

Shreyas Sundaram

Associate Professor, School of Electrical and Computer Engineering, Purdue University

Contact Information

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Education

May 2009

PhD in Electrical Engineering

University of Illinois at Urbana-Champaign, Urbana, IL

Advisor: Prof. Christoforos N. Hadjicostis

Dissertation: Linear Iterative Strategies for Information Dissemination
and Processing in Distributed Systems

December 2005

MS in Electrical Engineering

University of Illinois at Urbana-Champaign, Urbana, IL

Advisor: Prof. Christoforos N. Hadjicostis

Thesis: Observers for Linear Systems with Unknown Inputs

May 2003

BASc in Computer Engineering

University of Waterloo, Waterloo, ON

Academic Appointments

August 2018 –

Associate Professor

School of Electrical and Computer Engineering
Purdue University

January 2015 –
August 2018

Assistant Professor

School of Electrical and Computer Engineering
Purdue University

April 2010 –
December 2014

Assistant Professor

Department of Electrical and Computer Engineering
University of Waterloo

July 2013 –
December 2013

Visiting Assistant Professor

Department of Electrical and Computer Engineering
Boston University

September 2009 –
March 2010

Postdoctoral Researcher

University of Pennsylvania
Supervisor: Prof. George J. Pappas

Research Interests

Dynamics, control, and estimation in distributed systems and networks; complex systems and network science; secure and fault-tolerant control; graph-theoretic analysis of large-scale systems; multi-agent systems; game theory.

Awards and Recognition

Research

- **Best Student Paper Award**, the 14th IEEE International Conference on Control and Automation, 2018. For paper: “Distributed Finite-Time Optimization.” Co-authors: Lisha Yao (student and lead author), Ye Yuan and Tao Yang.
- **National Science Foundation CAREER Award**, 2017. The NSF’s most prestigious award in support of early-career faculty who have the potential to serve as role models in research and education.
- **U.S. Air Force Summer Faculty Fellowship**, 2016.
- **Department of Electrical and Computer Engineering Research Award**, University of Waterloo, 2014. For outstanding research performance (given to one assistant professor and one associate professor every year).
- **University of Waterloo Outstanding Performance Award**, University of Waterloo, 2013. For outstanding contributions to scholarship and teaching (**given to top 10% of faculty at the University**).
- **IEEE Transactions on Automatic Control Outstanding Reviewer**, 2013, 2012. For outstanding contributions to reviewing papers submitted to the IEEE Transactions on Automatic Control, demonstrating a high degree of commitment to the professional community, and providing evidence of a high level of technical accomplishments in the field.
- **Faculty of Engineering Distinguished Performance Award**, University of Waterloo, 2012. For outstanding contributions to scholarship, teaching, and service during 2011.
- **Best Presentation Award**, the 11th ACM/IEEE Conference on Information Processing in Sensor Networks, 2012. For paper: “Closing the Loop: A Simple Distributed Method for Control over Wireless Networks” (presented by M. Pajic).
- **M. E. Van Valkenburg Graduate Research Award**, ECE Department, University of Illinois at Urbana-Champaign, 2009. For excellence in research in the areas of circuits, systems and computers.
- **Robert T. Chien Memorial Award**, ECE Department, University of Illinois at Urbana-Champaign, 2008. For excellence in research in the areas of communication and control.
- **Best Student Paper Award (finalist)**, American Control Conference, 2008. For paper: “Distributed Function Calculation via Linear Iterations in the Presence of Malicious Agents – Part II: Overcoming Malicious Behavior.”
- **Best Student Paper Award (finalist)**, American Control Conference, 2007. For paper: “Finite-Time Distributed Consensus in Graphs with Time-Invariant Topologies.”
- **Best Presentation in Session Awards**, IEEE Conference on Decision and Control, 2006; American Control Conference, 2008.

Teaching

- **Wilfred “Duke” Hesselberth Award for Teaching Excellence**, School of Electrical and Computer Engineering, Purdue University, 2017. Presented to one faculty member per year for teaching excellence.
- **Ruth and Joel Spira Outstanding Teacher Award**, School of Electrical and Computer Engineering, Purdue University, 2016. Presented to one faculty member per year who has excelled in teaching and inspiring students.
- **Ranked second in list of ‘most memorable teachers’ and course (ECE380) ranked second in list of favorite courses** by graduating ECE students, University of Waterloo, 2013.
- **Included on ‘List of Teachers Ranked as Excellent’**, Center for Teaching Excellence, University of Illinois at Urbana-Champaign, 2008, 2004. For being ranked as ‘Outstanding’ (Top 10%) on campus-wide listing of faculty and teaching assistants based on student evaluations.
- **Ernest A. Reid Fellowship Award**, ECE Department, University of Illinois at Urbana-Champaign, 2007. In recognition of commitment to engineering education, academic performance, research accomplishment, and as encouragement to pursue an academic career.
- **Mavis Memorial Fund Scholarship**, College of Engineering, University of Illinois at Urbana-Champaign, 2007. For demonstrating an aptitude for the instructional program, and as encouragement to pursue an academic career.
- **Harold L. Olesen Award (nominee)**, ECE Department, University of Illinois at Urbana-Champaign, 2005. Nominated by ECE students for outstanding effort in undergraduate teaching.

Publications

Note: My graduate student mentees are specified in bold in the author lists below.

Journal Papers Under Review

- JR1 H. Sreekumar, **A. R. Hota**, A. L. Liu, N. A. Uhan and S. Sundaram, “Equilibrium Strategies for Multiple Interdictors on a Common Network.” *European Journal of Operations Research*.
- JR2 D. Senejohnny, S. Sundaram, C. De Persis and P. Tesi, “Resilience against Misbehaving Nodes in Asynchronous Networks.” *Automatica*.
- JR3 **A. R. Hota** and S. Sundaram, “Controlling Human Utilization of Failure-Prone Systems via Taxes.” *IEEE Transactions on Automatic Control*.
- JR4 **A. Mitra** and S. Sundaram, “Resilient Distributed State Estimation for LTI Systems.” *Automatica*.
- JR5 **A. Mitra**, J. A. Richards, S. Bagchi and S. Sundaram, “Resilient Distributed State Estimation with Mobile Agents: Overcoming Time-Varying Measurements, Communication Losses, and Byzantine Adversaries’.” *Autonomous Robots*.
- JR6 **L. Ye**, **N. Woodford**, S. Roy and S. Sundaram, “On the Complexity and Approximability of Optimal Sensor Selection and Attack for Kalman Filtering.” *IEEE Transactions on Automatic Control*.
- JR7 **A. R. Hota** and S. Sundaram, “Game-Theoretic Vaccination Against Networked SIS Epidemics and Impacts of Human Decision-Making.” *IEEE Transactions on Control of Network Systems*.

Peer Reviewed Journal Papers

- J1 S. Sundaram and B. Ghahesifard, “Distributed Optimization Under Adversarial Nodes.” *IEEE Transactions on Automatic Control*. (To appear).
- J2 **A. Mitra** and S. Sundaram, “Distributed Observers for LTI Systems.” *IEEE Transactions on Automatic Control*. (To appear).
- J3 M. Pirani, E. Hashemi, A. Khajepour, B. Fidan, B. Litkouhi, S.-K. Chen and S. Sundaram, “Cooperative Vehicle Speed Fault Diagnosis and Correction.” *IEEE Transactions on Intelligent Transportation Systems*.
- J4 **M. Pirani, E. Moradi-Shahrivar**, B. Fidan and S. Sundaram, “Robustness of Leader-Follower Networked Dynamical Systems.” *IEEE Transactions on Control of Network Systems*. (To appear).
- J5 **A. R. Hota** and S. Sundaram, “Interdependent Security Games on Networks under Behavioral Probability Weighting.” *IEEE Transactions on Control of Network Systems*, vol. 5, no. 1, pp. 262 - 273, Mar. 2018.
- J6 **E. Moradi-Shahrivar, M. Pirani** and S. Sundaram, “Spectral and Structural Properties of Random Interdependent Networks.” *Automatica*, vol. 83, pp. 234 - 242, Sept. 2017.
- J7 **A. Chakrabarty**, R. Ayoub, S. H. Zak and S. Sundaram, “Delayed Unknown Input Observers for Discrete-Time Linear Systems with Guaranteed Performance.” *Systems & Control Letters*, vol. 103, pp. 9 - 15, May 2017.
- J8 **H. Zhang**, R. Ayoub and S. Sundaram, “Sensor Selection for Kalman Filtering of Linear Dynamical Systems: Complexity, Limitations and Greedy Algorithms.” *Automatica*, vol. 78, pp. 202 - 210, April 2017.
- J9 **E. Moradi-Shahrivar** and S. Sundaram, “The Game-Theoretic Formation of Interconnections Between Networks.” *IEEE Journal on Selected Areas in Communications: Special Issue on Game Theory for Networks*, vol. 35, no. 2, pp. 341 - 352, Feb. 2017.
- J10 **S. Birmiwal**, R. R. Mazumdar and S. Sundaram, “Pricing Schemes in Processor Sharing Systems.” *Telecommunication Systems*, vol. 63, no. 3, pp. 421 - 435, Nov. 2016.
- J11 **A. R. Hota**, S. Garg and S. Sundaram, “Fragility of the Commons under Prospect-Theoretic Risk Attitudes.” *Games and Economic Behavior*, vol. 98, pp. 135 - 164, July 2016.
- J12 **M. Pirani** and S. Sundaram, “On the Smallest Eigenvalue of Grounded Laplacian Matrices.” *IEEE Transactions on Automatic Control*, vol. 61, no. 2, pp. 509 - 514, Feb. 2016.
- J13 **E. Moradi-Shahrivar** and S. Sundaram, “The Strategic Formation of Multi-Layer Networks.” *IEEE Transactions on Network Science and Engineering*, vol. 2, no. 4, pp. 164 - 178, Oct.-Dec. 2015.
- J14 **H. Zhang, E. Fata** and S. Sundaram, “A Notion of Robustness in Complex Networks.” *IEEE Transactions on Control of Network Systems*, vol. 2, no. 3, pp. 310 - 320, Sept. 2015.
- J15 N. Jain, J. P. Koeln, S. Sundaram and A. G. Alleyne, “Hierarchical Decentralized Control of Large-Scale Variable-Refrigerant-Flow Systems in Buildings.” *Journal of Process Control*, vol. 24, no. 6, pp. 798-819, June 2014.
- J16 F. Yan, S. Sundaram, S. V. N. Vishwanathan, Y. Qi, “Distributed Autonomous Online Learning: Regrets and Intrinsic Privacy-Preserving Properties.” *IEEE Transactions on Knowledge and Data Engineering*, vol. 25, no. 11, pp. 2483 - 2493, Nov. 2013.
- J17 H. J. LeBlanc, **H. Zhang**, X. Koutsoukos and S. Sundaram, “Resilient Asymptotic Consensus in Robust Networks.” *IEEE Journal on Selected Areas in Communications: Special Issue on In-Network Computation*, vol. 31, no. 4, pp. 766 - 781, Apr. 2013.

- J18 M. Pajic, R. Mangharam, G. J. Pappas and S. Sundaram, “Topological Conditions for In-Network Stabilization of Dynamical Systems.” *IEEE Journal on Selected Areas in Communications: Special Issue on In-Network Computation*, vol. 31, no. 4, pp. 794 - 807, Apr. 2013.
- J19 S. Sundaram and C. N. Hadjicostis, “Structural Controllability and Observability of Linear Systems Over Finite Fields with Applications to Multi-Agent Systems.” *IEEE Transactions on Automatic Control*, vol. 58, no. 1, pp. 60-73, Jan. 2013.
- J20 S. Sundaram, S. Revzen and G. J. Pappas, “A Control-Theoretic Approach to Disseminating Values and Overcoming Malicious Links in Wireless Networks.” *Automatica*, vol. 48, no. 11, pp. 2894–2901, Nov. 2012.
- J21 S. Garg, S. Sundaram and H. D. Patel, “Robust Heterogeneous Data Center Design: A Principled Approach.” *ACM SIGMETRICS Performance Evaluation Review*, vol. 39, no. 3, pp. 28-30, December 2011.
- J22 M. Pajic, S. Sundaram, G. J. Pappas and R. Mangharam, “The Wireless Control Network: A New Approach to Control over Networks.” *IEEE Transactions on Automatic Control: Special Issue on Wireless Sensor and Actuator Networks*, vol. 56, no. 10, pp. 2305-2318, Oct. 2011.
- J23 S. Sundaram and C. N. Hadjicostis, “Distributed Function Calculation via Linear Iterative Strategies in the Presence of Malicious Agents.” *IEEE Transactions on Automatic Control*, vol. 56, no. 7, pp. 1495-1508, July 2011.
- J24 S. Sundaram and C. N. Hadjicostis, “Partial State Observers for Linear Systems with Unknown Inputs.” *Automatica*, vol. 44, no. 12, pp. 3126-3132, December 2008.
- J25 S. Sundaram and C. N. Hadjicostis, “Fault-Tolerant Convolution via Chinese Remainder Codes Constructed from Non-Coprime Moduli.” *IEEE Transactions on Signal Processing*, vol. 56, no. 9, pp. 4244-4254, September 2008.
- J26 S. Sundaram and C. N. Hadjicostis, “Distributed Function Calculation and Consensus using Linear Iterative Strategies.” *IEEE Journal on Selected Areas in Communications: Issue on Control and Communications*, vol. 26, no. 4, pp. 650-660, May 2008.
- J27 S. Sundaram and C. N. Hadjicostis, “Delayed Observers for Linear Systems with Unknown Inputs.” *IEEE Transactions on Automatic Control*, vol. 52, no. 2, pp. 334-339, Feb. 2007.
- J28 S. Sundaram and C. N. Hadjicostis, “Discussion on ‘A Comparison of Sliding Mode and Unknown Input Observers for Fault Reconstruction’.” *European Journal of Control*, vol. 12, no. 3, pp. 267-270, 2006.
- J29 S. Sundaram and C. N. Hadjicostis, “Error Detection and Correction in Switched Linear Controllers via Periodic and Non-Concurrent Checks.” *Automatica*, vol. 42, no. 3, pp. 383-391, March 2006.
- J30 S. Sundaram and C. N. Hadjicostis, “Comments on ‘Time-Delayed State Estimator for Linear Systems with Unknown Inputs’.” *International Journal of Control, Automation and Systems*, vol. 3, no. 4, pp. 646-647, December 2005.

Peer Reviewed Conference Papers

- C1 D. Senejohnny, S. Sundaram, C. De Persis and P. Tesi, “Resilience against misbehaving nodes in Self-triggered Coordination Networks.” *Proceedings of the IEEE Conference on Decision and Control*, Miami Beach, FL, 2018 (invited).
- C2 **N. Woodford** and S. Sundaram, “Sensor Selection and Attack for State Estimation of Linear Systems with Unknown Inputs.” *Proceedings of the IEEE Conference on Decision and Control*, Miami Beach, FL, 2018 (invited).

- C3 **K. Kuwarananchaoen** and S. Sundaram, “On the Location of the Minimizer of the Sum of Strongly Convex Functions.” Proceedings of the IEEE Conference on Decision and Control, Miami Beach, FL, 2018 (invited).
- C4 **A. Mitra** and S. Sundaram, “Estimating the State of a Dynamical Process using a Mobile Agent.” Proceedings of the IEEE Conference on Decision and Control, Miami Beach, FL, 2018.
- C5 **A. Mitra**, W. Abbas and S. Sundaram, “On the Impact of Trusted Nodes in Resilient Distributed State Estimation of LTI Systems.” Proceedings of the IEEE Conference on Decision and Control, Miami Beach, FL, 2018 (invited).
- C6 **L. Ye**, S. Roy and S. Sundaram, “A Graph-Theoretic Approach to Optimal Sensor Placement for Kalman Filtering.” Proceedings of the IEEE Conference on Decision and Control, Miami Beach, FL, 2018).
- C7 **A. Prasad**, H.-L. Choi and S. Sundaram, “Min-Max Tours for Task Allocation to Heterogeneous Agents.” Proceedings of the IEEE Conference on Decision and Control, Miami Beach, FL, 2018 (invited).
- C8 **A. R. Hota** and S. Sundaram, “Game-Theoretic Protection Against Networked SIS Epidemics by Human Decision-Makers.” Proceedings of the 2nd IFAC Workshop on Cyber-Physical and Human Systems, Miami, FL, December 2018.
- C9 L. Yao, Y. Yuan, S. Sundaram and T. Yang, “Distributed Finite-Time Optimization.” Proceedings of the 14th IEEE International Conference on Control & Automation, Anchorage, AK, June 2018 (Best Student Paper Award Winner).
- C10 S. Roy, M. Xue and S. Sundaram, “Graph-Theoretic Analysis of Estimators for Stochastically-Driven Diffusive Network Processes.” Proceedings of the American Control Conference, Milwaukee, WI, 2018 (to appear).
- C11 **L. Ye**, S. Roy and S. Sundaram, “On the Complexity and Approximability of Optimal Sensor Selection for Kalman Filtering.” Proceedings of the American Control Conference, Milwaukee, WI, 2018 (to appear).
- C12 **A. Mitra** and S. Sundaram, “Secure Distributed State Estimation of an LTI system over Time-varying Networks and Analog Erasure Channels.” Proceedings of the American Control Conference, Milwaukee, WI, 2018 (to appear).
- C13 **A. Mitra** and S. Sundaram, “Distributed Functional Observers for LTI Systems.” Proceedings of the IEEE Conference on Decision and Control, Melbourne, Australia, 2017 (to appear).
- C14 S. Sundaram, K. Kalyanam and D. W. Casbeer, “Pursuit on a Graph under Partial Information from Sensors.” Proceedings of the American Control Conference, pp. 4279 - 4284, Seattle, WA, May 2017.
- C15 D. Saldana, A. Prorok, S. Sundaram, M. F. M. Campos and V. Kumar, “Resilient Consensus for Time-Varying Networks of Dynamic Agents.” Proceedings of the American Control Conference, pp. 252 - 258, Seattle, WA, May 2017.
- C16 **A. R. Hota** and S. Sundaram, “Optimal Network Topologies for Mitigating Security and Epidemic Risks.” Proceedings of the 54th Annual Allerton Conference on Communication, Control, and Computing, pp. 1129 - 1136, Allerton, IL, 2016 (invited).
- C17 **A. Mitra** and S. Sundaram, “An Approach for Distributed State Estimation of LTI Systems.” Proceedings of the 54th Annual Allerton Conference on Communication, Control, and Computing, pp. 1088 - 1093, Allerton, IL, 2016 (invited).

- C18 **A. R. Hota**, A. A. Clements, S. Sundaram and S. Bagchi, “Optimal and Game-Theoretic Deployment of Security Investments in Interdependent Assets.” Proceedings of the Conference on Decision and Game Theory for Security, pp. 101 - 113, New York City, NY, Nov. 2016.
- C19 S. Sundaram and B. Ghahesifard, “Secure Local Filtering Algorithms for Distributed Optimization.” IEEE Conference on Decision and Control, pp. 1871 - 1876, Las Vegas, NV, Dec. 2016 (invited).
- C20 A. Chakrabarty, S. H. Zak and S. Sundaram, “State and Unknown Input Observers for Discrete-Time Nonlinear Systems.” IEEE Conference on Decision and Control, pp. 7111-7116, Las Vegas, NV, Dec. 2016.
- C21 **A. R. Hota** and S. Sundaram, “Controlling Human Utilization of Shared Resource Systems via Taxes.” IEEE Conference on Decision and Control, pp. 6984-6989, Las Vegas, NV, Dec. 2016.
- C22 S. Sundaram, “Ignoring Extreme Opinions in Complex Networks: The Impact of Heterogeneous Thresholds.” IEEE Conference on Decision and Control, pp. 979-984, Las Vegas, NV, Dec. 2016 (invited).
- C23 **A. Mitra** and S. Sundaram, “Secure Distributed Observers for a Class of Linear Time Invariant Systems in the Presence of Byzantine Adversaries.” IEEE Conference on Decision and Control, pp. 2709-2714, Las Vegas, NV, Dec. 2016 (invited).
- C24 **H. Zhang**, A. Chakrabarty, R. Ayoub, G. T. Buzzard and S. Sundaram, “Sampling-based Explicit Nonlinear Model Predictive Control for Output Tracking.” IEEE Conference on Decision and Control, pp. 4722-4727, Las Vegas, NV, Dec. 2016.
- C25 **A. R. Hota**, H. Honnappa and S. Sundaram, “The Superposition-Traffic Game.” Proceedings of NetEcon 2016, the 11th Workshop on the Economics of Networks, Systems and Computation, Juan-les-Pins, France, June 2016.
- C26 A. Chakrabarty, S. Sundaram, M. Corless, G. T. Buzzard, S. H. Zak, A. E. Rundell, “Distributed Unknown Input Observers For Interconnected Nonlinear Systems: Application To Gene Regulatory Networks.” Proceedings of the 35th American Control Conference, pp. 2478 - 2483, Boston, MA, 2016.
- C27 S. Sundaram and B. Ghahesifard, “Consensus-Based Distributed Optimization with Malicious Nodes.” Proceedings of the 53rd Allerton Conference on Communication, Control, and Computing, pp. 244 - 249, Allerton, IL, 2015.
- C28 **A. R. Hota** and S. Sundaram, “Interdependent Security Games under Behavioral Probability Weighting.” Proceedings of the Conference on Decision and Game Theory for Security, pp. 150-169, London, England, 2015.
- C29 **M. Pirani**, **E. Moradi-Shahrivar** and S. Sundaram, “Coherence and Convergence Rate in Networked Dynamical Systems.” Proceedings of the 54th IEEE Conference on Decision and Control, pp. 968 - 973, Osaka, Japan, 2015.
- C30 **H. Zhang**, R. Ayoub and S. Sundaram, “Sensor Selection for Optimal Filtering of Linear Dynamical Systems: Complexity and Approximation.” Proceedings of the 54th IEEE Conference on Decision and Control, pp. 5002 - 5007, Osaka, Japan, 2015.
- C31 **E. Moradi-Shahrivar**, **M. Pirani** and S. Sundaram, “Robustness and Algebraic Connectivity of Random Interdependent Networks.” Proceedings of the 5th IFAC Workshop on Distributed Estimation and Control in Networked Systems, pp. 252-257, Philadelphia, PA, 2015.
- C32 **H. Zhang**, R. Ayoub and S. Sundaram, “State Estimation for Linear Systems with Unknown Inputs: Unknown Input Norm-Observers and BIBOBS Stability.” Proceedings of the 34th American Control Conference, pp. 4186-4191, Chicago, IL, 2015.

- C33 **E. Moradi-Shahrivar** and S. Sundaram, “Multi-Layer Network Formation via a Colonel Blotto Game.” Proceedings of the 2nd IEEE Global Conference on Signal and Information Processing, pp. 838-841, Atlanta, GA, 2014.
- C34 **M. Pirani, T. Costa** and S. Sundaram, “Stability of Dynamical Systems on a Graph.” Proceedings of the 53rd IEEE Conference on Decision and Control, pp. 613-618, Los Angeles, CA, 2014.
- C35 S. Pequito, S. Kar, S. Sundaram and A. P. Aguiar, “Design of Communication Networks for Distributed Computation with Privacy Guarantees.” Proceedings of the 53rd IEEE Conference on Decision and Control, pp. 1370-1376, Los Angeles, CA, 2014.
- C36 **M. Pirani** and S. Sundaram, “The Spectrum of the Grounded Laplacian with Applications to Consensus with Stubborn Agents.” Proceedings of the 33rd American Control Conference, pp. 2160-2165, Portland, OR, 2014.
- C37 **A. R. Hota**, S. Garg and S. Sundaram, “Resource Sharing Games with Failure and Heterogeneous Risk Attitudes.” Proceedings of the 51st Annual Allerton Conference on Communication, Control, and Computing, pp. 535-542, Allerton, IL, 2013 (invited).
- C38 **E. Moradi-Shahrivar** and S. Sundaram, “Strategic Multi-Layer Network Formation.” Proceedings of CDC 2013, the 52nd IEEE Conference on Decision and Control, pp. 582-587, Florence, Italy, 2013.
- C39 M. Pajic, S. Sundaram and G. J. Pappas, “Stabilizability over Deterministic Relay Networks.” Proceedings of the 52nd IEEE Conference on Decision and Control, pp. 4018 - 4023, Florence, Italy, 2013.
- C40 A. Azim, S. Sundaram and S. Fischmeister, “An Efficient Periodic Resource Supply Model for Workloads with Transient Overloads.” Proceedings of ECRTS 2013, the 25th Euromicro Conference on Real-Time Systems, pp. 249-258, Paris, France, 2013.
- C41 H. J. LeBlanc, **H. Zhang**, S. Sundaram and X. Koutsoukos, “Resilient Continuous-Time Consensus in Fractional Robust Networks.” Proceedings of ACC 2013, the 32nd American Control Conference, pp. 1237-1242, Washington, DC, 2013.
- C42 **E. Fata**, S. L. Smith and S. Sundaram, “Distributed Dominating Sets on Grids.” Proceedings of ACC 2013, the 32nd American Control Conference, pp. 211-216, Washington, DC, 2013.
- C43 **H. Zhang** and S. Sundaram, “Robustness of Complex Networks with Implications for Consensus and Contagion.” Proceedings of CDC 2012, the 51st IEEE Conference on Decision and Control, pp. 3426-3432, Maui, Hawaii, 2012 (invited).
- C44 N. Jain, S. Sundaram and A. G. Alleyne, “Stability Analysis for Decentralized Control of Multi-Evaporator Vapor-Compression Cycle Systems.” Proceedings of CDC 2012, the 51st IEEE Conference on Decision and Control, pp. 7589 - 7595, Maui, Hawaii, 2012 (invited).
- C45 **H. Zhang** and S. Sundaram, “A Simple Median-Based Resilient Consensus Algorithm.” Proceedings of the 50th Annual Allerton Conference on Communication, Control, and Computing, pp. 1734-1741, Allerton, IL, 2012 (invited).
- C46 **S. Birmiwal**, R. R. Mazumdar and S. Sundaram, “Processor Sharing and Pricing Implications.” Proceedings of ITC 2012, the 24th International Teletraffic Congress, pp. 1-8, Krakow, Poland, 2012.
- C47 **H. Zhang** and S. Sundaram, “Robustness of Distributed Algorithms to Locally Bounded Adversaries.” Proceedings of ACC 2012, the 31st American Control Conference, pp. 5855-5861, Montreal, QC, 2012.
- C48 **S. Birmiwal**, R. R. Mazumdar and S. Sundaram, “Predictable Revenue Under Processor Sharing.” Proceedings of CISS 2012, the 46th Annual Conference on Information Sciences and Systems, pp. 1-6, Princeton, NJ, 2012 (invited).

- C49 M. Pajic, S. Sundaram, J. Le Ny, G. J. Pappas and R. Mangharam, “Closing the Loop: A Simple Distributed Method for Control over Wireless Networks.” Proceedings of IPSN 2012, the 11th ACM/IEEE Conference on Information Processing in Sensor Networks, CPSWeek, pp. 25-36, Beijing, China, 2012 (Best Presentation Award).
- C50 J. Chang, K. K. Venkatasubramanian, C. Enyioha, S. Sundaram, G. J. Pappas and I. Lee, “HMM-Based Characterization of Channel Behavior for Networked Control Systems.” Proceedings of HiCoNS 2012, the Conference on High Confidence Networked Systems, CPSWeek, pp, 11-19, Beijing, China, 2012.
- C51 H. LeBlanc, **H. Zhang**, S. Sundaram and X. Koutsoukos, “Consensus of Multi-Agent Networks in the Presence of Adversaries Using Only Local Information.” Proceedings of HiCoNS 2012, the Conference on High Confidence Networked Systems, CPSWeek, pp, 1-10, Beijing, China, 2012.
- C52 M. Pajic, S. Sundaram, G. J. Pappas and R. Mangharam, “Topological Conditions for Wireless Control Networks.” Proceedings of CDC 2011, The 50th IEEE Conference on Decision and Control and European Control Conference, pp. 2353-2360, Orlando, FL, Dec. 2011.
- C53 M. Pajic, S. Sundaram, G. J. Pappas and R. Mangharam, “Network Synthesis for Dynamical System Stabilization.” Proceedings of the 2011 Asilomar Conference on Signals, Systems and Computers, Nov 2011.
- C54 S. Garg, S. Sundaram and H. D. Patel, “Robust Heterogeneous Datacenter Design: A Principled Approach.” the 12th Workshop on Mathematical Performance Modeling and Analysis (MAMA), co-located with ACM SIGMETRICS, San Jose, CA, June 2011.
- C55 S. Sundaram, J. Chang, K. K. Venkatasubramanian, C. Enyioha, I. Lee, and G. J. Pappas, “Reputation-based Networked Control with Data-Corrupting Channels.” Proceedings of HSCC 2011, the 14th International Conference on Hybrid Systems: Computation and Control, pp. 291-300, Chicago, IL, April 2011.
- C56 M. Pajic, S. Sundaram, J. Le Ny, G. J. Pappas and R. Mangharam, “The Wireless Control Network: Synthesis and Robustness.” Proceedings of CDC 2010, The 49th Conference on Decision and Control, pp. 7576–7581, Atlanta, GA, 2010.
- C57 S. Sundaram, M. Pajic, C. N. Hadjicostis, R. Mangharam and G. J. Pappas, “The Wireless Control Network: Monitoring for Malicious Behavior.” Proceedings of CDC 2010, The 49th Conference on Decision and Control, pp. 5979 - 5984, Atlanta, GA, 2010. (invited).
- C58 S. Sundaram and C. N. Hadjicostis, “On the Time Complexity of Information Dissemination via Linear Iterative Strategies.” Proceedings of ACC 2010, The 29th American Control Conference, pp. 6789 - 6794, Baltimore, MD, 2010.
- C59 S. Sundaram and C. N. Hadjicostis, “Control of Quantized Multi-Agent Systems with Nearest Neighbor Rules: A Finite Field Approach.” Proceedings of ACC 2010, The 29th American Control Conference, pp. 1003 - 1008, Baltimore, MD, 2010 (invited).
- C60 S. Sundaram and C. N. Hadjicostis, “Information Dissemination in Networks Via Linear Iterative Strategies Over Finite Fields.” Proceedings of CDC/CCC 2009, The Joint 48th IEEE Conference on Decision and Control and 28th Chinese Control Conference, pp. 3781 - 3786, Shanghai, China, 2009 (invited).
- C61 S. Sundaram and C. N. Hadjicostis, “Linear Iterative Strategies for Transmitting Streams of Values Through Networks.” Proceedings of Med 2009, The 17th Mediterranean Conference on Control and Automation, pp. 106-111, Thessaloniki, Greece, 2009 (invited).
- C62 S. Sundaram and C. N. Hadjicostis, “Distributed Calculation of Linear Functions in Noisy Networks via Linear Iterations.” Proceedings of CDC 2008, The 47th IEEE Conference on Decision and Control, pp. 5462-5467, Cancun, Mexico, 2008.

- C63 S. Sundaram and C. N. Hadjicostis, “Distributed Function Calculation Via Linear Iterations in the Presence of Malicious Agents – Part I: Attacking the Network.” Proceedings of ACC 2008, The 27th American Control Conference, pp. 1350-1355, Seattle, WA, 2008.
- C64 S. Sundaram and C. N. Hadjicostis, “Distributed Function Calculation Via Linear Iterations in the Presence of Malicious Agents – Part II: Overcoming Malicious Behavior.” Proceedings of ACC 2008, The 27th American Control Conference, pp. 1356-1361, Seattle, WA, 2008 (Best Student Paper Award Finalist).
- C65 S. Sundaram and C. N. Hadjicostis, “Distributed Consensus and Linear Functional Calculation in Networks: An Observability Perspective.” Proceedings of the International Conference on Information Processing in Sensor Networks (IPSN) 2007, pp. 99-108, Cambridge, MA, 2007.
- C66 S. Sundaram and C. N. Hadjicostis, “Finite-Time Distributed Consensus in Graphs with Time-Invariant Topologies.” Proceedings of ACC 2007, the 26th American Control Conference, pp. 711-716, New York, NY, 2007 (Best Student Paper Award Finalist).
- C67 S. Sundaram and C. N. Hadjicostis, “Optimal State Estimators for Linear Systems with Unknown Inputs.” Proceedings of CDC 2006, the 45th IEEE Conference on Decision and Control, pp. 4763-4768, San Diego, CA, 2006.
- C68 S. Sundaram and C. N. Hadjicostis, “Designing Stable Inverters and State Observers for Switched Linear Systems with Unknown Inputs.” Proceedings of CDC 2006, the 45th IEEE Conference on Decision and Control, pp. 4105-4110, San Diego, CA, 2006.
- C69 S. Sundaram and C. N. Hadjicostis, “On Delayed Observers for Linear Systems with Unknown Inputs.” Proceedings of CDC/ECC 2005, the joint 44th IEEE Conference on Decision and Control and the European Control Conference 2005, pp. 7210-7215, Seville, Spain, 2005.
- C70 H. Eberle, N. Gura, S. Chang-Shantz, V. Gupta, L. Rarick and S. Sundaram, “A Public-key Cryptographic Processor for RSA and ECC.” Proceedings of the IEEE 15th International Conference on Application-Specific Systems, Architectures and Processors, pp. 98-110, Galveston, TX, 2004.

Book Chapters

- B1 **A. R. Hota**, A. A. Clements, S. Bagchi and S. Sundaram, “A Game-Theoretic Framework for Securing Interdependent Assets in Networks.” Game Theory for Security Risk Management: From Theory to Practice, Springer/Birkhauser series on Static & Dynamic Game Theory: Foundations and Applications (submitted).
- B2 S. Sundaram and C. N. Hadjicostis, “Non-Concurrent Error Detection and Correction in Switched Linear Controllers.” International Workshop on Hybrid Systems: Computation and Control (Series Lecture Notes in Computer Science, vol. 2993), pp. 585-599, Springer-Verlag, 2004.

Technical Reports

- TR1 **H. Zhang** and S. Sundaram, “Network Robustness: Diffusing Information Despite Adversaries.” Waterloo Institute for Complexity and Innovation, 2013.

Publications (Other)

- O1 K. Barton, N. Jain, S. Mastellone, Y. Sharon and S. Sundaram, “Symposium on Control and Modeling of Alternative Energy Systems.” IEEE Control Systems Magazine, vol. 30, no. 1, pp. 87-89, Feb. 2010.
- O2 D. Hoelzle, N. Jain and S. Sundaram, “American Control Conference Panel Discussion on the Academic Job Search.” ASME Dynamic Systems and Control Division Newsletter, pp. 2-3, July 2008.

Invited Talks

- IT1 “Fragility of the Commons: The Game-Theoretic Impacts of Human Decision-Making on Robustness of Shared Systems,” The 6th Midwest Workshop on Control and Game Theory, University of Michigan, April 22, 2017.
- IT2 “The Game-Theoretic Impacts of Human Decision-Making on Robustness and Security of Systems,” UTRC Invited Lectures on Control and Dynamical Systems, University of Maryland, October 21, 2016.
- IT3 “The Game-Theoretic Impacts of Human Decision-Making on Robustness and Security of Systems,” University of Washington, October 14, 2016.
- IT4 “Scalable Algorithms for Resilient Distributed Coordination in Large-Scale Networks,” Army Research Lab Workshop on Heterogeneity, Diversity and Resilience in Multi-Robot Systems, August 15, 2016.
- IT5 “The Strategic Formation of Multi-Layer Networks,” GRASP Seminar, University of Pennsylvania, July 9, 2015.
- IT6 “The Strategic Formation of Multi-Layer Networks,” The 4th Midwest Workshop on Control and Game Theory, Iowa State University, April 26, 2015.
- IT7 “The Strategic Formation of Multi-Layer Networks,” Control Seminar, University of Notre Dame, April 1, 2015.
- IT8 “The Strategic Formation of Multi-Layer Networks,” Decision and Controls Seminar, University of Illinois at Urbana-Champaign, February 24, 2015.
- IT9 “Spectral and Structural Properties of Graphs with Applications to Dynamics on Networks,” Controls Seminar, Royal Institute of Technology, Stockholm, Sweden, Thursday, November 6, 2014.
- IT10 “Spectral and Structural Properties of Graphs with Applications to Dynamics on Networks,” Banff Workshop on Optimal Cooperation, Communication and Learning in Decentralized Systems, Thursday, Oct 16, 2014.
- IT11 “Spectral and Structural Properties of Graphs with Applications to Dynamics on Networks,” Chemical Engineering Seminar, Queen’s University, Tuesday, October 8, 2014.
- IT12 “Structural Strong Observability of Networks with Applications to Resilient Information Diffusion,” Workshop on Controlling Complex Networks, International School and Conference on Network Science, Berkeley, California, Monday, June 2, 2014.
- IT13 “Robustness of Complex Networks,” Hybrid and Networked Systems Lab, Boston University, Boston, MA, November 15, 2013.
- IT14 “The Wireless Control Network: A New Approach for Control Over Networks,” Mitsubishi Research Electric Laboratories, Cambridge, MA, October 18, 2013.
- IT15 “Robustness of Complex Networks,” Control Networks Group Seminar, Massachusetts Institute of Technology, Cambridge, MA, September 12, 2013.
- IT16 “Robustness of Complex Networks with Implications for Consensus and Contagion,” University of Illinois Summer School on Networked Multi-Agent Systems, Urbana, IL, August 17, 2013.
- IT17 “Robustness of Complex Networks with Implications for Consensus and Contagion,” Banff Workshop on Asymptotics of Large Scale Interacting Networks, Banff, Alberta, Canada, February 27, 2013.
- IT18 “Robustness of Complex Networks with Implications for Consensus and Contagion,” Bellairs Workshop on Distributed Signal Processing, Barbados, February 20, 2013.

- IT19 “Robustness of Complex Networks with Implications for Consensus and Contagion,” Control Systems Seminar, University of Michigan, Ann Arbor, MI, November 30, 2012.
- IT20 “Robustness of Complex Networks with Implications for Consensus and Contagion,” Center for Information and Systems Engineering, Boston University, Boston, MA, November 16, 2012.
- IT21 “Robustness of Complex Networks with Implications for Consensus and Contagion,” BarabasiLab, Northeastern University, Boston, MA, November 14, 2012.
- IT22 “Robustness of Complex Networks: Reaching Consensus Despite Adversaries,” Guelph Biomathematics and Biostatistics Symposium, University of Guelph, Guelph, ON, June 7, 2012.
- IT23 “Robustness of Complex Networks: Reaching Consensus Despite Adversaries,” Fifth Biannual Meeting on Systems and Control Theory, University of Toronto, Toronto, ON, May 8, 2012.
- IT24 “Reaching Agreement in Complex Networks: Avoiding the Influence of Extreme Agents,” Waterloo Institute for Complexity and Innovation, Waterloo, ON, March 20, 2012.
- IT25 “The Wireless Control Network: A New Approach for Control Over Networks,” Control Seminar, University of Waterloo, Waterloo, ON, October 27, 2011.
- IT26 “Diffusing Information and Reaching Agreement in Networks: Convergence and Resilience,” Waterloo Institute for Complexity and Innovation, Waterloo, ON, September 27, 2011.
- IT27 “Using Structured System Theory to Identify Malicious Behavior in Distributed Systems,” Carnegie Mellon University (CyLab), Pittsburgh, PA, February 23, 2011.
- IT28 “Using Structured System Theory to Identify Malicious Behavior in Distributed Systems,” McGill University (Center for Intelligent Machines), Montreal, QC, October 27, 2010.
- IT29 “The Wireless Control Network: Stabilization and Security,” University of Toronto, Toronto, ON. September 13, 2010.
- IT30 “Structured System Theory and its Application to Information Dissemination in Distributed Systems,” Fourth Biannual Meeting on Systems and Control Theory, Queens University, Kingston, ON, May 15, 2010.
- IT31 “Linear Iterative Strategies for Information Dissemination and Processing in Distributed Systems,” Queens University, Kingston, ON. June 24, 2009.
- IT32 “Linear Iterative Strategies for Information Dissemination and Processing in Distributed Systems,” University of California at Santa-Barbara, Santa-Barbara, CA. June 1, 2009.
- IT33 “Linear Iterative Strategies for Information Dissemination and Processing in Distributed Systems,” University of Pennsylvania (GRASP Lab), Philadelphia, PA. May 22, 2009.
- IT34 “Linear Iterative Strategies for Information Dissemination and Processing in Distributed Systems,” Carnegie Mellon University (Robotics Institute), Pittsburgh, PA. May 5, 2009.

Patents

- P1 L. D. Rarick, S. C. Shantz and S. Sundaram, “Multiply execution unit for performing integer and XOR multiplication.” U.S. Patent 7139787, November 21, 2006. Licensed by: Sun Microsystems Inc. (computer hardware, information technology services), for use in on-chip cryptography in next-generation server platforms.

Research Funding

Grants Held at Purdue University

- GP1 **Title:** Algorithms for Secure and Distributed Mobile Intelligence, Surveillance, and Reconnaissance Platforms
Funding Source: Sandia National Laboratories
Role (Share): Co-PI (50%) **Total Funding:** \$198,016 **Period:** 2017 – 2019 (recommended)
- GP2 **Title:** SATC: The Impacts of Human Decision-Making on Security and Robustness of Systems
Funding Source: National Science Foundation (SaTC)
Role (Share): PI (34%) **Total Funding:** \$476,037 **Period:** 2017 – 2020
- GP3 **Title:** CAREER: Towards Secure Large-Scale Networked Systems: Resilient Distributed Algorithms for Coordination in Networks under Cyber Attacks
Funding Source: National Science Foundation (CAREER)
Role (Share): PI (100%) **Total Funding:** \$500,000 **Period:** 2017 – 2022
- GP4 **Title:** CRISP Type 2/Collaborative Research: Critical Transitions in the Resilience and Recovery of Interdependent Social and Physical Networks
Funding Source: National Science Foundation (CRISP)
Role (Share): Co-PI (30%) **Total Funding:** \$2,204,202 **Period:** 2017 – 2020
- GP5 **Title:** Collaborative Research: Algorithmic and Graph-Theoretic Approaches to Optimal Sensor Placement in Complex Dynamical Systems
Funding Source: National Science Foundation (CMMI)
Role (Share): PI (100%) **Total Funding:** \$244,598 **Period:** 2016 – 2019
- GP6 **Title:** Distributed and Self-Adaptive Mechanisms for Resilient, Fault-Tolerant Control of Large-Scale Systems
Funding Source: General Electric Corporation
Role (Share): PI (50%) **Total Funding:** \$242,790 **Period:** 2016 – 2017
- GP7 **Title:** Discrete Control of Dynamic Computing Systems
Funding Source: Intel Research Council Grant
Role (Share): PI (100%) **Total Funding:** \$30,000 **Period:** 2016 – 2016
- Total Funding at Purdue:** \$3,697,627 **My Share:** \$1,715,932

Grants Held at the University of Waterloo

- GW1 **Title:** Discrete Control of Dynamic Computing Systems
Funding Source: Intel Research Council Grant
Industrial Partner: Intel Corporation Strategic CAD Labs
Role (Share): PI (100%) **Total Funding:** \$60,000 **Period:** 2013 – 2014
- GW2 **Title:** An Optimization Algorithm for a Ride-Share Commuting System
Funding Source: NSERC Engage Program
Industrial Partner: Tangam Systems Inc.
Role (Share): PI (50%) **Total Funding:** \$25,000 **Period:** 2013
- GW3 **Title:** Cross-layer Resource Management for Cloud Computing Platforms
Funding Source: NSERC Strategic Grants Program
Industrial Partner: Blackberry
Role (Share): Co-PI (25%) **Total Funding:** \$557,400 **Period:** 2011 – 2014

- GW4 **Title:** Reaching Consensus in Complex Networks – Overcoming the Influence of Extreme Agents
Funding Source: Waterloo Institute for Complexity and Innovation
Role (Share): PI (100%) **Total Funding:** \$7,500 **Period:** 2011–2012
- GW5 **Title:** Mobile Manipulators and Heterogeneous Robot Networks
Funding Source: NSERC Research Tools and Instrumentation
Role (Share): Co-PI (25%) **Total Funding:** \$92,000 **Period:** 2011
- GW6 **Title:** A Holistic Approach to Security and Reliability in Networked Control Systems
Funding Source: NSERC Discovery Program
Role (Share): PI (100%) **Total Funding:** \$100,000 **Period:** 2010 – 2015

Total Funding at Waterloo: \$841,900 **My Share:** \$342,350

Student Supervision and Mentoring

Current Graduate Students

1. **Name:** Mustafa Abdallah
Program: PhD (Aug 2017 – present)
Topic: Impacts of Human Decision-Making on the Security of Interdependent Networks
Institution: Purdue University
2. **Name:** Kananart Kuwarananchaen
Program: PhD (Aug 2017 – present)
Topic: Resilient and Robust Methods for Distributed Online Learning
Institution: Purdue University
3. **Name:** Nathaniel Woodford
Program: MS (Aug 2017 – present)
Topic: Robust Sensor Placement for Filtering of Linear Systems
Institution: Purdue University
4. **Name:** Lintao Ye
Program: PhD (May 2017 – present)
Topic: Sensor Selection for Optimal Estimation of Dynamical Systems
Institution: Purdue University
5. **Name:** Amritha Prasad
Program: PhD (Aug 2016 – present)
Topic: Cooperative Control of Heterogeneous Autonomous Teams
Institution: Purdue University
6. **Name:** Aritra Mitra
Program: PhD (Aug 2015 – present)
Topic: Secure Distributed State Estimation for Dynamical Systems
Institution: Purdue University

Previous PhD Students

1. **Name:** Ashish Ranjan Hota
Program: PhD (Sep 2012 – July 2017)
Topic: Game-Theoretic Analysis of Interdependent Systems under Behavioral Decision-Making
Institution: Purdue University
Position upon graduation: Postdoctoral Researcher, ETH Zurich

2. **Name:** Ebrahim Moradi-Shahrivar
Program: PhD (2016)
Topic: Strategic and Stochastic Approaches to Modeling the Structure of Multi-Layer and Inter-dependent Networks
Institution: University of Waterloo
Position upon graduation: Postdoctoral Researcher, University of Waterloo
3. **Name:** Haotian Zhang
Program: PhD (2016)
Topic: Estimation and Control of Dynamical Systems with Applications to Multi-Processor Systems
Institution: University of Waterloo
Position upon graduation: Data Scientist, ecobee Inc.
4. **Name:** Sharad Birmiwal
Degree: PhD (2012)
Co-Supervisor: Ravi Mazumdar
Topic: Resource Management and Pricing in Networks
Position upon graduation: Engineer, Arista Networks

Previous Master's Students

1. **Name:** Jiazheng Li
Degree: MASC (2014)
Co-Supervisor: Siddharth Garg
Topic: Power-Aware Optimal Scheduling Policies for Heterogeneous Servers
Position upon graduation: Software Engineer at Sybase
2. **Name:** Mohammad Pirani
Degree: MASC (2014)
Topic: On Spectral Properties of the Grounded Laplacian Matrix
Position upon graduation: PhD student at University of Waterloo
3. **Name:** Elaheh Fata
Degree: MASC (2013)
Co-Supervisor: Stephen Smith
Topic: On Two Combinatorial Optimization Problems in Graphs: Grid Domination and Robustness
Position upon graduation: PhD student at MIT
4. **Name:** Thilan Costa
Degree: MASC (2012)
Topic: Scheduling Schemes Using Connective Stability
Position upon graduation: PhD student at University of Waterloo
5. **Name:** Haotian Zhang
Degree: MASC (2012)
Topic: Network Robustness: Diffusing Information Despite Adversaries
Position upon graduation: PhD student at University of Waterloo

Undergraduate Research Student Supervision

1. **Name:** Blake Wilson
Program (Year): Summer Undergraduate Research Fellowship (2017)
Topic: Pursuit-Evasion on Graphs

2. **Name:** Austin Xavier Hoffman
Program (Year): Undergraduate Research (2017)
Topic: Behavioral Experiments on Amazon MTurk to Infer Risk Attitudes
3. **Name:** Andrew Binder
Program (Year): Undergraduate Research (2017)
Topic: Multi-dimensional Distributed Optimization with Adversarial Nodes
4. **Name:** Tong Yao
Program (Year): Undergraduate Research (2017)
Topic: Analog Control Systems: Concepts and Laboratory Design
5. **Name:** Alexander Beard
Program (Year): Undergraduate Research (2016)
Topic: Modeling and Analysis of Dark Networks
6. **Name:** Zhaowei Wang
Program (Year): NSERC Undergraduate Student Research Assistantship (2012)
Topic: Locational Marginal Pricing in Power Networks
7. **Name:** Kartik Vamaraju
Program (Year): Undergraduate Research Assistantship (2012)
Topic: Complexity of Computing Graph Cohesiveness
8. **Name:** Kartik Ravi
Program (Year): ECE Independent Study Project (2012)
Topic: Infrastructure Development for Mobile Robotics Lab
9. **Name:** Sin Li
Program (Year): ECE Independent Study Project (2012)
Topic: Queuing Policies for Heterogeneous Servers
10. **Name:** Alexander Leung
Program (Year): Undergraduate Research Assistantship (2011)
Topic: Study of Cascading Failures in Power Grids
11. **Name:** Jesse Haber-Kucharsky
Program (Year): Undergraduate Research Assistantship (2011)
Topic: A Simulation Toolbox for Modeling Vehicle Platoons
12. **Name:** Jingxian Xu
Program (Year): Undergraduate Research Assistantship (2010-2011)
Topic: Formation and Resilience of Complex Networks
13. **Name:** Min Bai
Program (Year): Undergraduate Research Assistantship (2010)
Topic: Fault-Tolerant Flocking in Multi-Agent Systems

IEEE Student Team and Fourth Year Design Project Supervision

1. **Names:** Jesse Haber-Kucharsky, Elliott Van Hartingsveldt, Kevin Parc, Marc Morgan
Period: Fall 2011 - Winter 2013
Topic: Learning-Based Home Energy Management System
Awards: Best Overall Design Project Award at the ECE Design Symposium, University of Waterloo, 2013.

2. **Names:** Steven Yang, Webber Chen, Rishi Jiwrajka, Jared Eng and David Li
Period: Winter 2012 - Winter 2013
Topic: Pitch and Roll Stabilization for Helipads
Co-supervisor: Christopher Nielsen
3. **Names:** Aly Hirani, Nazanin Mottaghian, Lara Kuroukchi, Amanda Fisher and Richard Zwart
Period: Winter 2012 - Winter 2013
Topic: The Ultimate Crib
4. **Names:** Yulin Chen, Jin Tang and Dong Wang
Period: Winter 2012 - Winter 2013
Topic: An Online B2B Platform
5. **Names:** Ayush Gupta, Ankit Srivastava and James Chou
Period: Winter 2012 - Winter 2013
Topic: A 3-D Interface for Computer Aided Design
6. **Names:** Dominic Cheng, Min Bai, Jeffrey Erbrecht, Jiewon Ryu and Benny Zhang
Period: Fall 2011 - Winter 2013
Topic: A Distributed Robotics System
Co-supervisor: Stephen Smith
7. **Names:** YunQiao Xu, Donglin Wang, Jichen Zhou, Frank Sun and Sizhe Liu
Period: Spring 2011 - Winter 2012
Topic: Automatic Power Window Control System
8. **Names:** Abhishek Pandit, Leon Ng, Ivan Grabovickic, David Cao and Jun Liang Feng
Period: Spring 2011 - Winter 2012
Topic: Vehicular Cooperative Control System
Co-supervisor: Stephen Smith
9. **Names:** Kanishka Raajkumar, Craig Gurnik, James Thomson, Andrei Tulai and Nima Dehnashi
Period: Spring 2011 - Winter 2012
Topic: Sound Tracking Video Conferencing
10. **Names:** Zheng Han, Steve Wang, Michael Zeng and Rupinder Nirman
Period: Fall 2010 - Winter 2012
Topic: Wireless Home Automation System
11. **Name:** Shiva Bhardwaj, Pral Bhojak, Ali Jangda and Thebe Parsons
Program: IEEE Student Competition Team
Period: 2010 – 2011
Topic: Charge Controller Design for the Solar Suitcase
Co-supervisor: Siddharth Garg
Awards: **Second Place in IEEE Humanitarian Technology Challenge, 2011.**
12. **Name:** Ivan Camilo Salgado, Muhutareem Siddique and Humberto Adolfo Omana
Program: IEEE Student Competition Team
Period: 2010 – 2011
Topic: Solar Tracking and Charge Estimation for the Solar Suitcase
Co-supervisor: Siddharth Garg
Awards: **Third Place in IEEE Humanitarian Technology Challenge, 2011.**

PhD Committee Member

Year	Student Name	University	Supervisor(s)
2014	Andre Teixeira	KTH	Henrik Sandberg and Karl Henrik Johansson
2014	M. Hadi Zibaeenejad	U Waterloo	John Thistle
2014	Akramul Azim	U Waterloo	Sebastian Fischmeister
2014	Hadi Minoeei	U Waterloo	Chaitanya Swamy
2013	Nima Mousavi	U Waterloo	Mahesh Tripunitara
2011	Juan Carlos Munoz Guerrero	U Waterloo	Claudio Canizares and Kankar Bhattacharya

University of Waterloo MSc Thesis Reader

Year	Student Name	Supervisor(s)
2013	Aron Su	Andrew Heunis
2013	Talha Jawaid	Stephen Smith
2013	Nasser Barjesteh	Catherine Rosenberg and Ravi Mazumdar
2012	Rupali Jain	Kankar Bhattacharya and Claudio Canizares
2012	Amir-Reza Amini	Slim Boumaiza
2012	Hunter Song	Robert Gorbet
2012	Yining Liu	Daniel Davison
2012	Chuan Yu	Daniel Miller
2011	Adeel Akhtar	Christopher Nielsen
2010	Nasim Alsadat Shams	Daniel Davison

Courses Taught and Developed

- **ECE 695: Structure and Dynamics of Large-Scale Networks**, Purdue University (Spring 2016). Course evaluation score: 4.9 (out of 5).
- **ECE 301: Signals and Systems**, Purdue University (Fall 2015). Course evaluation score: 4.8 (out of 5).
- **ECE 483: Digital Control Systems Analysis and Design**, Purdue University (Spring 2015). Course evaluation score: 4.9 (out of 5).
- **ECE 606: Algorithm Design and Analysis**, University of Waterloo (Fall 2014). No course evaluation scores for this course.
- **ECE 380: Analog Control Systems**, University of Waterloo (Winter 2011, Winter 2012, Winter 2012, Winter 2013, Winter 2014). Course evaluation scores: 92, 94, 95, 90, 93 (out of 100).
- **ECE 686: Filtering and Control of Stochastic Linear Systems**, University of Waterloo (Winter 2013, Winter 2014). Course evaluation scores: 88, 87 (out of 100).
- **ECE 780T07: Fault Tolerant and Secure Control Systems**, University of Waterloo (Fall 2010, Fall 2011, Fall 2012). Course evaluation scores: 100, 96 (out of 100).
- **ECE 486: Control Systems**, University of Illinois at Urbana-Champaign (Fall 2008). Course evaluation: 'Outstanding' (top 10% campus-wide).

Service at Purdue University

Committees

- October 2015 – present: ECE Degree Merge Committee.
- September 2015 – present: ECE Undergraduate Curriculum Committee.
- January 2015 – present: ECE Graduate Admissions Committee (Automatic Control area).

Other University Service

- March 2015: Purdue Prospective Faculty Workshop, host.

Service at the University of Waterloo

Committees

- September 2012 – December 2014: **ECE Undergraduate Scholarships Officer.**
- February 2012 – December 2014: Waterloo Institute for Complexity and Innovation, **Executive Committee Member and Research Node Coordinator.**
- September 2011 – December 2014: ECE Graduate Student Scholarship Committee, **Member.**
- February 2011 – December 2014: ECE 380 Course Committee, **Member.**
- January 2011 – August 2014: Engineering Faculty Council (EFC), **Member.**
- December 2010 – December 2014: ECE Vision 2015 Research Committee, **Member.**

Other University Service

- July 2012: Waterloo Engineering Competition, **Judge.**
- April 2012: ECE Teaching Assistant ExpectATIONS Workshop, **Mentor.**
- Winter 2011: IEEE Humanitarian Design Competition, **Mentor.**
- 2010 – 2014: Fourth year design project, **Mentor.**

Professional Activities (External Service)

Journal Editorships

- 2016-2019: Automatica, **Associate Editor.**

Conference Program Committees and Editorships

- 2016-2018: 2018 American Control Conference, **Exhibits Chair.**
- 2016: 5th Midwest Workshop on Control and Game Theory, **Chair.**
- 2016: MobiHoc 2016, **Technical Program Committee Member.**
- 2016: NECSYS 2016, **Technical Program Committee Member.**
- 2015-2016: International Conference on Cyber-Physical Systems (ICCPS), CPSWeek, **Technical Program Committee Member.**
- 2015: IEEE Real Time Systems Symposium (RTSS), **Program Committee Member, Wireless Sensor Networks Track.**
- 2015-2017: Indian Control Conference, **International Program Committee Member.**

- 2015: NECSYS 2015, **Technical Program Committee Member**.
- 2013 – present: International Federation of Automatic Control (IFAC), **Technical Committee Member for Networked Control Systems**.
- 2012 – 2016: IEEE Control Systems Society, **Conference Editorial Board**.
- 2013 - 2014: HiCoNS 2014, **Publications Chair, Technical Program Committee Member**.
- 2013, 2014: GlobalSIP 2013, **Technical Program Committee Member**.
- 2013: MobiHoc 2013, **Technical Program Committee Member**.
- 2011 – 2012: HiCoNS 2012, the First Conference on High Confidence Networked Systems (General Chairs: S. Sastry and T. Basar), **Program Committee Member**.
- 2011 – 2012: Control and Robotics Symposium of the 2012 Canadian Conference on Electrical and Computer Engineering, **Associate Editor**.
- 2008 – 2009: First Symposium on Control and Modeling of Alternative Energy Systems, University of Illinois, **Co-Chair**.

Conference Reviewer

- 2007 – present: IEEE Conference on Decision and Control (CDC).
- 2008 – present: American Control Conference (ACC).
- 2012 – 2013: European Control Conference (ECC).
- 2012 – 2013: Conference on High Confidence Networked Systems (HiCoNS).
- 2011 – 2012: Canadian Conference on Electrical and Computer Engineering (CCECE).
- 2011 – 2012: IEEE Multiconference on Systems and Control (MSC).
- 2009 – 2012: International Federation of Automatic Control Workshop on Distributed Estimation and Control in Networked Systems (NecSys).
- 2009: Mediterranean Conference on Control and Automation (MED).
- 2009: IEEE International Symposium on Circuits and Systems (ISCAS).
- 2007: International Workshop on Principles of Diagnosis.
- 2006 – 2007: Allerton Conference on Communication, Control and Computing.
- 2006: International Workshop on Discrete Event Systems.

Session Chairing and Organization

- 2016: Conference on Decision and Control, **Session Chair** for “Output Regulation.”
- 2015: American Control Conference, **Session Chair** for “Stability of Linear Systems.”
- 2012: Allerton Conference on Communication, Control and Computing, **Session Chair** for “Sparse Graphical Models.”
- 2012: First Conference on High Confidence Networked Systems, **Session Chair** for “Power Systems Security.”
- 2011: Conference on Decision and Control, **Workshop Organizer** for “Control Systems Security: Challenges and Directions.”
- 2009: American Control Conference, **Session Co-Chair** for “Control of Communication Networks.”
- 2008: American Control Conference, **Session Co-Chair** for “Games and Decision Processes.”

Journal Reviewer

- 2005 – present: IEEE Transactions on Automatic Control.
- 2009 – present: Automatica.
- 2013 – present: IEEE Transactions on Control of Network Systems.
- 2014 – present: IEEE Transactions on Network Science and Engineering.
- 2012 - 2013: SIAM Journal on Control and Optimization.
- 2012: IEEE Transactions on Industrial Informatics.
- 2011 – 2012: IEEE Transactions on Control Systems Technology.
- 2005, 2009, 2011, 2012: European Journal of Control.
- 2011: Systems and Control Letters.
- 2011: IEEE Transactions on Communications.
- 2010 – 2011: ACM Transactions on Sensor Networks.
- 2010: IEEE Transactions on Systems, Man and Cybernetics, Part B.
- 2009: Asian Journal of Control.
- 2008: International Journal of Control.
- 2008: International Journal of Systems, Communications and Control.
- 2007: International Journal of Modeling, Identification and Control.
- 2007: IEEE Transactions on Signal Processing.
- 2005: IEEE Transactions on Circuits and Systems (I).

Reviewer for Granting Agencies

- 2011, 2014, 2015, 2016: U.S. National Science Foundation.
- 2010, 2013: National Sciences and Research Council of Canada.
- 2011 – 2012: Fonds de recherche du Quebec – Nature et technologies (FRQNT).
- 2011: U.S. Air Force Office of Scientific Research.