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EMPLOYMENT

Assistant Professor of Electrical and Computer Engineering 08/2017–present
University of Illinois at Chicago

Postdoctoral Researcher in Electrical and Systems Engineering 10/2013–07/2017
University of Pennsylvania, Philadelphia, PA
Hosts: George J. Pappas and Ufuk Topcu

EDUCATION

Ph.D. in Electrical Engineering 06/2014
California Institute of Technology, Pasadena, CA
Advisor: Richard M. Murray
Thesis: *Optimal uncertainty quantification via convex optimization and relaxation*
(Defended on September 26, 2013)

M.S. in Electrical Engineering 06/2008
California Institute of Technology, Pasadena, CA

M.E. in Electronic Engineering with high distinction 07/2006
Tsinghua University, Beijing, China

B.E. in Electronic Engineering 07/2003
Tsinghua University, Beijing, China

SELECTED HONORS AND AWARDS

Best Student Paper Award Finalist, American Control Conference 2013
Atwood Fellowship, Electrical Engineering, Caltech 2006–2007

TEACHING EXPERIENCE

University of Illinois at Chicago:
ECE 550 Linear Systems Theory and Design (Spring 2018)
ECE 451 Control Engineering (Fall 2017, Fall 2018)

University of Pennsylvania:
ESE 605 Modern Convex Optimization (Spring 2017)

California Institute of Technology:

ME/CS 132b Advanced Robotics: Navigation and Vision (TA, Spring 2011)

ME/CS 132a Advanced Robotics: Navigation and Vision (TA, Winter 2011)

CDS 110a Introduction to Control Theory (TA, Fall 2008)

Aph/EE 130 Electromagnetic Theory (TA, Fall 2007)

PROFESSIONAL SERVICE

Conference Invited Session Organizer

Privacy in Systems and Control, American Control Conference, 2016

Co-organizer: George J. Pappas

Privacy in Systems and Control, IEEE Conference on Decision and Control, 2014

Co-organizers: Jerome Le Ny and George J. Pappas

Reviewer

Journals

ACM Transactions on Cyber-Physical Systems

Automatica

European Journal of Operational Research

IEEE Transactions on Automatic Control

IEEE Transactions on Control of Network Systems

IEEE Transactions on Pattern Analysis and Machine Intelligence

IEEE Transactions on Power Systems

Transportation Research Part D: Transport and Environment

Conferences

ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS)

ACM International Conference on Hybrid Systems: Computation and Control (HSCC)

American Control Conference (ACC)

IEEE Conference on Decision and Control (CDC)

IEEE International Conference on Robotics and Automation (ICRA)

IEEE International Conference on Smart Grid Communications (SmartGridComm)

PUBLICATIONS

Journal Publications

- [1] Shuo Han and George J. Pappas, "Privacy in control and dynamical systems," *Annual Review of Control, Robotics, and Autonomous Systems*, vol. 1, no. 1, 2018.
- [2] Fei Miao, Shuo Han, Shan Lin, Qian Wang, John Stankovic, Abdeltawab Hendawi, Desheng Zhang, Tian He, and George J. Pappas, "Data-driven robust taxi dispatch under demand uncertainties," *IEEE Transactions on Control Systems Technology*, 2017, (accepted, DOI: 10.1109/TCST.2017.2766042).
- [3] Fragkiskos Koufogiannis, Shuo Han, and George J. Pappas, "Gradual release of sensitive data under differential privacy," *Journal of Privacy and Confidentiality*, vol. 7, no. 2, pp. 23–52, 2017.

- [4] Shuo Han, Ufuk Topcu, and George J. Pappas, “Differentially private distributed constrained optimization,” *IEEE Transactions on Automatic Control*, vol. 62, no. 1, pp. 50–64, 2017.
- [5] Fei Miao, Shuo Han, Shan Lin, John A. Stankovic, Desheng Zhang, Sirajum Munir, Hua Huang, Tian He, and George J. Pappas, “Taxi dispatch with real-time sensing data in metropolitan areas: A receding horizon control approach,” *IEEE Transactions on Automation Science and Engineering*, vol. 13, no. 2, pp. 463–478, 2016.
- [6] Shuo Han, Victor M. Preciado, Cameron Nowzari, and George J. Pappas, “Data-driven network resource allocation for controlling spreading processes,” *IEEE Transactions on Network Science and Engineering*, vol. 2, no. 4, pp. 127–138, 2015.
- [7] Shuo Han, Molei Tao, Ufuk Topcu, Houman Owhadi, and Richard M. Murray, “Convex optimal uncertainty quantification,” *SIAM Journal on Optimization*, vol. 25, no. 3, pp. 1368–1387, 2015.

Peer-Reviewed Conference Publications

- [1] Shuo Han, Ufuk Topcu, and George J. Pappas, “Quantification on the efficiency gain of automated ridesharing services,” in *American Control Conference*, 2017.
- [2] Fei Miao, Shuo Han, Abdeltawab Hendawi, Mohamed E. Khalefa, John A. Stankovic, and George J. Pappas, “Data-driven distributionally robust vehicle balancing with dynamic region partition,” in *ACM/IEEE International Conference on Cyber-Physical Systems*, 2017.
- [3] Jorge Cortés, Geir E. Dullerud, Shuo Han, Jerome Le Ny, Sayan Mitra, and George J. Pappas, “Differential privacy in control and network systems,” in *IEEE Conference on Decision and Control*, 2016, (tutorial paper).
- [4] Shuo Han, Ufuk Topcu, and George J. Pappas, “Event-based information-theoretic privacy: A case study of smart meters,” in *American Control Conference*, 2016.
- [5] Jie Fu, Shuo Han, and Ufuk Topcu, “Optimal control in Markov decision processes via distributed optimization,” in *IEEE Conference on Decision and Control*, 2015.
- [6] Fei Miao, Shuo Han, Shan Lin, and George J. Pappas, “Taxi dispatch under model uncertainties,” in *IEEE Conference on Decision and Control*, 2015.
- [7] Shuo Han, Ufuk Topcu, and George J. Pappas, “A sublinear algorithm for barrier-certificate-based data-driven model validation of dynamical systems,” in *IEEE Conference on Decision and Control*, 2015.
- [8] Shuo Han, Ufuk Topcu, and George J. Pappas, “An approximately truthful mechanism for electric vehicle charging via joint differential privacy,” in *American Control Conference*, 2015.
- [9] Shuo Han, Ufuk Topcu, and George J. Pappas, “Differentially private distributed protocol for electric vehicle charging,” in *Annual Allerton Conference on Communication, Control, and Computing*, 2014.
- [10] Shuo Han, Ufuk Topcu, and George J. Pappas, “Differentially private convex optimization with piecewise affine objectives,” in *IEEE Conference on Decision and Control*, 2014.
- [11] Fragkiskos Koufogiannis, Shuo Han, and George J. Pappas, “Computation of privacy-preserving prices in smart grids,” in *IEEE Conference on Decision and Control*, 2014.
- [12] Shuo Han, Ufuk Topcu, Molei Tao, Houman Owhadi, and Richard M. Murray, “Convex optimal uncertainty quantification: Algorithms and a case study in energy storage placement for power grids,” in *American Control Conference*, 2013, **Best Student Paper Finalist**.

- [13] Shuo Han and Richard M. Murray, "Containment indicator function construction via numerical conformal mapping," in *IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2011.
- [14] Shuo Han, Andrea Censi, Andrew D. Straw, and Richard M. Murray, "A bio-plausible design for visual pose stabilization," in *IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2010.
- [15] Andrea Censi, Shuo Han, Sawyer B. Fuller, and Richard M. Murray, "A bio-plausible design for visual attitude stabilization," in *IEEE Conference on Decision and Control*, 2009.
- [16] Shuo Han, Andrew D. Straw, Michael H. Dickinson, and Richard M. Murray, "A real-time helicopter testbed for insect-inspired visual flight control," in *IEEE International Conference on Robotics and Automation*, 2009.

INVITED TALKS

1. "Data-Driven Control and Optimization for Urban Infrastructures," Electrical and Computer Engineering, University of Connecticut, 04/2017.
2. "Data-Driven Control and Optimization for Urban Infrastructures," Industrial and Systems Engineering, University of Florida, 04/2017.
3. "Data-Driven Control and Optimization for Urban Infrastructures," Aerospace Engineering, Iowa State University, 03/2017.
4. "Data-Driven Control and Optimization for Urban Infrastructures," Electrical & Computer Engineering, University of Rochester, 03/2017.
5. "Data-Driven Control and Optimization for Urban Infrastructures," Electrical & Computer Engineering, University of Illinois at Chicago, 02/2017.
6. "Data-Driven Control and Optimization for Urban Infrastructures," Mechanical Engineering, University of Kentucky, 02/2017.
7. "Distributional Uncertainty: From Quantification to Decision Making," Applied Mathematics & Statistics, UC Santa Cruz, 01/2017.
8. "Enabling Data-Rich Autonomous Urban Infrastructures," Electrical & Computer Engineering, Temple University, 11/2016.
9. "A Theory of Privacy for Cyber-Physical Systems," Electrical & Computer Engineering, Worcester Polytechnic Institute, 10/2016.
10. "Data-Driven and Privacy-Aware Optimization for Smart Cities," Electrical & Systems Engineering, Washington University in St. Louis, 03/2016.
11. "Data-Driven and Privacy-Aware Optimization for Smart Cities," Systems Engineering, Boston University, 02/2016.
12. "A Theory of Privacy for Cyber-Physical Systems," Rigorous Systems Research Group, Caltech, 10/2015.
13. "A Theory of Privacy for Cyber-Physical Systems," Center for Control, Dynamical Systems, and Computation (CCDC), UC Santa Barbara, 10/2015.
14. "A Theory of Privacy for Cyber-Physical Systems," DREAM Seminar, UC Berkeley, 10/2015.
15. "A Theory of Privacy for Cyber-Physical Systems," Coordinated Science Laboratory, UIUC, 10/2015.

16. "A Theory of Privacy for Cyber-Physical Systems," Electrical & Computer Engineering, Purdue University, 10/2015.
17. "A Theory of Privacy for Cyber-Physical Systems," Electrical & Computer Engineering, University of Notre Dame, 10/2015.
18. "A Theory of Privacy for Cyber-Physical Systems," Michigan Power and Energy Lab, University of Michigan, 10/2015.
19. "Convex Optimal Uncertainty Quantification: Algorithms and A Case Study in Energy Storage Placement for Power Grids," MIT, 10/2012.
20. "Convex Optimal Uncertainty Quantification: Algorithms and A Case Study in Energy Storage Placement for Power Grids," PRECISE Center, University of Pennsylvania, 10/2012.