

Zhi-Hong Mao

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Research Interests

Networked and large-scale control systems: intelligent transportation systems, air traffic control, and electric power systems

Human-machine systems

Neural control and learning

Education

Ph.D. in Medical Engineering and Medical Physics, Harvard-MIT Division of Health Sciences and Technology, Cambridge, MA, 2006 (or as Ph.D. in Electrical and Medical Engineering, Massachusetts Institute of Technology, Cambridge, MA, 2005)

S.M. in Aeronautics and Astronautics, Massachusetts Institute of Technology, Cambridge, MA, 2000

M.Eng. with Honors in Intelligent Control and Pattern Recognition, Tsinghua University, Beijing, China, 1998

Dual Bachelor's Degrees with Honors in Automatic Control and Applied Mathematics, Tsinghua University, Beijing, China, 1995

Professional Experience

University of Pittsburgh, Pittsburgh, PA, 2005–present
Professor, 2018–present
William Kepler Whiteford Faculty Fellow, 2012–2019
Associate Professor, 2011–2018
Assistant Professor, 2005–2011

Teaching

ECE 1673: Linear Control Systems, Spring 2006–2013, 2015–2018

ECE/ME 2646: Linear System Theory, Fall 2006–2017

ECE 2680: Adaptive Control, Fall 2008, 2010, 2012, Spring 2014–2015, Fall 2016

ECE 3650: Optimal Control, Fall 2009, 2011, 2013–2015, 2017

BioE 2696/ECE 2695: Control Theory in Neuroscience, Spring 2009–2012 (with Aaron Batista)

ECE 1563: Signal Processing Laboratory, Spring 2011 (with Amro El-Jaroudi)

ECE/COE 1896: Senior Design Project, Spring 2013

Guest lectures in

ECE 1201: Electronic Measurements and Circuits Lab, Fall 2017 and Spring 2018

ENGR 1071: Electrical Power Transmission, Distribution and Grid Technologies, Summer 2013

ECE 2795: Special Topics in Electric Power: FACTS and HVDC Systems, Fall 2011

18-777: Large-Scale Dynamic Systems, Carnegie Mellon University, Fall 2011

Research Grants

1. *Institute for Cyber Law, Policy, and Security, University of Pittsburgh*: Pitt Cyber Accelerator Grant: A study on false data injection cyber-attacks in smart grid systems, \$10K, 9/2018–8/2019. Role: Co-PI. (PI: Bo Zeng)
2. *Electric Power Research Institute (EPRI)*: Inverter testing and modeling research, \$79K, 1/2016–12/2016. Role: Co-PI. (PI: Thomas McDermott)
3. *National Institutes of Health (R01 EB013174-03), Subcontract with UPMC Department of Neurological Surgery*: Biomimetic self-adhesive dry EEG electrodes, \$16K (subcontract), 1/2016–7/2016. Role: Subcontract PI. (PI: Mingui Sun)
4. *National Science Foundation (CNS-1544578)*: CPS: Synergy: Collaborative Research: Design and control of high-performance provably-safe autonomy-enabled dynamic transportation networks, \$213K (Pitt), 9/2015–8/2018. Role: PI. (Collaborating Institute—Lead: Massachusetts Institute of Technology; PI: Sertac Karaman)
5. *Air Force Research Laboratory*: Algorithms and applications for cognitive computing systems, \$300K, 8/2015–2/2018. Role: PI. (Founding PI: Yiran Chen)
6. *Air Force Research Laboratory*: The design of neuromorphic controller system built with memristor crossbars, \$750K, 2/2015–4/2018. Role: Co-PI. (PI: Hai Li)
7. *National Science Foundation (CNS-1422057)*: CSR: Small: OREO: Tri-layer optimization for power efficient OLED display, \$250K, 9/2014–8/2017. Role: PI. (Founding PI: Yiran Chen)
8. *Air Force Research Laboratory*: Neuromorphic computing engine with resistive crossbar architecture, \$118K, 9/2014–4/2015. Role: Senior Personnel. (PI: Hai Li)
9. *Henry L. Hillman Foundation*: DC-AMPS (Direct Current Architecture for Modern Power Systems), \$400K, 7/2014–6/2015. Role: Co-PI. (PI: Gregory Reed)
10. *Siemens Energy, Inc.*: Integration of renewables with HVDC under weak AC grid conditions, \$125K, 10/2013–9/2014. Role: Co-PI. (PI: Gregory Reed)

11. *Pitt-Ohio Express, Inc.*: Solar energy integration study for the Harmarville operational facility, \$50K, 8/2013–10/2014. Role: Co-PI. (PI: Gregory Reed)
12. *Central Research Development Fund, University of Pittsburgh*: Neurobiologically inspired intelligent control for the power grid, \$16K, 7/2013–6/2015. Role: PI
13. *FirstEnergy Corporation*: Electric power distribution modeling and simulation for feeder analytics and distributed energy resource integration, \$165K, 6/2013–12/2014. Role: Co-PI. (PI: Gregory Reed)
14. *National Collegiate Inventors and Innovators Alliance*: eButton: a wearable electronic device for dementia care, \$5K, 4/2013–12/2013. Role: Co-I. (PI: Mingui Sun)
15. *Mitsubishi Electric Corporation*: HVDC technology development, \$235K, 4/2013–8/2014. Role: Co-PI. (PI: Gregory Reed)
16. *National Science Foundation (CNS-1311706)*: CAREER: STT-RAM based memory hierarchy and management in embedded systems, \$450K, 9/2012–8/2018. Role: Senior Personnel. (PI: Hai Li)
17. *National Institutes of Health (R01 CA165255-01), Subcontract with UPMC Department of Neurological Surgery*: Wearable eButton for evaluation of energy balance with environmental context and behavior, \$203K (subcontract), 9/2012–8/2016. Role: Subcontract PI. (PI: Mingui Sun)
18. *National Energy Technology Laboratory–Regional University Alliance, Department of Energy*: Grid technologies collaborative, \$850K, 1/2012–12/2013. Role: Co-PI. (PI: Gregory Reed)
19. *National Institutes of Health (U54 EB007954-05), Subcontract with University of Cincinnati under POC-CENT (Point of Care Center for Emerging Neurotechnologies)*: Development and evaluation of a novel wireless EEG monitoring sensor, \$174K (subcontract), 7/2011–6/2014. Role: Subcontract Co-I. (Subcontract PI: Wenyan Jia; PI: Fred Beyette, University of Cincinnati)
20. *ABB, Inc.–Corporate Research Center*: Medium Voltage Direct Current (MVDC) technology development, \$155K, 1/2011–12/2013. Role: Co-PI. (PI: Gregory Reed)
21. *Commonwealth of Pennsylvania–Ben Franklin Technology Development Authority*: Interfaces of electric power and energy research commercialization program, \$600K, 1/2011–12/2012. Role: Co-PI. (PI: Gregory Reed)
22. *National Science Foundation (CMMI-0953449)*: CAREER: Evaluating capabilities of neural control in human-machine interaction, \$400K, 7/2010–6/2015. Role: PI
23. *National Science Foundation (CNS-0964079)*: CSR: Medium: Collaborative Research: Static pipelining, an approach for ultra-low power embedded processors, \$400K (Pitt), 5/2010–4/2014. Role: PI. (Founding PI at Pitt: Allen Cheng. Collaborating Institute—Lead: Florida State University; PI: David Whalley)
24. *Westinghouse Electric Company*: Smart grid interface control methodology development for integrated green energy resource management, \$200K, 1/2010–4/2011. Role: Co-PI. (PI: Gregory Reed)
25. *National Energy Technology Laboratory, Department of Energy*: Adaptive dynamic programming for optimization of fossil-energy power generation systems, \$171K, 6/2009–9/2011. Role: PI

26. *Commonwealth of Pennsylvania–Ben Franklin Technology Development Authority*: Future directions in energy research–technology interfaces of electric power, nuclear, mining engineering, \$700K, 1/2009–12/2010. Role: Co-PI. (PIs: Brian Gleeson and Gregory Reed)
27. *Bechtel Marine Propulsion Corporation*: Wireless sensing and control technology, \$58K, 1/2009–8/2010. Role: PI
28. *Health Future Foundation*: System identification and modeling approach to characterizing rigidity in Parkinson's disease, \$20K, 7/2008–6/2010. Role: Co-I. (PI: Rui-Ping Xia, Creighton University)
29. *U.S. Army SBIR Phase II, Subcontract with Energid Technologies*: Smart codec with telesurgery capabilities, \$40K (subcontract), 12/2007–11/2009. Role: Subcontract PI. (Subcontract Co-PI: Heung-No Lee; PI: David Askey, Energid Technologies)
30. *National Science Foundation (CMMI-0727256)*: Dimensionality reduction in the control of the human hand, \$195K, 9/2007–8/2010. Role: PI. (Co-PIs: Mingui Sun and Heung-No Lee)
31. *National Institutes of Health (U01 HL91736-01), Subcontract with UPMC Department of Neurological Surgery*: A unified sensor system for ubiquitous assessment of diet and physical activity, \$296K (subcontract), 8/2007–5/2013. Role: Subcontract PI. (PI: Mingui Sun)
32. *Central Research Development Fund, University of Pittsburgh*: Robot task learning inspired by human procedural learning, \$15K, 7/2006–6/2008. Role: PI

Publications

Refereed Journal Publications

- [J1] W.-H. Wen, G.-Y. Liu, Z.-H. Mao, W.-J. Huang, X. Zhang, H. Hu, J. Yang, and W. Jia. Toward constructing a real-time social anxiety evaluation system: exploring effective heart rate features. *IEEE Transactions on Affective Computing*, accepted for publication, 2018.
- [J2] A. Dallal and Z.-H. Mao. Sparse representation and classification of neural spikes using supervised dictionary learning. *Clinical Neurophysiology* 129(S1), e210-e211, May 2018.
- [J3] S. Mao, H. Wang, Z.-H. Mao, and M. Sun. A polygonal double-layer coil design for high-efficiency wireless power transfer. *AIP Advances* 8(5), 056631-1–056631-6, May 2018.
- [J4] S. Mao, H. Wang, Z.-H. Mao, and M. Sun. A miniature implantable coil that can be wrapped around a tubular organ within the human body. *AIP Advances* 8(5), 056629-1–056629-5, May 2018.
- [J5] S. Mao, H. Wang, Z.-H. Mao, and M. Sun. A double-helix and cross-patterned solenoid used as a wirelessly powered receiver for medical implants. *AIP Advances* 8(5), 056603-1–056603-6, May 2018.
- [J6] J. Dudik, J. Coyle, A. El-Jaroudi, Z.-H. Mao, M. Sun, and E. Sejdic. Deep learning for classification of normal swallows in adults. *Neurocomputing* 285, 1-9, April 2018.
- [J7] Q. Fu, J. Zhu, Z.-H. Mao, G. Zhang, and T. Chen. Online condition monitoring of onboard traction transformer core based on core losses calculation model. *IEEE Transactions on Industrial Electronics* 65(4), 3499-3508, April 2018.
- [J8] W. Jia, Y. Li, R. Qu, T. Baranowski, L. E. Burke, H. Zhang, Y. Bai, J. M. Mancinod, G. Xu, Z.-H. Mao, and M. Sun. Automatic food detection in egocentric images using artificial

intelligence technology. Public Health Nutrition, 1-12, doi: 10.1017/S1368980018000538, March 2018.

- [J9] P. Vasandani, B. Gattu, Z.-H. Mao, W. Jia, and M. Sun. Using a synchronous switch to enhance output energy of triboelectric nanogenerators. Nano Energy 43, 210-218, January 2018.
- [J10] P. Vasandani, Z.-H. Mao, W. Jia, and M. Sun. Relationship between triboelectric charge and contact force for two triboelectric layers. Journal of Electrostatics 90, 147-152, December 2017.
- [J11] S. Mao, H. Wang, C. Zhu, Z.-H. Mao, and M. Sun. Simultaneous wireless power transfer and data communication using synchronous pulse-controlled load modulation. Measurement 109, 316-325, October 2017.
- [J12] J. Xie, P. K. Meher, M. Sun, Y. Li, B. Zeng, and Z.-H. Mao. Efficient FPGA implementation of low-complexity systolic Karatsuba multiplier over $GF(2^m)$ based on NIST polynomials. IEEE Transactions on Circuits and Systems I: Regular Papers 64(7), 1815-1825, July 2017.
- [J13] P. M. Vasandani, B. Gattu, J. Wu, Z.-H. Mao, W. Jia, and M. Sun. Triboelectric nanogenerator using microdome-patterned PDMS as a wearable respiratory energy harvester. Advanced Materials Technologies 2(6), Article No. 1700014, doi: 10.1002/admt.201700014, June 2017.
- [J14] R. Xia, A. Muthumani, Z.-H. Mao, and D. Powell. Quantification of neural reflex and muscular intrinsic contributions to parkinsonian rigidity. Experimental Brain Research 234(12), 3587-3595, December 2016.
- [J15] P. M. Vasandani, Z.-H. Mao, W. Jia, and M. Sun. Design of simulation experiments to predict triboelectric generator output using structural parameters. Simulation Modeling Practice and Theory 68, 95-107, November 2016.
- [J16] R. Khanna, A. Barchowsky, A. A. Amrhein, W. E. Stanchina, G. F. Reed, and Z.-H. Mao. A linear model for characterizing transient behavior in wide bandgap semiconductor-based switching circuits. International Journal of Automation and Power Engineering 5, 1-16, doi: 10.14355/ijape.2016.05.001, 2016.
- [J17] V. Patel, M. Burns, Z.-H. Mao, N. E. Crone, and R. Vinjamuri. Linear and nonlinear synergies in grasping hand. Journal of Bioengineering and Biomedical Science 5(3), Article No. 163, doi: 10.4172/2155-9538.1000163 (8 pages), August 2015.
- [J18] J. Xie, P. K. Meher, and Z.-H. Mao. High-throughput digit-level systolic multiplier over $GF(2^m)$ based on irreducible trinomials. IEEE Transactions on Circuits and Systems II: Express Briefs 62(5), 481-485, May 2015.
- [J19] J. Xie, P. K. Meher, and Z.-H. Mao. Low-latency high-throughput systolic multipliers over $GF(2^m)$ for NIST recommended pentanomials. IEEE Transactions on Circuits and Systems I: Regular Papers 62(3), 881-890, March 2015.
- [J20] M. Sun, L. E. Burke, T. Baranowski, J. D. Fernstrom, H. Zhang, H.-C. Chen, Y. Bai, Y. Li, C. Li, Y. Yue, R. J. Sclabassi, Z.-H. Mao, and W. Jia. An exploratory study on a chest-worn computer for evaluation of diet, physical activity and lifestyle. Journal of Healthcare Engineering 6(1), 1-22, March 2015.
- [J21] J. Xie, P. K. Meher, and Z.-H. Mao. High-throughput finite field multipliers using redundant basis for FPGA and ASIC implementations. IEEE Transactions on Circuits and Systems I: Regular Papers 62(1), 110-119, January 2015.

- [J22] M. F. Lupu, M. Sun, F.-Y. Wang, and Z.-H. Mao. Information-transmission rates in manual control of unstable systems with time delays. *IEEE Transactions on Biomedical Engineering* 62(1), 342-351, January 2015.
- [J23] F. Zhu, S. Chen, Z.-H. Mao, and Q. Miao. Parallel public transportation system and its application in evaluating evacuation plans for large-scale activities. *IEEE Transactions on Intelligent Transportation Systems* 15(4), 1728-1733, August 2014.
- [J24] R. Vinjamuri, V. Patel, M. Powell, Z.-H. Mao, and N. Crone. Candidates for synergies: linear discriminants vs. principal components. *Computational Intelligence and Neuroscience*, Volume 2014, Article ID 373957, doi: 10.1155/2014/373957 (10 pages), July 2014.
- [J25] S. Huang, E. Feron, G. F. Reed, and Z.-H. Mao. Compact configuration of aircraft flows at intersections. *IEEE Transactions on Intelligent Transportation Systems* 15(2), 771-783, April 2014.
- [J26] R. Khanna, Q. Zhang, W. E. Stanchina, G. F. Reed, and Z.-H. Mao. Maximum power point tracking using model reference adaptive control. *IEEE Transactions on Power Electronics* 29(3), 1490-1499, March 2014.
- [J27] Q. Xu, H. Wang, Z. Gao, Z.-H. Mao, J. He, and M. Sun. A novel mat-based system for position-varying wireless power transfer to biomedical implants. *IEEE Transactions on Magnetics* 49(8), 4774-4779, August 2013.
- [J28] Q. Xu, Z. Gao, H. Wang, J. He, Z.-H. Mao, and M. Sun. Batteries not included: a mat-based wireless power transfer system for implantable medical devices as a moving target. *IEEE Microwave Magazine* 14(2), 63-72, March/April 2013.
- [J29] M. F. Lupu, M. Sun, R. Xia, and Z.-H. Mao. Rate of information transmission in human manual control of an unstable system. *IEEE Transactions on Human-Machine Systems* 43(2), 259-263, March 2013.
- [J30] G. F. Reed, B. M. Grainger, A. R. Sparacino, E. Taylor, and Z.-H. Mao. Ship to grid: medium-voltage DC concepts in theory and practice. *IEEE Power and Energy Magazine* 10(6), 70-79, November/December 2012.
- [J31] H. Kim, D. S. Har, Z.-H. Mao, M. Sun, and H.-N. Lee. Efficient joint source-channel decoding of multi-state Markov sequences. *IET Communications* 6(9), 1038-1044, June 2012.
- [J32] C.-C. Chang, T.-Y. Kuo, Y.-C. Lo, H.-N. Lee, D. Askey, and Z.-H. Mao. User-satisfaction based bandwidth allocation for transmission of multiple sources of human perceptual data. *Journal of the Franklin Institute* 349(3), 879-890, April 2012.
- [J33] F. Zhang, J. Liu, Z.-H. Mao, and M. Sun. Mid-range wireless power transfer and its application to body sensor networks. *Open Journal of Applied Sciences* 2(1), 35-46, March 2012.
- [J34] R. Xia and Z.-H. Mao. Progression of motor symptoms in Parkinson's disease. *Neuroscience Bulletin* 28(1), 39-48, February 2012.
- [J35] Y. Ma, J. Yang, L. Hui, Y. Li, Z.-H. Mao, and M. Sun. Novel hand motion tracking system. *Journal of Xidian University* 39(1), 79-85, 2012. (in Chinese)
- [J36] M. F. Lupu, E. Feron, and Z.-H. Mao. Influence of aircraft maneuver preference variability on airspace usage. *IEEE Transactions on Intelligent Transportation Systems* 12(4), 1446-1461, December 2011.

- [J37] Y. Sun, P. J. Hawrylak, Z.-H. Mao, and M. H. Mickle. A novel software radio defined passive RFID reading system with real-time collision resolution. *International Journal of Ad Hoc and Ubiquitous Computing* 8(4), 261-270, 2011.
- [J38] R. Vinjamuri, D. J. Weber, Z.-H. Mao, J. L. Collinger, A. D. Degenhart, J. W. Kelly, M. L. Boninger, E. C. Tyler-Kabara, and W. Wang. Towards synergy based brain machine interfaces. *IEEE Transactions on Information Technology in Biomedicine* 15(5), 726-736, September 2011.
- [J39] H. Zhang, L. Li, W. Jia, J. D. Fernstrom, R. J. Scلابassi, Z.-H. Mao, and M. Sun. Physical activity recognition based on motion in images acquired by a wearable camera. *Neurocomputing* 74(12-13), 2184-2192, June 2011.
- [J40] F. Zhang, S. A. Hackworth, W. Fu, C. Li, Z.-H. Mao, and M. Sun. Relay effect of wireless power transfer using strongly coupled magnetic resonances. *IEEE Transactions on Magnetics* 47(5), 1478-1481, May 2011.
- [J41] Y. Ma, Z.-H. Mao, W. Jia, C. Li, J. Yang, and M. Sun. Magnetic hand tracking for human-computer interface. *IEEE Transactions on Magnetics* 47(5), 970-973, May 2011.
- [J42] H.-N. Lee, S.-Y. Chung, C. Fragouli, and Z.-H. Mao. Network coding for wireless networks. *EURASIP Journal on Wireless Communications and Networking*, Volume 2010, Article ID 359475, doi: 10.1155/2010/359475 (2 pages), 2010. (Special Issue Editorial)
- [J43] L.-J. Zhang, Z. Shan, and Z.-H. Mao. An optimal-control based decision-making model and consulting methodology for services enterprises. *IEEE Transactions on Engineering Management* 57(4), 607-619, November 2010.
- [J44] M. H. Mahmood, C.-C. Chang, D. Jung, Z.-H. Mao, H. Lim, and H.-N. Lee. Throughput behavior of link adaptive 802.11 DCF with MUD capable access node. *AEU International Journal of Electronics and Communications* 64(11), 1031-1041, November 2010.
- [J45] C.-C. Chang, Z.-H. Mao, and H.-N. Lee. A fast BER evaluation method for LDGM codes. *Journal of the Franklin Institute* 347(7), 1368-1373, September 2010.
- [J46] R. Vinjamuri, M. Sun, C.-C. Chang, H.-N. Lee, R. J. Scلابassi, and Z.-H. Mao. Temporal postural synergies of the hand in rapid grasping tasks. *IEEE Transactions on Information Technology in Biomedicine* 14(4), 986-994, July 2010.
- [J47] Y. Ma, W. Jia, C. Li, J. Yang, Z.-H. Mao, and M. Sun. Magnetic hand motion tracking system for human-machine interaction. *Electronics Letters* 46(9), 621-623, April 2010.
- [J48] Y. Sun, P. J. Hawrylak, Z.-H. Mao, and M. H. Mickle. Collision resolution in ISO 18000-6c passive RFID. *Applied Computational Electromagnetics Society (ACES) Journal* 25(3), Special Issue: Computational and Experimental Techniques for RFID Systems and Applications, 239-262, March 2010.
- [J49] R. Vinjamuri, M. Sun, C.-C. Chang, H.-N. Lee, R. J. Scلابassi, and Z.-H. Mao. Dimensionality reduction in control and coordination of the human hand. *IEEE Transactions on Biomedical Engineering* 57(2), 284-295, February 2010.
- [J50] C.-C. Chang, Z.-H. Mao, and H.-N. Lee. MB iterative decoding algorithm on systematic LDGM codes: performance evaluation. *Signal Processing* 90(1), 373-377, January 2010.
- [J51] J. H. Yang, Z.-H. Mao, L. Tijerina, T. Pilutti, J. Coughlin, and E. Feron. Detection of driver fatigue caused by sleep deprivation. *IEEE Transactions on Systems, Man, and Cybernetics—Part A* 39(4), 694-705, July 2009. (IEEE SMC Society Andrew P. Sage Best Transactions Paper Award, 2010)

- [J52] Z.-H. Mao, H.-N. Lee, R. J. Scabassi, and M. Sun. Information capacity of the thumb and the index finger in communication. *IEEE Transactions on Biomedical Engineering* 56(5), 1535-1545, May 2009.
- [J53] R. Vinjamuri, D. J. Crammond, D. Kondziolka, H.-N. Lee, and Z.-H. Mao. Extraction of sources of tremor in hand movements of patients with movement disorders. *IEEE Transactions on Information Technology in Biomedicine* 13(1), 49-56, January 2009.
- [J54] K. Treleaven and Z.-H. Mao. Conflict resolution and traffic complexity of multiple intersecting flows of aircraft. *IEEE Transactions on Intelligent Transportation Systems* 9(4), 633-643, December 2008.
- [J55] Z.-H. Mao, D. Dugail, and E. Feron. Space partition for conflict resolution of intersecting flows of mobile agents. *IEEE Transactions on Intelligent Transportation Systems* 8(3), 512-527, September 2007.
- [J56] Z.-H. Mao and S. G. Massaquoi. Dynamics of winner-take-all competition in recurrent neural networks with lateral inhibition. *IEEE Transactions on Neural Networks* 18(1), 55-69, January 2007.
- [J57] Z.-H. Mao, D. Dugail, E. Feron, and K. Bilimoria. Stability of intersecting aircraft flows using heading change maneuvers for conflict avoidance. *IEEE Transactions on Intelligent Transportation Systems* 6(4), 357-369, December 2005.
- [J58] S. Jo, J. Yin, and Z.-H. Mao. Random neural networks with state-dependent firing neurons. *IEEE Transactions on Neural Networks* 16(4), 980-983, July 2005.
- [J59] E. Gelenbe, Z.-H. Mao, and Y.-D. Li. Function approximation by random neural networks with a bounded number of layers. *Differential Equations and Dynamical Systems* 12(1 and 2), 143-170, 2004.
- [J60] Z.-H. Mao, E. Feron, and K. Bilimoria. Stability and performance of intersecting aircraft flows under decentralized conflict avoidance rules. *IEEE Transactions on Intelligent Transportation Systems* 2(2), 101-109, June 2001.
- [J61] E. Frazzoli, Z.-H. Mao, J.-H. Oh, and E. Feron. Resolution of conflicts involving many aircraft via semidefinite programming. *AIAA Journal of Guidance, Control and Dynamics* 24(1), 79-86, February 2001.
- [J62] E. Gelenbe, Z.-H. Mao, and Y.-D. Li. Function approximation by spiked random networks. *IEEE Transactions on Neural Networks* 10(1), 3-9, January 1999.
- [J63] Z.-H. Mao, Y.-D. Li, and Z. Sun. Comments on "fuzzy systems approximation by frames (SISO case)". *Fuzzy Sets and Systems* 100, 373-375, November 1998.
- [J64] Z.-H. Mao, X. Zhang, and Y.-D. Li. On universal approximation capability of fuzzy systems. *Science in China (Series E, English version)* 41(1), 6-12, February 1998.
- [J65] T. Zhang, Z.-H. Mao, and S. Xia. A method to extract numeral string overlapping borders. *Chinese Information Journal* 12(2), 25-30, 1998. (in Chinese)
- [J66] Z.-H. Mao and Y. Lin. Extended random neural network model and its probability structure features. *Journal of Tsinghua University* 38(3), 100-103, 1998. (in Chinese)
- [J67] Z.-H. Mao, Y.-D. Li, and X. Zhang. Approximation capability of fuzzy systems using translations and dilations of one fixed function as membership functions. *IEEE Transactions on Fuzzy Systems* 5(3), 468-473, August 1997.
- [J68] L.-J. Zhang, Z.-H. Mao, and Y.-D. Li. Mathematical analysis of mutation operator in genetic algorithms and its improved strategy. *Journal of Electronics* 14(2), 154-158, April 1997.

Book Chapters

- [B1] K. Nixon, Y. Chen, Z.-H. Mao, and K. Li. User classification and authentication for MOBILE device based on gesture recognition. In *Network Science and Cybersecurity* (Editor: R. E. Pino), Springer, 125-135, 2014.
- [B2] R. Vinjamuri, W. Wang, M. Sun, and Z.-H. Mao. Application of linear and nonlinear dimensionality reduction methods. In *Principal Component Analysis* (Editor: P. Sanguansat), InTech–Open Access Publisher, Chapter 6, 107-128, 2012.
- [B3] E. Gelenbe, Z.-H. Mao, and Y.-D. Li. Deterministic computation with random G-networks. In *Fundamental Concepts in Computer Science* (Editors: E. Gelenbe and J.-P. Kahane), Imperial College Press, Chapter 4, 71-96, 2009.
- [B4] S. Jo and Z.-H. Mao. Basal ganglionic learning applied to control of an underactuated system. In *Neurocomputing Research Developments* (Editor: H. A. Svensson), Nova Science Publisher, Chapter 7, 181-200, 2008.

Refereed Conference Publications

- [C1] A. Zhang, K.-J. Wang, and Z.-H. Mao. Design and realization of Alzheimer’s Artificial Intelligence Technologies (AAIT) system. Proceedings of the 6th IEEE International Conference on Future Internet of Things and Cloud (FiCloud 2018), Barcelona, Spain, accepted for publication, August 2018.
- [C2] H. Al Hassan, T. Alharbi, S. A. Morello, Z.-H. Mao, and B. M. Grainger. Linear quadratic integral voltage control of islanded AC microgrid under large load changes. Proceedings of the IEEE 9th International Symposium on Power Electronics for Distributed Generation Systems (PEDG 2018), Charlotte, NC, USA, accepted for publication, June 2018.
- [C3] K.-J. Wang, A. Zhang, K. You, F. Chen, Q. Liu, Y. Liu, Z. Li, H.-W. Tung, and Z.-H. Mao. Ergonomic and human-centered design of wearable gaming controller using eye movements and facial expressions. Proceedings of the IEEE International Conference on Consumer Electronics-Taiwan (ICCE-TW 2018), Taichung, Taiwan, accepted for publication, May 2018.
- [C4] B. Cao, B. M. Grainger, X. Wang, Y. Zou, G. F. Reed, and Z.-H. Mao. Direct torque model predictive control of a poly-phase permanent magnet synchronous motor with current harmonic suppression and loss reduction. Proceedings of the IEEE Applied Power Electronics Conference (APEC 2018), San Antonio, TX, USA, 2460-2464, March 2018.
- [C5] K.-J. Wang and Z.-H. Mao. Learning and control of cooperative behaviors of wearable robot using inverse differential game. Proceedings of the 2017 International Symposium on Wearable Robotics (WeRob 2017), Houston, TX, USA, doi: 10.1109/WEROB.2017.8383841 (3 pages), November 2017.
- [C6] K.-J. Wang, K. You, F. Chen, Z. Huang, and Z.-H. Mao. Human-machine interface using eye saccade and facial expression physiological signals to improve the maneuverability of wearable robots. Proceedings of the 2017 International Symposium on Wearable Robotics (WeRob 2017), Houston, TX, USA, doi: 10.1109/WEROB.2017.8383845 (2 pages), November 2017.

- [C7] K.-J. Wang, L. Zhang, B. Luan, H.-W. Tung, Q. Liu, J. Wei, M. Sun, and Z.-H. Mao. Brain-computer interface combining eye saccade two-electrode EEG signals and voice cues to improve the maneuverability of wheelchair. Proceedings of the 15th IEEE/RAS-EMBS International Conference on Rehabilitation Robotics (ICORR 2017), London, UK, 1073-1078, July 2017.
- [C8] A. Barchowsky, J. P. Kozak, M. R. Hontz, W. E. Stanchina, G. F. Reed, Z.-H. Mao, and R. Khanna. Analytical and experimental optimization of external gate resistance for safe rapid turn on of normally off GaN HFETs. Proceedings of the IEEE Applied Power Electronics Conference (APEC 2017), Tampa, FL, USA, 1958-1963, March 2017.
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- [C56] E. Gelenbe, Z.-H. Mao, and Y.-D. Li. Function approximation by random neural networks with a bounded number of layers. Proceedings of the 17th European Simulation Multiconference, Nottingham, UK, 5-24, June 2003.
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- [C64] L.-J. Zhang, Z.-H. Mao, and Y.-D. Li. Mathematical analysis of mutation operator in genetic algorithms and its improved strategy. Proceedings of International Conference on Neural Information Processing, China, vol. 1, 267-270, 1995.
- [C65] L.-J. Zhang, Z.-H. Mao, and Y.-D. Li. An improved genetic algorithm based on combinatorial theory and fuzzy reasoning and its applications. Proceedings of International Conference on Neural Information Processing, Korea, 180-185, 1994.

Other Conference Publications

- [C66] W. Jia, H. Yu, J. Hu, Z.-H. Mao, H. Zhang, and M. Sun. Image-based food ategorization using deep learning API and secondary classification. Workshop on Innovative Technologies for Dietary Intakes Measurements (DietaryIntake 2018), London, UK, September 2018. (Abstract)
- [C67] D. Yuan, X. Hu, W. Jia, Z.-H. Mao, H. Zhang, and M. Sun. A novel instrument for rapid measurement of food volume and density. Workshop on Innovative Technologies for Dietary Intakes Measurements (DietaryIntake 2018), London, UK, September 2018. (Abstract)
- [C68] W. Jia, Y. Yang, T. Bucher, Z.-H. Mao, D. Yuan, H. Zhang, and M. Sun. Extended study on smartphone based dietary assessment without using a fiducial marker. Workshop on Innovative Technologies for Dietary Intakes Measurements (DietaryIntake 2018), London, UK, September 2018. (Abstract)
- [C69] K.-J. Wang, H.-W. Tung, Z. Huang, P. Thakur, M.-X. You, and Z.-H. Mao. EXGbuds: Universal wearable assistive device for disabled people to interact with the environment seamlessly. The 13th ACM/IEEE International Conference on Human-Robot Interaction (HRI 2018) Student Design Competition, Chicago, IL, USA, March 2018. (Abstract)
- [C70] K.-J. Wang, K. You, F. Chen, P. Thakur, M. Urich, S. Vhasure, and Z.-H. Mao. Development of seamless telepresence robot control methods to interact with the environment using physiological signals. The 13th ACM/IEEE International Conference on Human-Robot Interaction (HRI 2018) Student Design Competition, Chicago, IL, USA, March 2018. (Abstract)
- [C71] M. Sun, L. E. Burke, T. Baranowski, Z.-H. Mao, and W. Jia. Lifestyle-logging with the eButton—results from dietary and physical activity assessment studies. International Society of Behavioral Nutrition and Physical Activity (ISBNPA) Annual Meeting, Cape Town, South Africa, June 2016. (Abstract)
- [C72] K.-J. Wang, L. Zhang, M. Sun, and Z.-H. Mao. Awakening the force: decoding human intention through the coupling of EEG signal and saccade movement to control wearable devices. The 11th ACM/IEEE International Conference on Human-Robot Interaction (HRI 2016) Workshop on Intention Recognition in Human-Robot Interaction, Christchurch, New Zealand, March 2016.
- [C73] R. Xia, A. Muthumani, Z.-H. Mao, and D. Powell. Natural history of rigidity in Parkinson’s disease. Society for Neuroscience Annual Meeting, Chicago, IL, USA, October 2015. (Abstract)
- [C74] R. Xia, D. Powell, and Z.-H. Mao. Comparison of progression rate between neural and non-neural rigidity components in Parkinson’s disease. Society for Neuroscience Annual Meeting, Washington, DC, USA, November 2014. (Abstract)
- [C75] Y. Bai, N. Marco, W. Jia, H. Zhang, Z.-H. Mao, J. Zgibor, L. Burke, S. Albert, A. Newman, and M. Sun. Electronic platform for automatic short performance physical battery (SPPB) test. Biomedical Engineering Society (BMES) Annual Meeting, San Antonio, TX, USA, October 2014. (Abstract)
- [C76] Z.-H. Mao. Information-transmission rates in neural control of unstable systems. The 5th Annual World Congress of NeuroTalk, Nanjing, China, May 2014. (Abstract)

- [C77] Z.-H. Mao. Control theoretic methods in computational neuroscience. The 5th Annual World Congress of NeuroTalk, Nanjing, China, May 2014. (Abstract)
- [C78] K. Nixon, X. Chen, Z.-H. Mao, K. Li, and Y. Chen. The invisible shield: user classification and authentication for mobile device based on gesture recognition. Design Automation Conference (DAC 2013), Austin, TX, USA, June 2013. (Work-in-progress abstract)
- [C79] C.-C. Chang, H.-N. Lee, D. Askey, and Z.-H. Mao. User-satisfaction based bandwidth allocation for transmission of multiple sources of human perceptual data. The 1st International Conference on Engineering and Technology Innovation, Kenting, Taiwan, November 2011. (Abstract)
- [C80] M. F. Lupu, M. Sun, and Z.-H. Mao. Information capacity of human manual control of unstable systems. NSF Engineering Research and Innovation Conference, Atlanta, GA, USA, January 2011.
- [C81] R. Vinjamuri, D. Weber, J. Collinger, A. Degenhart, J. Kelly, E. Tyler-Kabara, M. Boninger, Z.-H. Mao, and W. Wang. Towards synergy based brain machine interfaces. Society for Neuroscience Annual Meeting, San Diego, CA, USA, November 2010. (Abstract)
- [C82] Y. Ma, W. Jia, C. Li, J. Yang, Z.-H. Mao, and M. Sun. A magnetic hand motion tracking system for human-machine interaction. The 11th Joint MMM (Magnetism and Magnetic Materials)-Intermag Conference, Washington, DC, USA, January 2010. (Digest)
- [C83] R. Vinjamuri, M. Sun, and Z.-H. Mao. A framework for extracting kinematic synergies of hand movement. NSF Engineering Research and Innovation Conference, Honolulu, HI, USA, June 2009.
- [C84] R. Vinjamuri, M. Sun, R. Sciabassi, and Z.-H. Mao. Temporal variation of postural synergies of the human hand during grasping. The 16th International Conference on Mechanics in Medicine and Biology, Pittsburgh, PA, USA, July 2008.
- [C85] R. Vinjamuri, D. Crammond, D. Kondziolka, and Z.-H. Mao. Extraction of neural sources from kinematic profiles of hand movement. NSF Engineering Research and Innovation Conference, Knoxville, TN, USA, January 2008.
- [C86] J. H. Yang, Z.-H. Mao, T. Pilutti, L. Tijerina, and E. Feron. Detection of human drowsiness in simulated driving: experimental design and preliminary results. The 4th Annual STISIM Drive User Group Meeting, Cambridge, MA, USA, October 2006.
- [C87] T. M. Ngo, Z.-H. Mao, and S. G. Massaquoi. Procedural learning of fourth order sequential dependencies. Society for Neuroscience Annual Meeting, Atlanta, GA, USA, November 2006. (Abstract)
- [C88] Z.-H. Mao and S. G. Massaquoi. Dynamics of winner-take-all competition in striatal networks and their role in Parkinsonian rest tremor and rigidity. Society for Neuroscience Annual Meeting, Washington DC, USA, November 2005. (Abstract)
- [C89] Z.-H. Mao and S. G. Massaquoi. A multi-input multi-output adaptive switching (MIMOAS) model of frontocortical and basal ganglionic interaction in procedural learning. Society for Neural Control of Movement Annual Meeting, Key Biscayne, FL, USA, April 2005. (Abstract)
- [C90] Z.-H. Mao, E. J. Lim, and S. G. Massaquoi. A model of "lower" cortico-basal ganglia-thalamocortical circuit function and dysfunction. Society for Neuroscience Annual Meeting, Orlando, FL, USA, November 2002. (Abstract)

Invited Presentations

Information transmission and learning in human-machine interaction, Tsinghua University, Beijing, China, 10/15/2016

Adaptive control with random G-networks, Imperial College London, UK, 9/22/2015

Information-transmission rates in neural control of unstable systems (with William Stanchina), Carnegie Mellon University, Pittsburgh, PA, USA, 2/11/2015

Information-transmission rates in neural control of unstable systems, the 5th Annual World Congress of NeuroTalk, Nanjing, China, 5/17/2014

Control theoretic methods in computational neuroscience, the 5th Annual World Congress of NeuroTalk, Nanjing, China, 5/17/2014

Control theory in neuroscience, Department of Electrical and Computer Engineering, Undergraduate Seminar, University of Pittsburgh, PA, USA, 4/1/2013

Tutorial: entropy and information theory, Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA, 6/12/2012

Control-theoretic approaches for the study of neural control of movement, Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA, 5/25/2012

The neural system for motor control, Carnegie Mellon University, Pittsburgh, PA, USA, 11/10/2011

Dimensionality reduction in control and coordination of the human hand, Rutgers, State University of New Jersey, USA, 3/9/2011

Traffic complexity of intersecting flows of aircraft under variations of pilot preferences in maneuver choice, Invited Session on Air Traffic Control Systems Theory, the 49th IEEE Conference on Decision and Control, Atlanta, GA, USA, 12/15/2010

Dimensionality reduction in control and coordination of the human hand, International Workshop on Biomedical System Design, San Jose, CA, USA, 11/11/2010

Dimensionality reduction in control and coordination of the human hand, Joint Seminar of Department of Bioengineering, Musculoskeletal Research Center, Department of Orthopaedic Surgery, and McGowan Institute for Regenerative Medicine, University of Pittsburgh, PA, USA, 9/30/2010

Introduction to control theory and applications, Department of Electrical and Computer Engineering, Undergraduate Seminar, University of Pittsburgh, PA, USA, 9/13/2010

Dimensionality reduction in control and coordination of the human hand, Stony Brook University (State University of New York at Stony Brook), NY, USA, 7/16/2010

Dimensionality reduction in control and coordination of the human hand, Georgia Institute of Technology, Atlanta, GA, USA, 4/24/2009

Conflict resolution and traffic complexity of intersecting flows of aircraft, Department of Civil and Environmental Engineering, University of Pittsburgh, PA, USA, 10/26/2007

Minimizing the impact of network latency in telesurgery, Energid Technologies Corporation, Cambridge, MA, USA, 10/2/2007

The l_1 -magic, Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA, 3/12/2007

Neural control of hand movement, IEEE Research Workshop, Pittsburgh, PA, USA, 11/10/2006

Basic concepts and principles of automatic control and neurocontrol, IEEE Engineering in Medicine and Biology Society, Pittsburgh, PA, USA, 11/9/2006

Modeling the role of the basal ganglia in motor control and learning, University of California, Los Angeles, CA, USA, 6/5/2006

Research in human motor control, Undergraduate Seminar, Department of Electrical and Computer Engineering, University of Pittsburgh, PA, USA, 9/19/2005

Dynamics of winner-take-all competition in recurrent neural networks with lateral inhibition, Graduate Seminar, Department of Electrical and Computer Engineering, University of Pittsburgh, PA, USA, 9/7/2005

Mentoring

Ph.D. Students Advised/Co-Advised

1. Dr. Hashim Al Hassan, Ph.D. in Electrical and Computer Engineering, 5/2014–12/2017 (major-advisor: Brandon Grainger). Dissertation: Fault protection and reduced-order modeling for secondary controller design of inverter-based microgrids. First employment: Switched Source
2. Prof. Ahmed Dallal, Ph.D. in Electrical and Computer Engineering, 9/2013–7/2017 (co-advisor: Yiran Chen). Dissertation: Safety and convergence analysis of intersecting aircraft flows under decentralized collision avoidance. First employment: Assistant Professor at University of Pittsburgh
3. Prof. Laura Wieserman, Ph.D. in Electrical Engineering, 9/2013–12/2016 (major advisor: Thomas McDermott). Dissertation: Developing a transient photovoltaic inverter model in OpenDSS using the Hammerstein-Wiener mathematical structure. First employment: Assistant Professor at University of Pittsburgh (Johnstown)
4. Dr. Qin hao Zhang, Ph.D. in Electrical Engineering, 1/2013–12/2015 (co-advisor: Gregory Reed). Dissertation: Adaptive control for solar power based DC microgrid system development. First employment: Bombardier

5. Dr. Shimeng Huang, Ph.D. in Electrical Engineering, 5/2010–8/2014 (defended in 7/2015) (co-advisor: Gregory Reed). Dissertation: Coordinated control of VSC based multi-terminal DC (VSC-MTDC) power grid. First employment: ANSYS
6. Prof. Jiafeng Xie, Ph.D. in Electrical Engineering, 5/2013–12/2014 (co-advisor: Pramod Kumar Meher, Nanyang Technological University, Singapore). Dissertation: Novel single and hybrid finite field multipliers over $GF(2^M)$ for emerging cryptographic systems. First employment: Assistant Professor at Wright State University
7. Prof. Ibrahim Atawi, Ph.D. in Electrical Engineering, 1/2010–4/2013. Dissertation: An advanced distributed control design for wide-area power system stability. First employment: Assistant Professor, now Dean of College of Engineering, University of Tabuk, Saudi Arabia
8. Dr. Mircea Lupu, Ph.D. in Electrical Engineering, 1/2010–4/2013. Dissertation: Human manual control as an information processing channel. First employment: Emerson Process Management Corporation and Adjunct Professor at University of Pittsburgh
9. Dr. Ang Li, Ph.D. in Electrical Engineering, 9/2010–12/2012 (co-advisor: Gregory Reed). Dissertation: Control system model for analysis of electricity market bidding process. First employment: Siemens Power Technologies International, now Constellation Energy
10. Prof. Ramana Vinjamuri, Ph.D. in Electrical Engineering, 9/2005–8/2008. Dissertation: Dimensionality reduction in control and coordination of the human hand. First employment: Postdoctoral Fellow at University of Pittsburgh Medical Center, now Assistant Professor at Stevens Institute of Technology

Ph.D. Students in Progress

1. Thamer Alharbi
2. Bojian Cao
3. Eduardo Dos Santos Diniz (co-advisor: Mingui Sun)
4. Brandon Jennings (co-advisor: Ahmed Dallal)
5. Jianan Jian (co-advisor: Bo Zeng)
6. Sami Mian
7. Datian Peng (Xi'an Jiaotong University; co-advisors: Qinke Peng and Bo Zeng)
8. Ker-Jiun Wang
9. Yandan Wang (major advisor: Hai Li)

Research-Track M.S. Students Advised/Co-Advised

1. Valentin Paquin, M.S. in Electrical and Computer Engineering, 9/2016–5/2018. Thesis: Mean-field analysis for model-based spiking networks
2. Jianan Jian, M.S. in Electrical and Computer Engineering, 9/2016–12/2017 (co-advisor: Bo Zeng). Thesis: Modeling of human motor control and its application in human interaction with machines. First employment: Continuing Ph.D. study with me
3. Jian-Yu Shen, M.S. in Computer Engineering, 1/2017–4/2017. Thesis: Optimizing power consumption for heart rate monitor application on Android platform. First employment: Amazon

4. Brian Doll, M.S. in Electrical Engineering, 1/2014–4/2015 (major advisor: Nitin Sharma). Thesis: Optimization of neuromuscular electrical stimulation to reduce muscle fatigue during isometric contractions. First employment: Westinghouse
5. Sinan Yigit, M.S. in Electrical Engineering, 5/2013–8/2014 (co-advisor: Gregory Reed). Thesis: Optimal controller design for more-electric aircraft power systems. First employment: Ph.D. study at Texas A&M University
6. Xiao Li, M.S. in Electrical Engineering, 1/2012–8/2013. Thesis: Stability analysis and control design for hybrid AC-DC more-electric aircraft power systems. First employment: State Grid Corporation of China
7. Qin hao Zhang, M.S. in Electrical Engineering, 9/2011–12/2012. Thesis: Maximum power point tracking in photovoltaic systems using model reference adaptive control. First employment: Continuing Ph.D. study with me
8. Jean-Marc Coulomb, M.S. in Electrical Engineering, 9/2011–12/2012 (co-advisor: Gregory Reed). Thesis: Stability analysis and optimal control for AC-DC power system with constant power load. First employment: Electricite de France
9. Benoit de Courreges D'Ustou, M.S. in Electrical Engineering, 9/2011–12/2012 (co-advisor: Gregory Reed). Thesis: Optimal control design for multiterminal HVDC. First employment: Electricite de France
10. Shama Huda, M.S. in Electrical Engineering, 9/2010–12/2011. Thesis: Robust low-rank matrix factorization with missing data by minimizing L_1 loss applied to collaborative filtering. First employment: Philips Respironics
11. Robert O'Connor, M.S. in Electrical Engineering, 9/2008–12/2010 (co-advisor: Gregory Reed). Thesis: Benefits of spatial smoothing for the integration of wind power. First employment: Ph.D. study at Aachen Institute for Advanced Study in Computational Science (AICES), RWTH Aachen, Germany
12. Ang Li, M.S. in Electrical Engineering, 9/2008–8/2010. Thesis: Comparison between model predictive control and PID control for water-level maintenance in a two-tank system. First employment: Continuing Ph.D. study with me
13. Mircea Lupu, M.S. in Electrical Engineering, 9/2008–12/2009. Thesis: Human strategies in the control of time critical unstable systems. First employment: Continuing Ph.D. study with me
14. James Cavanaugh, M.S. in Electrical Engineering, 9/2008–12/2009. Thesis: The effect of time delay on the human ability to control unstable systems. First employment: Bechtel Plant Machinery
15. Sushant Tare, M.S. in Electrical Engineering, 9/2007–4/2009. Thesis: Estimation of stretch reflex contributions of wrist using system identification and quantification of tremor in Parkinson's disease patients. First employment: ATI Allegheny Ludlum
16. Kyle Treleaven, M.S. in Electrical Engineering, 1/2007–12/2007. Thesis: Conflict resolution and traffic complexity of multiple intersecting flows of aircraft. First employment: Ph.D. study at Massachusetts Institute of Technology
17. Christopher Sprague, M.S. in Electrical Engineering, 9/2006–12/2007. Thesis: System identification of wrist stiffness in Parkinson's disease patients. First employment: Bechtel Marine Propulsion

Research-Track M.S. Students in Progress

1. Alexander Augenstein

M.B.A./M.S. Joint Degree Students Advised

1. Andrew Snyder, graduated in 8/2015 (M.B.A. advisor: Rabikar Chatterjee)
2. Nicholas Patino, graduated in 12/2014 (M.B.A. advisor: Rabikar Chatterjee)
3. Jonathan Baisch, graduated in 4/2013 (M.B.A. advisor: Rabikar Chatterjee)
4. B. Alexander Huber, graduated in 4/2013 (M.B.A. advisor: Rabikar Chatterjee)

Professional-Track M.S. Students Advised

1. Rasheed Alkawzan, graduated in 4/2018
2. Xiangyu Ding, graduated in 4/2018
3. Jingyu Wu, graduated in 4/2017
4. Xiong Qin, graduated in 4/2016
5. Yue Wang, graduated in 4/2016
6. Zhenyu Zhang, graduated in 4/2016
7. David Bobish, graduated in 12/2015
8. John Cosnek, graduated in 8/2015
9. Jared Niehenke, graduated in 8/2015
10. Benjamin Skrypski, graduated in 8/2015
11. Chaoyuan Ma, graduated in 4/2015
12. Sining Wang, graduated in 4/2015
13. Siyue Cheng, graduated in 12/2014
14. Chuhan Min, graduated in 12/2014
15. Jessica Burger, graduated in 4/2014
16. Bingyang Hu, graduated in 4/2014
17. Nathan Rabenold, graduated in 4/2014
18. Yiwen Fan, graduated in 12/2013
19. Denis Cunningham, graduated in 8/2013
20. Daniel Stough, graduated in 12/2012
21. Samuel Taggart, graduated in 12/2012
22. Nicholas Cormas, Jr., graduated in 12/2011
23. Thomas Barch, graduated in 12/2011
24. Nicholas Alexiades, graduated in 12/2010
25. Justin Mason, graduated in 12/2009
26. Scott Szymanski, graduated in 12/2009
27. R. Benjamin Allums, graduated in 8/2009
28. Erica Reinsel, graduated in 8/2009

Ph.D. Dissertation Committees (Total 78)

Shivam Swami (2018)

Irfan Khan (2018, Carnegie Mellon)

Yan Fang (2018)	Arnab Bhattacharya (2017)
Aidong Yan (2017)	Sicheng Li (2017)
Wen-Chyi Lin (2017)	Michael Rothfuss (2017)
Bo Luan (2017)	Pei Liu (2017)
Kara Bocan (2017)	Naji Alibeji (2017)
Ismail Bayram (2017)	Ali Alsuwaiyan (2017)
Enes Eken (2017)	Paresh Vasandani (2017)
Fei Lan (2017)	Ansel Barchowsky (2017)
Randy Lee (2017)	Poovaiah Palangappa (2017)
Jason Pickel (2016)	Andrew Whitford (2016)
Xiang Chen (2016)	Beiye Liu (2016)
Mengjie Mao (2016)	Iva Jestrovic (2016)
Nicholas Kirsch (2016)	Ari Pritchard-Bell (2016)
David Loucks (2015)	Robert Rasmussen (2015)
Joshua Dudik (2015)	Hao Wang (2015)
Brandon Hamschin (2015)	Wujie Wen (2015)
Yujuan Zhao (2015)	Luke Solomon (2015)
Vikram Gomatam (2015)	Patrick Sadtler (2014)
Matthew Korytowski (2014)	Lina Xu (2014)
Yicheng Bai (2014)	Minmin Zhang (2014)
Brandon Grainger (2014)	Emmanuel Taylor (2014)
Danielle Bond (2014)	Dinghuan Zhu (2014, Carnegie Mellon)
Azime Can-Cimino (2014)	Raghav Khanna (2014)
Jiyong Huang (2013)	Robert Kerestes (2013)
Yong Li (2013)	Xiangyu Luo (2013)
Qixing Liu (2013, Carnegie Mellon)	SangHyun Byun (2013)
Hussain Bassi (2013)	Osama Alkishriwo (2013)
Ya-Ping Wang (2012)	Samuel Dickerson (2012)
Qian Chen (2012)	Xiaoyu Liu (2011)
Shugong Wang (2011)	Seda Senay (2011)
Brian Bucci (2011)	Ning Yao (2010)
Massimo Cenciarini (2010)	Zhanpeng Jin (2010)
John Kalafut (2010)	Steven Hackworth (2010)
Angela Beauford (2009)	Yuan Sun (2009)
Jian Xu (2009)	Gregory Okopal (2009)
Tolga Ozkurt (2009)	Cheng-Chun Chang (2008)
Arash Mahboobin (2007)	Ji Hyun Yang (2007, MIT)
Xiaofei Song (2007)	Kazutaka Takahashi (2007, MIT)

M.S. Thesis Committees (Total 76)

Santino Graziani (2018)	Weonji Choi (2018)
Haokun Wang (2018)	Vianney Mixtur (2018)
Gaoxiang Zhou (2018)	Dong Yan (2018)

Joseph Petti (2018)	Samantha Morello (2018)
Busra Susam (2017)	Ziyue Sun (2017)
Donald Kline (2017)	Cedrine Rebrion (2017)
Christopher Scioscia (2017)	Abdulkarim Alorf (2017)
Amanda Erhard (2017)	Jiachen Mao (2017)
Chang Song (2017)	Andrew Bulman (2017)
Lucie Broyde (2017)	Hsin-Pai Cheng (2016)
Matthew Sybeldon (2016)	Malia Kelsey (2016)
Etienne Zahnd (2016)	Alvaro Cardoza (2016)
Qiang Zhong (2016)	Tianyi Qiu (2016)
Xiaocong Du (2016)	Kent Nixon (2016)
Cedric Ofakem (2015)	Stephen Whaite (2015)
Xue Wang (2015)	Zachary Splain (2015)
Antoine Dumortier (2015)	Arthur Gatouillat (2015)
Stephen Abate (2015)	Augustin Cremer (2015)
Othman Muheialdin (2015)	Ansel Barchowsky (2014)
Patrick Lewis (2014)	Heloise Bleton (2014)
Enes Eken (2014)	Beiye Liu (2014)
Hashim Al Hassan (2014)	Oreste Scioscia (2013)
Iva Jestrovic (2013)	Troy Hand (2013, Georgia Tech)
Bo Luan (2013)	Joshua Dudik (2013)
Hanrui Huang (2013)	Haifeng Xu (2012)
Adam Sparacino (2012)	Bin Mao (2012)
Emmanuel Taylor (2012)	Hsin-Ju Chen (2012)
Yiwen Xu (2012)	Nicholas Franconi (2012)
Chengliu Li (2011)	Hao Wang (2011)
Quan Tao (2011)	Robert Kerestes (2011)
Shuang Su (2011)	Vikram Thiruneermalai Gomatam (2011)
Matthew Korytowski (2011)	Brandon Grainger (2011)
Zhengnan Zhang (2010)	Joshua Stachel (2010)
Raghav Khanna (2010)	Joseph Oresko (2010)
Shimeng Huang (2010)	Michael Rothfuss (2010)
Yaofeng Yue (2010)	Jason Pickel (2009)
Kingsley Adeoyo (2009)	Kirsten McCane (2009)
Mir Mahmood (2008)	Douglas McConahy (2007)

Graduate Independent Engineering Projects Advised (Total 84, not including those of my research-track students)

Shitong Mao (Spring 2018)	Xiaohan Zhong (Spring 2018)
Yao Zang (Spring 2018)	Zhengkai Yu (Spring 2018)
Xin Yang (Spring 2018)	Tianyi Xia (Spring 2018)
Xuexuan Wu (Spring 2018)	Yangrui Wang (Spring 2018)
Yiqiu Ren (Spring 2018)	Xiaohan Mu (Spring 2018)

Dulce Mariscal-Olivares (Spring 2018)
Xiangyu Liao (Spring 2018)
Ruoxue Geng (Spring 2018)
Xinian Bo (Fall 2017)
Zihang Huang (Fall 2017)
Hsiao-Wei Tung (Spring 2017)
Dan Wang (Spring 2016)
Yue Wang (Spring 2016)
Guifang Yan (Spring 2016)
Zhenyu Zhang (Fall 2015)
Brennan Vazquez (Summer 2015)
Siyue Cheng (Fall 2014)
Dongqi Liu (Fall 2014)
Xiaochen Zhang (Fall 2014)
Ansel Barchowsky (Spring 2014)
Weiqing Lu (Spring 2014)
Da Zheng (Spring 2014)
Kalhan Bhan (Spring 2013)
Yiwen Fan (Spring 2013)
Rui Hou (Spring 2013)
Shishir Juluri (Fall 2012)
Robert Kerestes (Spring 2012)
Nicholas Anthony (Spring 2012)
Matiwos Gebre (Spring 2012)
Richard Kephart (Spring 2012)
Himanshu Ropia (Spring 2012)
Samuel Taggart (Fall 2011)
Adam Balawejder (Summer 2011)
Jingyu Dong (Summer 2011)
Chun Xie (Spring 2011)
Ruchi Singh (Fall 2010)
Shuang Su (Fall 2010)
Thomas Barch (Summer 2010)
Jar-Min Lin (Spring 2010)
R. Benjamin Allums (Summer 2009)
Areej Sajjad (Spring 2009)

Yu Liu (Spring 2018)
Zhenghao Li (Spring 2018)
Rasheed Almawzan (Spring 2018)
Fangyi Chen (Fall 2017)
Kaiwen You (Fall 2017)
Gaoxiang Zhou (Spring 2017)
Fulei Wang (Spring 2016)
Haokai Xu (Spring 2016)
Xiong Qin (Fall 2015)
Jordan Ott (Summer 2015)
Chaoyuan Ma (Spring 2015)
Matthew Korytowski (Fall 2014)
Cedric Ofakem (Fall 2014)
Brian Fejka (Summer 2014)
Rakshit Kota (Spring 2014)
Sining Wang (Spring 2014)
Bingyang Hu (Fall 2013)
Heyuxuan Chen (Spring 2013)
Jason Harchick (Spring 2013)
Wang Yao (Spring 2013)
Robert Kerestes (Fall 2012)
Matthew Korytowski (Spring 2012)
Mohamed Diallo (Spring 2012)
Noah Gerber (Spring 2012)
Rinol Pereira (Spring 2012)
Himanshu Ropia (Fall 2011)
Wenchao Xie (Fall 2011)
Denis Cunningham (Summer 2011)
Clifford Luzier (Summer 2011)
Beiru Zhang (Spring 2011)
Ryan Marino (Fall 2010)
Adam Balawejder (Summer 2010)
Andrew Tomaswich (Spring 2010)
Jordan Negley (Spring 2010)
Nicholas Alexiades (Summer 2009)
Nicholas Alexiades (Summer 2008)

Graduate Internship Projects Advised (Total 28)

Xingtian Dong (Fall 2018)
Hsiao-Wei Tung (Summer 2018)
Guangting Wang (Summer 2017)
Guifang Yan (Summer 2017)
Yue Wang (Fall 2016)

Xiangyu Liao (Summer 2018)
Zhenghao Li (Summer 2018)
Zhongda Yang (Summer 2017)
Wendy Wang (Spring 2017)
Bin Wu (Summer 2016)

Haokai Xu (Summer 2016)
Xin Wei (Spring 2016 and Fall 2015)
Di Zhu (Fall 2015)
Runyan Lu (Summer 2015)
Qian Xie (Summer 2015)
Liyang Chen (Spring 2015)
Xiaocong Du (Spring 2015)
Fangyi Ren (Spring 2015)
Yue Xu (Summer 2013)

Hongyu Wu (Spring 2016)
Ying Fang (Spring 2016 and Fall 2015)
Qian Wang (Summer 2015)
Sining Wang (Summer 2015)
David Hu (Spring 2015)
Yu Chen (Spring 2015)
Xiong Qin (Spring 2015)
Chang-Feng Liu (Summer 2013)
Jian Zeng (Fall 2012)

Undergraduate Independent Engineering Projects Advised (Total 25)

Fahad Alkana'an (Summer 2017)
Joshua Hinnebusch (Summer 2017)
Michael Ghaben (Spring 2017)
Benjamin Baum (Summer 2013)
Benjamin Dunkelberger (Summer 2012)
Vernon Smith (Summer 2012)
Adam Krug (Summer 2011)
John Hill IV (Fall 2009)
John Hill IV (Spring 2009)
Jay Johnson (Fall 2008)
Jeffrey Gordon (Fall 2007)
Jeffrey Gordon (Summer 2007)
Aaron Hughes (Fall 2006)

Dan Ferris (Spring 2017)
Barbara Delgado (Summer 2014)
Brent Hummel (Fall 2012)
James Perkins (Summer 2012)
Hezi Touaf (Summer 2012)
John Hill IV (Spring 2010)
Thomas Cox (Spring 2009)
Perry Servedio (Fall 2008)
Julie Kleinman (Fall 2008)
Ephorm Freeman III (Summer 2007)
Aaron Hughes (Spring 2007)
Michael Iezzi (Fall 2006)

Undergraduate Research Internship Projects Advised (Total 8)

Michael Urich (Summer and Spring 2016)
Hamed Safaeian (Summer 2012)
Stephen Albert (Fall 2010)
Michael West (Summer 2008)

Lidong Cai (Summer 2015)
Alvaro Cardoza (Summer 2011)
Michael Sobczak (Summer 2010)
Brian Dicks (Summer 2007)

Senior Design Projects Advised

1. Nicholas Davis, Joseph Lynch, and Justin Whited, Fall 2017 (co-advisor: Yan Fang)
2. Taeyoung Lee, Ryan Matthews, and Michael Rukavina, Fall 2017 (co-advisor: Ahmed Dallal)
3. John Maas III, Tanner Slonceski, and Yueqing Zhang, Summer 2017
4. Alexander Cheng, Dominic Edwards, and Josh Hinnebusch, Spring 2017
5. Fahad Alkana'an and Mitch Anglemeyer, Spring 2017
6. Eric Bucklen, Rafid Lateef, and Damian Link, Fall 2015 (co-advisor: Nitin Sharma)
7. Barbara Delgado and Brendan Rodgers, Summer 2015
8. John Abraham and Brandon Bock, Spring 2015
9. Benjamin Baum and Ian Steck, Spring 2013 (co-advisor: David Descutner)
10. Robert Lemmon and Sean Schellinger, Fall 2012

11. Opubo Agiobenebo, Spring 2012
12. Sean Kelly and Brendan Roberts, Fall 2011
13. Jenya DeBenedetti, Dan Rosenberry, and Jeremy Sawyer, Spring 2011
14. Daniel Campo, Chris Lippert, and Jessica Stein, Fall 2010 (co-advisor: Gregory Reed)
15. Frank Cousart, Matthew Perich, and Mark Ressler, Spring 2010 (co-advisor: Gregory Reed)
16. Keith Bates and Kevin Douglas, Summer 2009
17. Seth Ammer and Thaddeus Czauski, Spring 2009
18. Jason Jones, Robert McBeth, Kris Nickel, and Albert Oduho, Fall 2008
19. Brian De Paul, Joshua Laskey, and David Thurston, Fall 2007
20. Aaron Hughes and David Huppman, Fall 2007
21. Brian Antoniazzi, Robert Francis, and Pranesh Patel, Spring 2007

Visiting Students Advised

1. Yinghui Zhao, Ph.D. student, Xi'an Jiaotong University, Shaanxi, China, 10/2017–3/2018
2. Jianmin Dong, Ph.D. student, Xi'an Jiaotong University, Shaanxi, China, 9/2017–2/2019
3. Longzhao Sun, Ph.D. student, Shanghai Jiao Tong University, Shanghai, China, 9/2016–9/2017
4. Vojislav Bogdanovic, B.S. student, University of Belgrade, Serbia, Summer 2016
5. Haitao Sun, M.S. student, Carnegie Mellon University, Spring 2016
6. Xuan Xie, Ph.D. student, Beijing Jiaotong University, Beijing, China, 9/2015–9/2016
7. Tianjian Yu, Ph.D. student, Central South University, Hunan, China, 3/2015–11/2016
8. Yating Chen, Ph.D. student, Central South University, Hunan, China, 11/2014–11/2016
9. Jiafeng Li, Ph.D. student, Beihang University (a.k.a. Beijing University of Aeronautics and Astronautics), Beijing, China, 9/2014–10/2015
10. Jiaojiao Zhu, Ph.D. student, Central South University, Hunan, China, 9/2014–9/2015
11. Zhi Liu, Ph.D. student, Central South University, Hunan, China, 12/2013–12/2014
12. Haitian Zhai, Ph.D. student, Northwestern Polytechnical University, Shaanxi, China, 9/2012–8/2014
13. Ker-Jiun Wang, M.S. student, Carnegie Mellon University, Summer 2012
14. Yongquan Yang, Ph.D. student, Ocean University of China, Shandong, 9/2010–8/2011
15. Michael Budram, Pre-Ph.D. Scholar, University of Maryland, Baltimore County, Summer 2010
16. Troy Hand, M.S. student, Georgia Institute of Technology, Summer 2010
17. Zhe Shan, Ph.D. student, Pennsylvania State University (summer intern at IBM), Summer 2009
18. Antoine Delorme, undergraduate student, Ecole des Mines de Nantes, France, Spring 2007

Visiting Scholars Hosted

1. Dr. Xiaoning Li, Lecturer, Sichuan Normal University, Sichuan, China, 12/2017–11/2018
2. Dr. Zhongmin Cai, Professor, Xi'an Jiaotong University, Shaanxi, China, 9/2017–8/2018
3. Dr. Jianhua Xu, Professor, Nanjing Normal University, Jiangsu, China, 7/2017–8/2017

4. Dr. Ying Sun, Associate Professor, Hebei University of Technology, Tianjin, China, 1/2016–12/2016
5. Dr. Guang Yang, Lecturer, Beijing Jiaotong University, Beijing, China, 9/2015–9/2016
6. Dr. Jose Manoel Fernandes, Professor, Universidade Federal do Parana, Centro, Curitiba, Brazil, 7/2015–6/2017
7. Dr. Xuren Wang, Associate Professor, Capital Normal University, Beijing, China, 3/2015–2/2016
8. Dr. Wanhui Wen, Associate Professor, Southwest University, Chongqing, China, 12/2014–12/2015
9. Dr. Qi Zhao, Associate Professor, Beihang University (a.k.a. Beijing University of Aeronautics and Astronautics), Beijing, China, 9/2014–8/2015
10. Dr. Ming Li, Associate Professor, Wuhan Textile University, Hubei, China, 8/2014–8/2015
11. Dr. Pengzhan Chen, Associate Professor, East China Jiaotong University, Jiangxi, China, 9/2012–9/2013

High-School Students Advised

1. Anna Zhang, Horace Greeley High School, Chappaqua, NY, 9/2017–present
2. Lan Zhang, Horace Greeley High School, Chappaqua, NY, 2/2014–4/2017

University Services

University of Pittsburgh

Member, Advisory Council on Instructional Excellence (ACIE), 2017–2020

Swanson School of Engineering

Member, George Washington Prize Committee, 2017 and 2018

Member, Academic Affairs Committee, 2013–2015

Member, Outstanding Educator Award Committee, 2010–2013

Chair, Outstanding Educator Award Committee, 2010

Department of ECE

Chair, Student Advising Committee, 2017–present

Chair, Department Technical Area Committee on Signals and Systems, 2015–present

Member, Graduate Committee, 2015–present

Representative of ECE Department to interface with OMET (Office of Measurement and Evaluation of Teaching), 2016–present

Member, Faculty Search Committee, 2008, 2010, 2012, 2013, 2014, 2016, and 2017

Member, Undergraduate Lab Committee, 2014–2015

Member, Electrical Engineering Curriculum Review and Revision Committee, 2011–2012

Member, Undergraduate Curriculum and Program Committee, 2006–2008

Professional Activities

Professional Society Activities

Senior Member, IEEE

Senior Member, American Institute of Aeronautics and Astronautics (AIAA)

Member, Society for Neuroscience

Member, Technical Committee on Human-Computer Interaction, IEEE Systems, Man and Cybernetics Society, 2/2013–present

Member, Technical Committee on Smart Grids (TC-SG), IEEE Control Systems Society (CSS), 8/2011–present (Subcommittee on Renewable Energy, 6/2014–present; Subcommittee on Microgrids, 3/2014–present)

Co-Chair, Pittsburgh Chapter of IEEE EMBS, 1/2006–5/2012

Co-Chair, Pittsburgh Joint Chapter of IEEE Signal Processing Society and Control Systems Society, 9/2010–12/2012

Services for Journals

Associate Editor, IEEE Transactions on Human-Machine Systems, 2/2013–present

Associate Editor, IEEE Transactions on Intelligent Transportation Systems, 7/2011–present

Guest Co-Editor (with Ramana Vinjamuri), Frontiers in Bioengineering and Biotechnology, Section: Bionics and Biomimetics, Special Topic on Applications of Synergies in Human Machine Interfaces, 2015

Guest Co-Editor (with Heung-No Lee), EURASIP Journal on Wireless Communications and Networking, Special Issue on Network Coding for Wireless Networks, 2010

Member of Editorial Review Board, International Journal of Web Services Research, 3/2007–2/2008

Reviewer for

AIAA Journal of Aircraft

AIAA Journal of Guidance, Control and Dynamics

Annual Reviews in Control

ASME Journal of Vibration and Acoustics

Automatica

Biomedical Signal Processing and Control

Computer Journal

Computing in Science and Engineering

Frontiers in Bioengineering and Biotechnology, Section: Bionics and Biomimetics

IEEE Access

IEEE Transactions on Automatic Control

IEEE Transactions on Automation Science and Engineering

IEEE Transactions on Biomedical Engineering

IEEE Transactions on Circuits and Systems–Part I

IEEE Transactions on Computers

IEEE Transactions on Control Systems Technology

IEEE Transactions on Fuzzy Systems
IEEE Transactions on Intelligent Transportation Systems
IEEE Transactions on Neural Networks (before 2011)
IEEE Transactions on Neural Networks and Learning Systems
IEEE Transactions on Power Electronics
IEEE Transactions on Systems, Man and Cybernetics–Part A
IEEE Transactions on Systems, Man and Cybernetics–Part B
IEEE Transactions on Vehicular Technology
IEEE/ASME Transactions on Mechatronics
International Journal of Control
International Journal of Intelligent Robotics and Applications
International Journal of Web Services Research
Journal of Optimization Theory and Applications
Operations Research and Decision Theory
Physics Letters A
Transportation Research–Part C

Services for Conferences

Associate Editor and Member of Technical Program Committee, the 21st International IEEE Conference on Intelligent Transportation Systems (ITSC 2018), Maui, HI, USA, 11/2018
Member of Organizing Committee, the 1st Trek of Human-Robot Interaction Product Commercialization (Trek-HRI-PC) in conjunction with IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN 2018), Nanjing/Tai'An, China, 8/2018
Co-Program Chair and Co-Editor, the 2nd International Conference on Cognitive Computing (ICCC 2018), Seattle, WA, USA, 6/2018
Member of Technical Program Committee, the 20th International IEEE Conference on Intelligent Transportation Systems (ITSC 2017), Yokohama, Kanagawa, Japan, 10/2017
Program Chair, the 6th IEEE International Conference on AI and Mobile Services (AIMS 2017), Honolulu, HI, USA, 6/2017
Associate Editor, the 19th International IEEE Conference on Intelligent Transportation Systems (ITSC 2016), Rio de Janeiro, Brazil, 11/2016
Member of Program Committee, Robotics Science and Systems (RSS) 2016 Workshop on Planning for Human-Robot Interaction: Shared Autonomy and Collaborative Robotics, Ann Arbor, MI, USA, 6/2016
Member of Technical Program Committee, 2015 IEEE International Conference on Vehicular Electronics and Safety (ICVES 2015), Yokohama, Japan, 11/2015
Associate Editor, the 18th International IEEE Conference on Intelligent Transportation Systems (ITSC 2015), Canary Islands, Spain, 9/2015

Associate Editor and Member of the International Program Committee, the 17th International IEEE Conference on Intelligent Transportation Systems (ITSC 2014), Qingdao, China, 10/2014

Co-Chair of Ph.D. Symposium, joint conferences of (i) the 10th IEEE International Conference on Services Computing, (ii) the 11th IEEE International Conference on Web Services, (iii) the 9th IEEE World Congress on Services, (iv) the 6th IEEE International Conference on Cloud Computing, (v) the 2nd IEEE International Congress on Big Data, and (vi) the 2nd IEEE International Conference on Mobile Services, Santa Clara, CA, USA, 6/2013

Session Chair, the 15th International IEEE Conference on Intelligent Transportation Systems (ITSC 2012), Anchorage, AK, USA, 9/2012

Co-Chair of Ph.D. Symposium, joint conferences of (i) the 9th IEEE International Conference on Services Computing, (ii) the 10th IEEE International Conference on Web Services, (iii) the 8th IEEE World Congress on Services, (iv) the 5th IEEE International Conference on Cloud Computing, (v) the 1st IEEE International Congress on Big Data, and (vi) the 1st IEEE International Conference on Mobile Services, Honolulu, HI, USA, 6/2012

Co-Chair of Ph.D. Symposium, joint conferences of (i) the 8th IEEE International Conference on Services Computing, (ii) the 9th IEEE International Conference on Web Services, (iii) the 7th IEEE World Congress on Services, and (iv) the 4th IEEE International Conference on Cloud Computing, Washington, DC, USA, 7/2011

Associate Editor and Member of Program Committee, 2010 IEEE Conference on Decision and Control, Atlanta, GA, USA, 12/2010

Chair of Ph.D. Symposium, joint conferences of (i) the 7th IEEE International Conference on Services Computing, (ii) the 8th IEEE International Conference on Web Services, (iii) the 6th IEEE World Congress on Services, and (iv) the 3rd IEEE International Conference on Cloud Computing, Miami, FL, USA, 7/2010

Associate Editor, American Control Conference, Baltimore, MD, USA, 6/30–7/2/2010

Member of Program Committee, the 2nd ROBOCOMM, Odense, Denmark, 3–4/2009

Chair of Work-in-Progress Program, IEEE International Conference on Services Computing, Honolulu, HI, USA, 7/2008

Member of Program Committee, the 1st ROBOCOMM, Athens, Greece, 9/2007

Co-Chair of Work-in-Progress Program, IEEE International Conference on Services Computing, Salt Lake City, UT, USA, 7/2007

Chair of Work-in-Progress Program, IEEE International Conference on Services Computing, Chicago, IL, USA, 9/2006

Reviewer for

- IEEE International Conference on Intelligent Transportation Systems, 2016
- IEEE Conference on Automation Science and Engineering, 2016
- IEEE International Conference on Intelligent Transportation Systems, 2014
- IEEE International Conference on Automation Science and Engineering, 2013
- IEEE International Conference on Robotics and Automation, 2011
- IEEE/RSJ International Conference on Intelligent Robots and Systems, 2011
- IEEE Conference on Decision and Control, 2011

IEEE International Conference on Services Computing, 2011
IEEE Conference on Decision and Control, 2010
IEEE International Conference on Services Computing, 2010
ROBOCOMM, 2009
IEEE International Conference on Services Computing, 2008
IEEE Multi-Conference on Systems and Control, 2008
ROBOCOMM, 2007
IEEE International Conference on Services Computing, 2007
IEEE International Conference on Services Computing, 2006

Grant Review Activities

Proposal Review Panelist, NSF Division of Electrical, Communications and Cyber Systems (ECCS), 5/2016
Proposal Review Panelist, NSF Division of Computer and Network Systems (CNS), 7/2015
Proposal Review Panelist, NSF Division of Civil, Mechanical and Manufacturing Innovation (CMMI), 6/2014
Reviewer, University of Pittsburgh Internal Small Grant Program, 5/2014
Reviewer, Research Grant Council of Hong Kong, 4/2013
Proposal Review Panelist, NSF CAREER Program, 10/2012
Proposal Review Panelist, NSF Division of Electrical, Communications and Cyber Systems (ECCS), 2/2012
Reviewer, University of Pittsburgh Internal Small Grant Program, 6/2011
Reviewer, Air Force Office of Scientific Research (AFOSR), 12/2010
Proposal Review Panelist, NSF Division of Civil, Mechanical and Manufacturing Innovation (CMMI), 9/2009
Proposal Review Panelist, NSF Division of Civil, Mechanical and Manufacturing Innovation (CMMI), 4/2009
Proposal Review Panelist, NSF Division of Information and Intelligent Systems (IIS), 4/2009
Reviewer, Air Force Office of Scientific Research (AFOSR), 12/2008

Honors and Awards

Chancellor's Distinguished Teaching Award, University of Pittsburgh, 2016
William Kepler Whiteford Faculty Fellowship, University of Pittsburgh, 2015–2019 (renewed)
Outstanding Service Award as Associate Editor, IEEE Transactions on Intelligent Transportation Systems, 2013
Coauthored a paper (with Raghav Khanna, Andrew Amrhein, William Stanchina, and Gregory Reed) winning APEC Technical Presentation Award (presenter: Raghav Khanna) in IEEE Applied Power Electronics Conference, 3/2013
William Kepler Whiteford Faculty Fellowship, University of Pittsburgh, 2012–2015

Certificate of Appreciation for Outstanding Service, IEEE Computer Society, 2011

Andrew P. Sage Best Transactions Paper Award (with Ji Hyun Yang, Louis Tijerina, Tom Pilutti, Joseph Coughlin, and Eric Feron), IEEE Systems, Man and Cybernetics Society, 2010

Faculty Early Career Development (CAREER) Award, National Science Foundation, 2010

Certificate of Appreciation for Outstanding Service, IEEE Computer Society, 2010

Outstanding Educator Award, Swanson School of Engineering, University of Pittsburgh, 2009

Faculty Honor Roll Award for Outstanding Teaching in Electrical and Computer Engineering, University of Pittsburgh, 2007

Certificate of Appreciation for Outstanding Service, IEEE Computer Society, 2006

Medical Engineering and Medical Physics Fellowship, Harvard-MIT Division of Health Sciences and Technology, 2003

Zakhartchenko Fellowship, Massachusetts Institute of Technology, 2001 and renewed in 2002

David and Beatrice Yamron Fellowship, Harvard-MIT Division of Health Sciences and Technology, 2000

Outstanding Thesis Award, Tsinghua University, 1999

Outstanding M.Eng. Graduate, Tsinghua University, 1998

Tsinghua Top Grade Scholarship (highest honor for students of Tsinghua University), 1997

Outstanding B.Eng. Graduate, Tsinghua University, 1995

Second Prize, National Electronics Design Contest (College Students), China, 1994

IBM Scholarship, 1994

First Prize, National Mathematical Contest in Modeling (College Students), China, 1993