM Transfer Day, University of California, Santa Cruz, CA. April 6, 2018.

Lab demonstration, Girls in Engineering, University of California, Santa Cruz, CA. July 13 and 18, 2017.

Presentation and lab demonstration, Society of Hispanic Professional Engineers, University of California, Santa Cruz, CA. May 30, 2017.

Lab tour and demonstration, MESA achievement day held by University of California, Santa Cruz, CA. April 22, 2017.

Presentations and demonstrations, Girls in Engineering, University of California Santa Cruz, CA. June 23 and 30, 2016.

Lab tour and demonstration, Alumni Weekend, University of California Santa Cruz, CA. April 4, 2016.

Lab tour and demonstration, MESA achievement day held by University of California, Santa Cruz, CA. March 5, 2016.

High School Internship, Catalina Foothills High School, University of Arizona, Tucson, AZ. Summer, 2014

Lab tour and demonstration, Phoenix Union High School students, University of Arizona, Tucson, AZ. November 5, 2013.

Lab tour and demonstration, Raytheon visitors, University of Arizona, Tucson, AZ. July 19, 2013.

Lab tours and demonstrations, Summer Engineering Camp, University of Arizona, Tucson, AZ. June, 2013.

Lab tour and demonstration, prospective AME graduate students during AME Recruitment Event for Fall 2013 candidates, University of Arizona, Tucson, AZ. March 22, 2013.

Lab tour and demonstration, prospective international undergraduate student through Recruitment-Retention/Outreach Office, University of Arizona, Tucson, AZ. March 22, 2013.

Lab tour and demonstration, AUVSI Chapter, University of Arizona, Tucson, AZ. March 21, 2013.

Lab tour and demonstration, Yuma Proving Grounds, University of Arizona, Tucson, AZ.

November 27, 2012.

Lab tours and demonstrations for High School Students, University of Arizona, Tucson, AZ. October 26 and 30, and November 10, 2012.

Lab tours and demonstrations for Freshmen, University of Arizona, Tucson, AZ. September 12, 13, 26, and 28, 2012.

Lab tours and demonstrations, Summer Engineering Academy, University of Arizona, Tucson, AZ. June 8, 15, and 22, and July 13, 2012.

Summer Research Internship for High School Students, University of Arizona, Tucson, AZ. June 4 - June 29, 2012.

Training Lecture on Control Engineering, Mathematics Engineering Science Achievement Program, University of Arizona, Tucson, AZ. August 27, 2011.

Advisor in NASA Space Grant for Undergraduate Student from the Society of Hispanic Professional Engineers (SHPE), University of Arizona, Tucson, AZ. Fall 2010 and Spring 2011.

Summer Research Internship for High School Students, University of Arizona, Tucson, AZ. June 6 - June 17, 2011.

Participation in Yong Latina Forum, Society of Hispanic Professional Engineers (SHPE), University of Arizona, Tucson, AZ. February 4, 2011.

Participation in Advancement of Latinos in Engineering Day, Society of Hispanic Professional Engineers (SHPE), University of Arizona, Tucson, AZ. February 4, 2011.

Summer Research Internship for High School Students, University of Arizona, Tucson, AZ. June 7 - June 18, 2010.

Training Lecture on Control Engineering, Mathematics Engineering Science Achievement Program, University of Arizona, Tucson, AZ. January 23, 2010.

Summer Research Internship for Undergraduate Students from the Society of Hispanic Professional Engineers (SHPE), University of Arizona, Tucson, AZ. Summer, 2009.

Visit to Palo Verde High Magnet School, Tucson, AZ. December 4, 2009.

Lab tour by Palo Verde High Magnet School students, University of Arizona, Tucson, AZ. October 2, 2009.

Lecture on Control Engineering to middle and high school students, Algebra Academy Program, University of Arizona, Tucson, AZ. June 30, 2009.

Training Lecture on Control Engineering to high school students, Summer Engineering Academy, University of Arizona, Tucson, AZ. June 24, 2009.

Training Lecture on Control Engineering to middle school students, Summer Engineering Robotics Camp, University of Arizona, Tucson, AZ. June 2 and 9, 2009.

19 News and Media Articles

[20] Article about "Test of Time" Award for Influential Paper. UC Santa Cruz NewsCenter, May 2020.

UCSC News

[19] Article about Current Converter, Inquiry @ UC Santa Cruz Research Magazine, 2019-2020.

UCSC News

[18] Article about new AFOSR Project: Center of Excellence on Assured Autonomy, University of California, Santa Cruz, Spring 2019.

UCSC News

[17] Landed AFOSR grant to improve autonomous flight through complex terrain. January, 2019.

UCSC News

[16] Article about the Cyber-Physical Systems Research Center first anniversary, University of California, Santa Cruz, Fall 2018.

BSOE News

[15] Video featuring the work on Robotics and Control, University of California, Santa Cruz, Fall 2018.

BSOE News

[14] Video featuring the work on Cyber-Physical Systems at our lab, University of California, Santa Cruz, Spring 2016.

BSOE News

[13] Article featuring our new NSF CPS project entitled Computationally Aware Cyber-Physical Systems, University of California, Santa Cruz, Fall 2015.

BSOE News

[12] Article featuring our research at the University of California, Santa Cruz, Fall 2014.

UCSC News

[11] SIAM press release the SIAM Control Theory Prize Award, Fall 2013.

SIAM Connect

[10] Article featuring SIAM Control Theory Prize Award, entitled UA Engineering's Ricardo Sanfelice Wins Global Award for Control Systems Modeling, Summer 2013.

Arizona Engineer Online

http://engr.arizona.edu/news/story.php?id=610

[9] Article featuring Star Award Educator of the Year, Fall 2012.

SHPE Magazine

http://www.nxtbook.com/nxtbooks/shpe/conference12/index.php#/44

[8] Article featuring NSF CAREER Award and AFOSR YIP Award, Spring 2012.

Arizona Engineer Online

http://www.engineering.arizona.edu/news/story.php?id=485

[7] Article featuring some research at the University of Arizona on UAVs/drones, Spring 2012.

FOX News

[6] Article featuring AFOSR YIP Award, Spring 2012.

Arizona Engineer Online

[5] Article featuring underwater robotics project at the Hybrid Dynamics and Control Lab (HDC Lab), Summer 2011.

UA News

[4] Arizona Engineer, College of Engineering, Spring 2011.

http://www.engineering.arizona.edu/news/printeditions/2011/AEspring2011.pdf

[3] Article featuring the HDC Lab, Spring 2011.

UA News

Product Design & Development

PhysOrg.com

Science News Daily

Science Blog

Robotics Trends

[2] Coverage of Southwest Workshop on Theory and Applications of Cyber-Physical Systems, College of Engineering, Spring 2011.

http://engr.arizona.edu/news/story.php?id=263

[1] University of Arizona Foundation, UA Engineering Communications Office, September 2009.

http://uafoundation.org/impact/articles/article_00040.shtml

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