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EDUCATION

Stanford University, Ph.D. in Mechanical Engineering, with Ph.D. Minor in Electrical Engineering, 2004.
Thesis: User-interfaces for hybrid systems: Analysis and design through hybrid reachability.
Advisor: Professor Claire J. Tomlin.

Stanford University, M.Sc. in Mechanical Engineering, 2000.

Princeton University, B.S.E. in Mechanical Engineering, 1998.

FELLOWSHIPS AND AWARDS

NSF Faculty Early CAREER Development Award, National Science Foundation, 2013.

AFRL Summer Faculty Fellowship, Air Force Office of Scientific Research, 2013.

Early Career Scholar Award, Peter Wall Institute for Advanced Studies, Univ. of British Columbia, 2008.

Interactive paper prize, IEEE Conference on Decision and Control, for “technical quality, originality, importance, and presentation at an interactive session,” 2006.

Best paper award, IEEE Workshop in Advanced Process Control and Industrial Applications, 2006.

Harry S. Truman Fellowship in National Security Science and Engineering, Sandia National Labs, 2006.

Science and Technology Policy Fellow, US National Academies, 2004.

Graduate Research Fellowship, National Science Foundation, 1998-2001.

George Bienkowski Memorial Award, Mechanical and Aerospace Engineering, Princeton University, 1998.

RESEARCH EXPERIENCE

Assistant Professor (tenure track), Electrical and Computer Engineering, University of New Mexico, Albuquerque, NM, 2011-present.

Assistant Professor (tenure track), Electrical and Computer Engineering, University of British Columbia, Vancouver, BC, 2006-2011. Adjunct Assistant Professor, 2011-present.

Postdoctoral Fellow, Critical Infrastructures, Sandia National Laboratories, Albuquerque, NM, 2005-2006.

Postdoctoral Associate, National Ecological Observatory Network, American Institute of Biological Sciences, Washington, DC, 2004-2005.

Postdoctoral Associate, Aeronautics and Astronautics, Stanford University, Stanford, CA, 2004.

Visiting Researcher, Computational Sciences, NASA Ames Research Center, Moffett Field, CA, 2000-2003.

Visiting Researcher, Guidance, Navigation, & Control, Honeywell Tech. Center, Minneapolis, MN, 2000.

TEACHING AND STUDENT SUPERVISION

COURSES TAUGHT

ECE 360 / ME 380, Introduction to Control Systems / Analysis and Design of Mechanical Control Systems, UNM: Undergraduate course in classical control. (Redeveloped course.) Taught 2012.

ECE 514, Nonlinear and Adaptive Control, UNM: Graduate course in nonlinear dynamical systems and control, adaptive systems, model reference control. Taught 2012, 2013.

EECE 568, Control Systems, UBC: Graduate course in linear dynamical systems, state-space models, time varying and time-invariant systems. (Redeveloped course.) Taught 2009.

EECE 571M, Nonlinear Systems and Control, UBC: Graduate course in nonlinear dynamical systems and control. Lyapunov stability, phase-plane analysis, Jacobian linearization, feedback linearization, sliding mode control, input-output stability. (Newly developed course.) Taught 2009, 2010.

EECE 571M, Introduction to Hybrid Systems and Control, UBC: Graduate course in hybrid systems. Stability, mixed logical dynamical systems, switched linear systems. (Newly developed course.) Taught 2007, 2008.

EECE 360, Systems and Control, UBC: Undergraduate course in classical control systems. Brief introduction to LTI state-space models. Taught 2006, 2007, 2008, 2010, 2011.

EECE 359, Signals and Systems, UBC: Undergraduate course in discrete-time and continuous-time signals and systems. Fourier Series and Fourier transform. Taught 2007, 2008, 2009, 2010.

GRADUATE AND POSTDOCTORAL STUDENT ADVISING

PhD students

Mr. Stalin Rios, PhD candidate, June 2013–present.

Ms. Kendra Lesser, PhD candidate, December 2011–present. AFRL Space Graduate Fellow, 2012.

Mr. Ahmad Ashoori, PhD candidate, September 2008–present. Co-supervised with M. McKeown, Neurology, UBC, 2011–present.

Mr. Shahab Kaynama, PhD. September 2008–August 2012. Co-supervised with I. Mitchell and G. Dumont, UBC, September 2011–August 2012. “*Scalable techniques for the computation of viable and reachable sets: Safety guarantees for high-dimensional linear time-invariant systems.*” Upon graduation, a Research Associate, Electrical Engineering and Computer Science, University of California at Berkeley.

Ms. Neda Eskandari, PhD candidate, January 2010–December 2011. Moved to another research field to complete PhD at UBC.

MSc and MEng students

Mr. Isaac Dean, MSc candidate, September 2012–May 2013.

Ms. Tasha Lovell Hammond, MSc candidate, January 2012–present.

Mr. Daniel Svenkeson, MSc candidate, September 2011–present.

Mr. Nikolai Matni, MSc (NSERC Fellow), September 2008–September 2010. “*Stability of switched systems with switching delay: Application to remote operation of aircraft under distributed control.*” Upon graduation, a doctoral candidate at Caltech, Control and Dynamical Systems.

Mr. Pouyan Taghipour Bibalan, MEng, January 2010–December 2011.

Postdoctoral students

Mr. Lakshminarayan Chinta Venkateswararao, Postdoctoral Associate, May 2009–November 2009. Co-supervised with M. McKeown, Neurology, UBC. Upon graduation, a Research Associate, Medical Biophysics, University of Toronto.

UNDERGRADUATE STUDENT ADVISING

Mr. Richard Hsu, Natural Sciences and Engineering Research Council of Canada (NSERC) Undergraduate Summer Research Assistant (USRA), May 2011 - August 2011.

Mr. Damien Quentin, September 2010 - May 2011.

Mr. Mo Chen, NSERC USRA, May 2010 - April 2011. Co-supervised with I. Mitchell.

Mr. Alexis Cheng, NSERC USRA, May 2010 - August 2011. Co-supervised with I. Mitchell.

Mr. Christopher Scott, September 2009 - May 2010.

Mr. Pouria Talebifard, NSERC USRA, May 2009 - August 2011. Co-supervised with M. McKeown.

Ms. Halleh Ghaderi, NSERC USRA, May 2008 - August 2008.

Ms. Ni Lei, January 2008 - September 2008.

Mr. Nikolai Matni, NSERC USRA, January 2006 - September 2007.

+16 other undergraduates advised as part of EECE 496 or APSC 479, Undergraduate Study, UBC.

FUNDING

US GRANTS

NSF Faculty Early CAREER Development Award. Formal methods for collaborative hybrid systems. **M. Oishi (PI)**. \$400,000, 2013–2018.

New Mexico NASA EPSCoR Research Enhancement Program. Assuring information availability in user-interfaces: Hybrid system observability for aerospace systems, **M. Oishi (PI)**. \$25,000, 2013–2014.

NSA Lablet in Science of Security, North Carolina State University, L. Williams (PI). Sub-project, “Studying Latency and Stability of Closed-Loop Sensing-Based Security Systems”, R. Dutta (PI), **M. Oishi**, \$172,222, 2012–2013.

MAJOR CANADIAN GRANTS

Note: Canadian federal research funding is based on total expenses for a single graduate student (including stipend, benefits, and overhead) of \$19,000/year.

Canadian Institute for Health Research (CIHR) Operating Grant, Dynamic striatal/cerebellar interactions in Parkinson’s disease. M. McKeown (PI), Z. Wang. **M. Oishi**, \$300,000, 2011–2014.

CIHR Emerging Team Grant: Alliances in Mobility in Aging, CIHR Team in Wheeled Mobility for Older Adults. W. Miller (PI), B. Sawatzky, I. Mitchell, **M. Oishi**, A. Mackworth, J. Little, L. Clarke, L. Demers, A. Mihailidis, J. Polgar, G. Birch, R. Kirby, F. Routhier, C. Smith. \$1,485,447, 2009–2015.

Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grant, Verification of hybrid human-automation systems. **M. Oishi (PI)**. \$105,000, 2009-2014.

Canada Foundation for Innovation (CFI) / BC Knowledge Development Fund, Smart wheelchair testbed for provably safe human-automation interaction. **M. Oishi (PI)**. \$191,373, 2008-2013.

NSERC Collaborative Health Research Projects, Closed-loop control of anesthesia. G. Dumont (PI), B. MacLeod, S. Schwartz, J. Ansermino, **M. Oishi**. \$392,400, 2008-2011.

Michael Smith Health Research Foundation, Monitoring and control of abnormal brain dynamics. M. J. McKeown (PI), Z. Wang, K. Murphy, **M. Oishi**, E. Cretu, S. Fels. \$222,000, 2007-2010.

NSERC Discovery Grant User-interfaces for hybrid control systems. **M. Oishi (PI)**. \$61,500, 2006-2009.

OTHER CANADIAN GRANTS

UBC Peter Wall Institute for Advanced Studies, Exploratory Workshop, Removing barriers and enabling individuals: Ethics, design, and use of assistive technologies. **M. Oishi (PI)**, I. Mitchell. \$17,500, 2009-2010.

BC Disabilities Health Research Network, Removing barriers and enabling individuals: Ethics, design, and use of assistive technologies. **M. Oishi (PI)**, M. Van der Loos, I. Mitchell. \$5,920, 2009-2010.

CIHR Emerging Team Grant: Alliances in Mobility in Aging, Letter of Intent. \$10,000, 2009-2010.

Vancouver Coastal Health Research Institute, Who, when, and how much? Patient-specific, dynamic monitoring and optimal dosing of medications in Parkinson's disease. M. McKeown (PI), Z. Wang, **M. Oishi**. \$29,650, 2008-2009.

National Parkinson Foundation, A failure of multi-tasking: The combination of postural perturbations and reaching puts Parkinson's disease subjects at risk for falling. M. Carpenter (co-PI), M. McKeown (co-PI), Z. Wang, **M. Oishi**. \$30,000, 2007-2010.

NSERC Research Tools and Infrastructure Augmented reality for controlling symptoms of Parkinson's disease. **M. Oishi (PI)**, M. McKeown, Z. Wang. \$15,104, 2007-2008.

INVITED PRESENTATIONS

"Towards provably correct design of human-automation systems: Hybrid system observability and reachability," Mechanical and Aerospace Engineering, Princeton University, May 2, 2013.

"Computing safety-based controllers via reachability analysis: Structure decomposition for LTI systems," Guidance, Navigation, and Control, Space Vehicles Directorate, Air Force Research Laboratory, November 16, 2011.

"Safety-based control of complex systems: Reachable sets for hybrid systems with human interaction," Computational Sciences, NASA Ames Research Center, October 21, 2011.

"Safety-based control of cyber-physical systems: Reachable sets for hybrid systems with human interaction," Mechanical Engineering, University of New Mexico, April 6, 2011.

"Assessing motor performance in Parkinson's disease: Applications of hybrid control theory," Computer Science Research Institute, Sandia National Laboratories, Albuquerque, NM, March 1, 2011.

"Switching restrictions for stability despite switching delay," Fields Institute Workshop on Hybrid Dynamical Systems, University of Waterloo, July 30, 2010.

"Removing barriers and enabling individuals: Ethics, design, and use of assistive technologies," Faculty Associates' Seminar, Peter Wall Institute for Advanced Studies, University of British Columbia, November 18, 2009.

“Modeling tracking behavior in Parkinson’s disease: Applications of hybrid control theory,” Biophysics Seminar, Simon Fraser University, September 22, 2008.

“Modeling social dynamics in animal groups: Applications of hybrid control theory,” Robotics, Controls, and Mechatronics Colloquium, University of Washington, April 6, 2007.

“Human interaction with complex systems: Applications of hybrid reachability,” Mechanical Engineering, University of British Columbia, February 28, 2007.

“Designing multi-objective controllers through reachability techniques,” IEEE Aerospace, Geoscience, and Remote Sensing Chapter of Vancouver, November 29, 2006.

“Hybrid reachable sets: Application to problems in power systems,” Weekly Assessment Group, National Infrastructure Simulation and Analysis Center, Sandia National Laboratories, January 9 2006.

“User-interfaces for hybrid systems: Analysis and design,” Aerospace Sciences Department, University of Colorado at Boulder, April 7, 2004.

“User-interaction with hybrid systems: Applications of hybrid reachability”, Center for Nonlinear Science, Los Alamos National Laboratories, November 2003.

“Verification and control of human-automation systems,” Santa Fe Institute, March 7, 2003.

“Verification of user-interfaces for hybrid systems,” Commercial Aircraft Group, Boeing, December 4, 2002.

SERVICE ACTIVITIES

WORKSHOP ORGANIZATION

Member, Program Committee, 2013 IEEE Multi-Conference on Systems and Control.

Publicity Chair, Organizing Committee, 2012 American Controls Conference, 2009–2012.

Organizer, *Removing barriers and enabling individuals: Ethics, design, and use of assistive technologies*, Peter Wall Institute for Advanced Studies, Exploratory Workshop, July 22-24, 2009. 38 attendees.

Organizer, *Removing boundaries: Challenges and opportunities in interdisciplinary research in assistive technologies*, Peter Wall Institute for Advanced Studies, Theme Development Workshop, February 21, 2009. 24 attendees.

Session chair or co-chair, American Controls Conference, IEEE Canadian Conference on Electrical and Computer Engineering, IEEE Systems, Man, and Cybernetics Conference.

TECHNICAL AFFILIATIONS

Vice-Chair, IEEE Control Systems Society, Vancouver Chapter, 2008-2011.

Faculty Associate: UNM Center for Biomedical Engineering, UBC Peter Wall Institute for Advanced Studies, UBC Institute for Computing, Information, and Cognitive Systems.

UNM Committees: (ECE Department) Undergraduate Curriculum, 2012. (Center for Academic Excellence and Leadership Development) UK Scholarships, 2012. (Faculty Senate) Undergraduate Committee, 2012.

UBC Committees: (ECE Department) Graduate Scholarships 2007-2011, Curriculum Reform, 2010-2011. (Faculty of Applied Science, UBC) Engineering Math, 2009-2010.

Advisory Boards (Faculty of Applied Science, UBC): Engineering Mentoring, Women in Engineering, 2006-2011.

Professional Engineer certification, Association of Professional Engineers and Geoscientists in British Columbia, 2010-2011.

Member: IEEE, AIAA, AAAI, ESA.

REVIEW

NSF Review Panel, *Control Systems*, 2012.

NSF Review Panel, *Energy, Power, and Adaptive Systems*, 2012.

NSERC Discovery Grant external reviewer, 2009–2011.

NSF Review Panel, *Power, Control, and Adaptive Networks*, 2007.

Technical reviewer for journals: *IEEE Transactions on Automatic Control*, *IEEE Transactions on Control Systems Technology*, *IEEE Transactions on Power Delivery*, *SIAM Journal on Control and Optimization*, *AIMS Networks and Heterogeneous Media*, *IEEE Transactions on Circuits and Systems: I*, *Journal of Applied Mathematics*, *International Journal of Robust and Nonlinear Control*, *IET Control Theory and Applications*, *Discrete Event Dynamic Systems*, *Transactions on Systems, Man, and Cybernetics: B*.

Technical reviewer for conferences: *IEEE Conference on Decision and Control (CDC)*, *American Control Conference (ACC)*, *Hybrid Systems: Computation and Control (HSCC)*, *International Federation of Automatic Control (IFAC) World Congress*, *IEEE International Symposium on Robot and Human Interactive Communication*, *IEEE Multiconference on Systems and Control (MSC)*, *IEEE Conference on Robotics and Automation (ICRA)*, *Dynamic Systems and Control Conference*, *IFAC Symposium on Nonlinear Control Systems*, *IFAC Symposium on System Identification*.

Westcoast Women in Science and Technology (WWEST) Funding reviewer, 2011.

OUTREACH

Vancouver Regional Science Fair judge, 2007, 2008.

Vancouver Math Challengers Regional Competition judge and invigilator, 2011.

PROFESSIONAL DEVELOPMENT

MENTORING

ADVANCE-ENG Coast-to-Coast Summit, Raleigh, NC, June 15-17, 2011.

ADVANCE Peer Mentoring Summit for Underrepresented Minority Women Engineering Faculty, Caltech, July 29-August 1, 2009.

Building Communities: A Networking Symposium for Women in Engineering in BC, Maple Ridge, BC, September 2007. Organizer and facilitator of *Mentoring Panel*.

Mentoring for Engineering Academia II, Banff International Research Station for Mathematical Innovation and Discovery, July 2007.

NSF Workshop for the Advancement and Retention of Underrepresented and Minority Engineering Educators, Washington, DC, March 2006.

TEACHING

Effectively Teaching International Students Across Disciplines, March 5, 2013.

Using Cooperative Group Structures and Related Approaches to Promote Your and Your Students' Active Teaching and Learning in Mathematics. Office of Support for Effective Teaching, UNM, September 10, 2012.

Designing Courses for Effective Student Learning. Office of Support for Effective Teaching, UNM, May 17-18, 2012.

Supervising Graduate Students: Maintaining Momentum. Teaching and Academic Growth, UBC, October 8, 2009.

The Right Question at the Right Time. Teaching and Academic Growth, UBC, May 28, 2008.

Faculty Instructional Skills Workshop. Teaching and Academic Growth, UBC, April 16-18, 2008.

GRANT WRITING

Publish and Flourish Faculty Writing Workshop, UNM, September 9, 2011.

NSF CMMI CAREER Proposal Writing Workshop, March 26-27, 2012.

PUBLICATIONS

JOURNAL ARTICLES

- [1] S. Kaynama and M. Oishi, "A modified Riccati transformation for reduction of complexity in reachability analysis of linear time-invariant systems," *IEEE Transactions on Automatic Control*, to appear, November 2013.
- [2] N. Baradan, S. Tan, A. Liu, A. Ashoori, S. Palmer, Z. Wang, M. Oishi, and M. McKeown, "Parkinson's disease rigidity: Relation to brain connectivity and motor performance," *Frontiers in Movement Disorders*, accepted, May 2013.
- [3] I. Mitchell, S. Kaynama, M. Chen, and M. Oishi, "Safety preserving control synthesis for sampled data systems," *Nonlinear Analysis: Hybrid Systems*, accepted, January 2013.
- [4] K. Lesser and M. Oishi, "The reach-avoid problem for discrete time stochastic hybrid systems with imperfect state information," *Automatica*, submitted, January 2013.
- [5] J. Maidens, S. Kaynama, I. Mitchell, M. Oishi, and G. Dumont, "Lagrangian methods for computing the viability kernel in high-dimensional systems," *Automatica*, accepted, 2012.
- [6] A. Ashoori, M. McKeown, and M. Oishi, "Switched manual pursuit tracking tasks to measure motor performance in Parkinson's disease," *IET Control Theory and Applications*, vol. 5, no. 17, pp. 1970–1977, November 2011.
- [7] J. Stevenson, P. TalebiFard, E. Ty, M. Oishi, and M. McKeown, "Dyskinetic Parkinson's disease patients demonstrate motor abnormalities off medication," *Experimental Brain Research*, vol. 214, no. 3, pp. 471–479, October 2011.
- [8] M. Oishi, P. TalebiFard, and M. McKeown, "A linear dynamical system model of manual tracking performance in Parkinson's disease," *Annals of Biomedical Engineering*, vol. 39, no. 8, pp. 2263–2273, August 2011.
- [9] M. Oishi, N. Matni, A. Ashoori, and M. J. McKeown, "Switching restrictions for stability despite switching delay: Application to switched tracking tasks in Parkinson's disease," *Nonlinear Systems and Analysis*, vol. 2, no. 1–2, pp. 16–25, 2011, Special issue on hybrid systems.
- [10] J. K. R. Stevenson, M. Oishi, S. Farajian, E. Cretu, E. Ty, and M. J. McKeown, "Response to sensory uncertainty in Parkinson's disease: A marker of cerebellar dysfunction?" *European Journal for Neuroscience*, vol. 83, no. 2, pp. 298–305, February 2011.
- [11] S. Kaynama and M. Oishi, "Complexity reduction through a Schur-based decomposition for reachability analysis of linear time-invariant systems," *International Journal of Control*, vol. 84, no. 1, pp. 165–179, January 2011.
- [12] W. Au, N. Lei, M. Oishi, and M. McKeown, "L-dopa induces underdamped motor responses in Parkinson's disease," *Experimental Brain Research*, vol. 202, no. 3, pp. 553–559, May 2010.
- [13] M. Oishi, I. Mitchell, A. M. Bayen, and C. J. Tomlin, "Invariance-preserving abstractions of hybrid systems: Application to user interface design," *IEEE Transactions on Control System Technology*, vol. 16, no. 2, pp. 229–244, March 2008.
- [14] A. Bayen, I. Mitchell, M. Oishi, and C. Tomlin, "Reachability analysis and controller synthesis for autopilot design," *AIAA Journal of Guidance, Control, and Dynamics*, vol. 30, no. 1, pp. 68–77, 2007.
- [15] R. Roughgarden, M. Oishi, and E. Ackay, "Reproductive social behavior: Cooperative games to replace sexual selection," *Science*, vol. 311, pp. 965–969, February 17 2006.

- [16] C. Tomlin, I. Mitchell, A. Bayen, and M. Oishi, “Computational techniques for the verification of hybrid systems,” *Proceedings of the IEEE*, vol. 91, no. 7, pp. 986–1001, 2003.

REFEREED CONFERENCE PAPERS

- [17] K. Lesser, M. Oishi, and R. Erwin, “Stochastic reachability for control of spacecraft relative motion,” in *Proceedings of the IEEE Conference on Decision and Control*, Florence, Italy, submitted, January 2013.
- [18] I. Mitchell, M. Chen, and M. Oishi, “Ensuring safety of nonlinear sampled data systems through reachability,” in *IFAC Conference on Analysis and Design of Hybrid Systems*, Eindhoven, NL, June 2012, pp. 108–114.
- [19] S. Kaynama, M. Oishi, I. Mitchell, and G. Dumont, “Fixed-complexity piecewise ellipsoidal representation of the continual reachability set based on ellipsoidal techniques,” in *Proceedings of the American Control Conference*, Montreal, QB, June 2012, pp. 2425–2430.
- [20] S. Kaynama, J. Maidens, M. Oishi, I. Mitchell, and G. Dumont, “Computing the viability kernel using maximal reachable sets,” in *Hybrid Systems: Computation and Control*, Beijing, China, April 2012, pp. 55–63.
- [21] S. Kaynama, M. Oishi, I. Mitchell, and G. Dumont, “Continual reachability set and its computation using maximal reachability techniques,” in *Proceedings of the IEEE Conference on Decision and Control*, Orlando, FL, December 2011, pp. 6110 – 6115.
- [22] N. Eskandari and M. Oishi, “Computing observable and predictable subspaces to evaluate user-interfaces of LTI systems under shared control,” in *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, Anchorage, AK, October 2011, pp. 2803 –2808, **Best Student Paper Award**.
- [23] N. Matni and M. Oishi, “Stability of switched block upper-triangular linear systems with bounded switching delay: Application to large distributed systems,” in *Proceedings of the American Control Conference*, San Francisco, CA, June 2011, pp. 1440–1445.
- [24] M. Oishi, P. Tagipour Bibalan, A. Cheng, and I. Mitchell, “Modeling and control of a powered wheelchair: Wall-following around a corner with infrared,” in *Proceedings of the Canadian Congress on Applied Mechanics*, June 2011.
- [25] M. Oishi, , A. Cheng, P. Tagipour Bibalan, and I. Mitchell, “Building a smart wheelchair on a flexible software platform,” in *Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) International Conference on Technology and Aging*, June 2011.
- [26] M. Oishi, A. Ashoori, and M. McKeown, “Mode detection in switched pursuit tracking tasks: Hybrid estimation to measure performance in Parkinson’s disease,” in *Proceedings of the IEEE Conference on Decision and Control*, Atlanta, GA, December 2010, pp. 2124–2130.
- [27] S. Kaynama and M. Oishi, “Overapproximating the reachable sets of LTI systems through a similarity transformation,” in *Proceedings of the American Control Conference*, Baltimore, MD, June 2010, pp. 1874–1879.
- [28] —, “Schur-based decomposition for reachability analysis and controller synthesis,” in *Proceedings of the IEEE Conference on Decision and Control*, Shanghai, China, December 2009, pp. 69–74.
- [29] N. Matni and M. Oishi, “Safety through reachability in nonlinear mixed-initiative systems,” in *Proceedings of the IEEE Conference on Decision and Control*, Shanghai, China, December 2009, pp. 5929–5934, **General Chairs’ Award for Interactive Papers**.

- [30] M. Oishi and N. Matni, “Towards provably safe control for smart wheelchairs,” in *Proceedings of the Association for the Advancement of Artificial Intelligence Symposium, AI in Eldercare*, Washington, DC, November 2008, pp. FS-08-02: 67–69.
- [31] N. Matni and M. Oishi, “Reachability-based abstraction for an aircraft landing under shared control,” in *Proceedings of the American Control Conference*, Seattle, WA, June 2008, pp. 2278–2284.
- [32] M. Oishi and E. May, “Addressing biological circuit simulation accuracy: Reachability for parameter identification and initial conditions,” in *Proceedings of the IEEE-NIH Life Science Systems and Applications*, Bethesda, MD, November 2007, pp. 152–155.
- [33] M. Oishi, I. Mitchell, C. Tomlin, and P. Saint-Pierre, “Computing viable sets and reachable sets to design feedback linearizing control laws under saturation,” in *Proceedings of the IEEE Conference on Decision and Control*, San Diego, CA, December 2006, pp. 3801–3807.
- [34] M. Oishi, I. Hwang, and C. Tomlin, “Immediate observability of discrete event systems with application to user-interface design,” in *Proceedings of the IEEE Conference on Decision and Control*, December 2003, pp. 2665–2672.
- [35] M. Oishi, I. Mitchell, A. Bayen, C. Tomlin, and A. Degani, “Hybrid verification of an interface for an automatic landing,” in *Proceedings of the IEEE Conference on Decision and Control*, Las Vegas, NV, December 2002, pp. 1607–1613.
- [36] M. Oishi, C. Tomlin, V. Gopal, and D. Godbole, “Addressing multiobjective control: Safety and performance through constrained optimization,” in *Hybrid Systems: Computation and Control*, ser. LNCS 2034, M. Di Benedetto and A. Sangiovanni-Vincentelli, Eds. Springer Verlag, March 2001, pp. 459–472.
- [37] M. Oishi and C. Tomlin, “Switching in nonminimum phase systems: Applications to a VSTOL aircraft,” in *Proceedings of the American Control Conference*, Chicago, IL, 2000, pp. 487–491.
- [38] —, “Switched nonlinear control of a VSTOL aircraft,” in *Proceedings of the IEEE Conference on Decision and Control*, vol. 3, Phoenix, AZ, 1999, pp. 2685–2690.

REFEREED TECHNICAL REPORTS

- [39] M. Oishi, A. Degani, and C. Tomlin, “Verification of hybrid systems: Application to user-interfaces,” NASA Ames Research Center, Moffett Field, CA, NASA Technical Memorandum 212803, 2003.

BOOKS

- [40] M. Oishi, I. Mitchell, and H. Van der Loos, Eds., *Design and use of assistive technology: Social, technical, ethical, and economic challenges*. New York: Springer, November 2010.

BOOK CHAPTERS

- [41] R. A. Cortez, D. Tolic, I. Palunko, N. Eskandari, M. Oishi, R. Fierro, and J. Wood, “A hybrid framework for user-guided prioritized search and adaptive target tracking via cooperative UAVs,” in *Intelligent and Autonomous Aerospace Systems*, ser. Progress in Astronautics and Aeronautics, J. Valasek, Ed. AIAA, 2012, to appear.
- [42] P. Danielson, H. Longstaff, R. Ahmad, H. Van der Loos, I. Mitchell, and M. Oishi, “Case study: An assistive technology ethics survey,” in *Design and use of assistive technology: Social, technical, ethical, and economic challenges*, M. Oishi, I. Mitchell, and H. Van der Loos, Eds. Springer, 2010, pp. 75–93.
- [43] C. Tomlin, I. Mitchell, A. Bayen, and M. Oishi, “Verification of hybrid systems,” in *Encyclopedia of Life Support systems*, H. Unbehauen, Ed. UNESCO-EOLSS, 2005, vol. 6:43:28:6, pp. 1–22.

- [44] C. J. Tomlin, I. M. Mitchell, A. M. Bayen, and M. M. Oishi, “Computational techniques for the verification and control of hybrid systems,” in *Multidisciplinary Methods for Analysis Optimization and Control of Complex Systems*, ser. Mathematics in Industry, V. Capasso, J. Prieaux, H.-G. Bock, F. Hoog, A. Friedman, W. Langford, H. Neunzert, W. R. Pulleyblank, T. Rusten, and A.-K. Tornberg, Eds. Springer Berlin Heidelberg, 2005, vol. 6, pp. 151–175. [Online]. Available: http://dx.doi.org/10.1007/3-540-27167-8_3
- [45] A. Degani, M. Oishi, and C. Tomlin, “Beyond the interface,” in *Taming HAL: Designing interfaces beyond 2001*, A. Degani, Ed. Palgrave MacMillan, 2004, pp. 256–274.

DISSERTATION

- [46] M. Oishi, “User-interfaces for hybrid systems: Analysis and design through hybrid reachability,” Ph.D. dissertation, Stanford University, Stanford, CA, January 2004.

UNREFEREED CONFERENCES AND TECHNICAL REPORTS

- [47] M. Oishi, “Towards switched control under input and state constraints,” in *Proceedings of the IEEE Canadian Conference on Electrical and Computer Engineering*, Vancouver, BC, April 2007, pp. 1622–1625.
- [48] —, “Recovery from error in flight management systems: Applications of hybrid reachability,” in *IEEE Advanced Process Control for Industry Conference*, Vancouver, BC, May 2006.
- [49] R. Roughgarden, M. Ackay, and M. Oishi, “Debating sexual selection and mating strategies,” *Science*, vol. 312, pp. 689–697, May 5 2006.
- [50] M. Oishi, “Human interaction with complex systems: Advances in hybrid reachability and control,” Sandia National Laboratories, Tech. Rep. SAND2006-5560, August 2006, 28 pages.
- [51] —, “Interface verification: Discrete abstractions of hybrid systems,” in *Lecture Notes in Artificial Intelligence 2371: Symposium on Abstraction, Reformulation, and Approximation*, S. Koenig and R. Holte, Eds. Kananaskis, AB: Springer-Verlag, August 2002, pp. 340–341.
- [52] M. Oishi and C. Tomlin, “Safe collision avoidance maneuvers using constrained optimization,” *Aeronautics and Astronautics*, Stanford University, Tech. Rep. SUDAAR 730, June 2001, 16 pages.