

# Fei Miao

School of Computing, University of Connecticut  
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Google Scholar: <https://scholar.google.com/citations?user=fH2YF6YAAAAJ&hl=en>

## EDUCATION

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**Ph.D. in Electrical and Systems Engineering** **Sep. 2010-Aug. 2016**

University of Pennsylvania, Philadelphia, PA

Dissertation: “Data-Driven Dynamic Robust Resource Allocation: Application to Efficient Transportation”

Advisor: Prof. George J. Pappas

**Charles Hallac and Sarah Keil Wolf Award for Best Doctoral Dissertation**

**M.A. in Statistics** **Sep. 2013-Aug. 2015**

University of Pennsylvania, Philadelphia, PA

**Bachelor of Engineering in Automation, with minor in Finance** **Sep. 2006-June 2010**

Department of Automation, School of Electronic, Information and Electrical Engineering

Shanghai Jiao Tong University, Shanghai, China

## ACADEMIC APPOINTMENTS

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**Pratt & Whitney Endowed Associate Professor** **Aug.2023-**

School of Computing

Courtesy Faculty at Electrical and Computer Engineering Department

Institute of Advanced Systems Engineering

University of Connecticut

**Tenure-Track Assistant Professor** **Aug.2017-Aug.2023**

Department of Computer Science and Engineering

Courtesy Faculty at Electrical and Computer Engineering Department

Institute of Advanced Systems Engineering

University of Connecticut

**Postdoctoral Researcher** **Sep. 2016-July.2017**

GRASP (General Robotics, Automation, Sensing & Perception) Lab

PRECISE (Penn Research in Embedded Computing and Integrated Systems Engineering) Center

Department of Electrical and Systems Engineering, University of Pennsylvania

Mentors: Prof. George J. Pappas, Prof. Daniel D. Lee

## FUNDED RESEARCH PROJECTS

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**Research: Embodied AI, Reinforcement learning and multi-agent reinforcement learning, Robust optimization and Uncertainty quantification, Game theory, Control theory. Develop the foundations for the science of learning, optimization, and control of Embodied AI, to assure safety, efficiency, robustness, and security the system. Application areas: connected autonomous vehicles, intelligent and sustainable transportation systems, and smart cities.**

1. **NSF CAREER:** Distributionally Robust Learning, Control, and Benefits Analysis of Information Sharing for Connected and Autonomous Vehicles, 2021.6-2026.5, PI. Managing Division Abbreviation: CNS-CPS (CISE).
2. NSF “SCC-IRG Track 1: Socially Informed Services Conflict Governance through Specification,

- Detection, Resolution and Prevention”, 2020.9-2023.8, Uconn PI.
3. NSF “CPS: Small: Collaborative Research: Improving Efficiency of Electric Vehicle Fleets: A Data-Driven Control Framework for Heterogeneous Mobile CPS”, 2019.9-2023.8, PI.
  4. NSF “S&AS: FND: COLLAB: Adaptive Vehicular Sensing and Control for Fleet-Oriented Systems in Smart Cities”, 2019.3-2023.3, PI.
  5. NSF “SCC: Empowering Smart and Connected Communities through Programmable Community Microgrids”, 2018.9-2021.8, Uconn Co-PI.
  6. UTC New England transportation center for Connected and Autonomous Vehicles, UMass and UConn, \$15M, 2023.6-2026.6, Uconn Co-PI.
  7. “Enhancing Security and Robustness in Multi-Party Machine Learning and Decision-Making”, 2021.5-2022.6, PI, funded by Uconn Research Excellence Program.
  8. DOE/LBNL Heavy-Load EV Project Phase I, 2023.6-2023.12, Uconn PI.
  9. “Robust Control Protocol Synthesis and Safe Learning for Connected Autonomous Vehicles”, 2019.5-2020.6, PI, funded by Uconn Research Excellence Program.
  10. "Modeling, Analysis and Anomaly Detection for Cyber Secure Eversource Power Distribution Networks", PI, Phase I (2018.1-2019.5) and Phase II (2019.6-2021.12), funded by Eversource Energy, a northeast energy company.
  11. “Reactive Learning Based Network Defense”, 2018.9-2019.12, Co-PI, funded by Synchrony Financial Company.
  12. "Energy Management Systems for Subtractive and Additive Precision Manufacturing", 2019.9-2021.9, Co-PI, funded by DOE Clean Energy Smart Manufacturing Innovation Institute (CESMII).
  13. “Optimization Research”, May. 2020- May. 2024, PI, Gift Money by ETPC Company.

## HONORS&AWARDS

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|---|------------------|
| <b>1. Best Paper Award of DCAA Workshop, AAAI</b>   | <b>Feb. 2023</b> |
| The First Workshop on DL-Hardware Co-Design for AI Acceleration, for paper title “Shared Information-Based Safe and Efficient Behavior Planning for Connected Autonomous Vehicles”                            |                  |
| <b>2. Best Paper Award</b>  | <b>Apr. 2021</b> |
| 12 <sup>th</sup> ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS’ 21) for the paper “DeResolver: A Decentralized Negotiation and Conflict Resolution Framework for Smart City Services”    |                  |
| <b>3. Career Mentor of the Year for the 2020-2021 academic year</b>   | <b>Mar. 2021</b> |
| Nomination, University of Connecticut   |                  |
| <b>4. Charles Hallac and Sarah Keil Wolf Award for Best Doctoral Dissertation</b>   | <b>Aug. 2016</b> |
| Department of Electrical and Systems Engineering, University of Pennsylvania, for the Ph.D. dissertation of “Data-Driven Dynamic Robust Resource Allocation: Application to Efficient Transportation”.        |                  |
| <b>5. Best Paper Award Finalist</b>   | <b>Apr. 2015</b> |
| 6 <sup>th</sup> ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS’ 15) for the paper “Taxi Dispatch with Real-Time Sensing Data in Metropolitan Areas- a Receding Horizon Control Approach”. |                  |
| <b>6. NSF student travel award, ACM SIGBED student travel award</b>   | <b>Apr. 2015</b> |
| <b>7. IEEE CSS student travel award</b>   | <b>June 2013</b> |
| <b>8. Excellent Graduate student of Shanghai</b>  | <b>June 2010</b> |

## PUBLICATIONS (JOURNALS)

1. Songyang Han, Sanbao Su, Sihong He, Shuo Han, Haizhao Yang, Shaofeng Zou, **Fei Miao**, “What is the Solution for State-Adversarial Multi-Agent Reinforcement Learning?”, Transactions on Machine Learning Research, <https://openreview.net/pdf?id=HyqSwNhM3x>, Jan. 2024.
2. Sanbao Su, Songyang Han, Yiming Li, Zhili Zhang, Chen Feng, Caiwen Ding, **Fei Miao**, “Collaborative Multi-Object Tracking with Conformal Uncertainty Propagation”, accepted, IEEE Robotics and Automation Letters, <https://ieeexplore.ieee.org/document/10430224>, DOI: 10.1109/LRA.2024.3364450, Jan. 2024.
3. Alaa Selim, Junbo Zhao, Fei Ding, **Fei Miao**, and Sung-Yeul Park, "Adaptive Deep Reinforcement Learning Algorithm for Distribution System Cyber Attack Defense with High Penetration of DERs", accepted, IEEE

Transactions on Smart Grid, Dec. 2023, <https://ieeexplore.ieee.org/document/10368040>, DOI: 10.1109/TSG.2023.3345314.

4. Songyang Han, Shanglin Zhou, Lynn Pepin, Jiangwei Wang, Caiwen Ding, Jie Fu, **Fei Miao**, “A Multi-Agent Reinforcement Learning Approach for Safe and Efficient Behavior Planning of Connected Autonomous Vehicles”, accepted, IEEE Transactions on Intelligent Transportation Systems, Dec. 2023, early access: <https://ieeexplore.ieee.org/document/10367764>, DOI: [10.1109/TITS.2023.3336670](https://doi.org/10.1109/TITS.2023.3336670).
5. Guang Wang, Sihong He, Shuai Wang, **Fei Miao**, Fan Zhang, Zheng Dong, and Desheng Zhang, “FairMove: A Data-Driven Vehicle Displacement System for Jointly Optimizing Profit Efficiency and Fairness of Electric For-Hire Vehicles”, accepted, IEEE Transactions on Mobile Computing, 2023.
6. Shanglin Zhou, Mikhail Bragin, Deniz Gurevin, Lynn Pepin, **Fei Miao**, and Caiwen Ding, “Surrogate Lagrangian Relaxation: A Path to Retrain-free Deep Neural Network Pruning”, accepted, ACM Transactions on Design Automation of Electronic Systems, Sep. 2023. <https://dl.acm.org/doi/10.1145/3624476>.
7. Sihong He, Songyang Han, Sanbao Su, Shuo Han, Shaofeng Zou, and **Fei Miao**, “Robust Multi-Agent Reinforcement Learning with Adversarial State Uncertainties”, in Transactions on Machine Learning Research, url: <https://openreview.net/forum?id=CqTkazZ6H9>, 2023.
8. Jiangwei Wang, Lili Su, Songyang Han, Dongjin Song and **Fei Miao**, “Towards Safe Autonomy in Hybrid Traffic: Detecting Unpredictable Abnormal Behaviors of Human Drivers via Information Sharing”, accepted, ACM Transactions on Cyber-Physical Systems, 2023.
9. Sihong He, Zhili Zhang, Shuo Han, Lynn Pepin, Guang Wang, Desheng Zhang, John Stankovic, and **Fei Miao**, “Data-Driven Distributionally Robust Electric Vehicle Balancing for Autonomous Mobility-on-Demand Systems under Demand and Supply Uncertainties”, in IEEE Transactions on Intelligent Transportation Systems, vol.24, no.5, pp 5199-5215, May 2023.
10. Yukun Yuan, Meiyi Ma, Songyang Han, Jack Stankovic, Desheng Zhang, **Fei Miao**, Shan Lin, “DeResolver: A Decentralized Negotiation and Conflict Resolution Framework for Smart City Services”, in ACM Transactions on Cyber-Physical Systems, vol.6, no. 29, pp 1-27, May 2022.
11. Yukun Yuan, Desheng Zhang, **Fei Miao**, John A. Stankovic, Tian He, George J. Pappas, Shan Lin, “eRoute: Mobility-Driven Integration of Heterogeneous Urban Cyber-Physical Systems under Disruptive Events”, preprints, in *IEEE Transactions on Mobile Computing*, June 2021, DOI: 10.1109/TMC.2021.3091324.
12. **Fei Miao**, Sihong He, Lynn Pepin, Shuo Han, Abdeltawab M. Hendawi, Mohamed E. Khalefa, John A. Stankovic, George J. Pappas, “Data-Driven Distributionally Robust Vehicle Balancing for Mobility on Demand Systems”, *ACM Transactions on Cyber-Physical Systems*, vol.5, no.2, article 17, pp. 1-27, Jan. 2021.
13. Songyang Han, Walter Krawec, **Fei Miao**, “A Game Theoretic Security Framework for Quantum Cryptography: Performance Analysis and Application”, *Quantum Information Processing*, vol.19, no.349, Sep. 2020.
14. **Fei Miao**, Shuo Han, Shan Lin, John A. Stankovic, Qian Wang, Desheng Zhang, Tian He, George J. Pappas, “Data-Driven Robust Taxi Dispatch under Demand Uncertainties”, in *IEEE Transactions on Control Systems Technology*, vol. 27, no.1, pp.175-191, Jan. 2019.
15. **Fei Miao**, Quanyan Zhu, Miroslav Pajic and George J. Pappas, “A Hybrid Stochastic Game for Secure Control of Cyber-Physical Systems”, *Automatica*, vol. 93, pp. 55-63, July 2018.
16. **Fei Miao**, Quanyan Zhu, Miroslav Pajic and George J. Pappas, “Coding Schemes for Securing Cyber-Physical Systems against Stealthy Data Injection Attacks”, in *IEEE Transactions on Control of Network Systems*, vol. 4, no. 1, pp. 106-117, March 2017.
17. **Fei Miao**, Shuo Han, Shan Lin, Sirajum Munir, John A. Stankovic, Hua Huang, Desheng Zhang, Tian He, George J. Pappas, “Taxi Dispatch with Real-Time Sensing Data in Metropolitan Areas: A Receding Horizon Control Approach”, in *IEEE Transactions on Automation Science and Engineering* (invited paper), vol. 13, no. 2, pp. 463-478, April 2016.
18. Shan Lin, **Fei Miao**, Jingbin Zhang, Gang Zhou, Lin Gu, Tian He, John A. Stankovic, Sang Son and George J. Pappas, “ATPC: Adaptive Transmission Power Control for Wireless Sensor Networks”, in *ACM Transactions on Sensor Networks*, vol. 12, no. 1, pp. 1-31, March 2016.

## PREPRINTS (UNDER REVIEW)

19. Zhili Zhang, Yanchao Sun, Furong Huang, and Fei Miao, “Safe and Robust Multi-Agent Reinforcement Learning for Connected Autonomous Vehicles under State Perturbations”, under review, arxiv:2309.11057, Sep. 2023.
20. Jiangwei Wang, Shuo Yang, Ziyang An, Songyang Han, Zhili Zhang, Rahul Mangharam, Meiyi Ma, Fei Miao, “Multi-Agent Reinforcement Learning Guided by Signal Temporal Logic Specifications”, under review, arXiv:2306.06808, 2023.

21. Yue Wang, **Fei Miao**, Shaofeng Zou, “**Robust Constrained Reinforcement Learning**”, under review, arXiv:2209.06866.
22. Lynn Pepin, Lizhi Wang, Jiangwei Wang, Songyang Han, Amir Herzberg, Peng Zhang, **Fei Miao**, “Botnets Breaking Transformers: Localization of Power Botnet Attacks Against the Distribution Grid”, journal, under revision, arXiv: 2203.10158, 2022.

## **PUBLICATIONS (CONFERENCES)**

23. Sihong He, Shuo Han, and **Fei Miao**, "Robust Electric Vehicle Balancing of Autonomous Mobility-on-Demand System: A Multi-Agent Reinforcement Learning Approach", accepted, Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2023.
24. Sihong He, Yue Wang, Shuo Han, Shaofeng Zou, and **Fei Miao**, “A Robust and Constrained Multi-Agent Reinforcement Learning Electric Vehicle Rebalancing Method in AMoD Systems”, accepted, Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2023.
25. Muzi Peng, Jiangwei Wang, Dongjin Song, **Fei Miao**, and Lili Su, “Privacy-preserving and Uncertainty-aware Federated Trajectory Prediction for Connected Autonomous Vehicles”, accepted, Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2023.
26. Sanbao Su, Yiming Li, Sihong He, Songyang Han, Chen Feng, Caiwen Ding, and **Fei Miao**, “**Uncertainty Quantification of Collaborative Detection for Self-Driving**”, in proceedings of the IEEE International Conference on Robotics and Automation (ICRA), pp. 5588-5594, May 2023. arXiv:2209.08162, <https://coperception.github.io/double-m-quantification/>.
27. Zhili Zhang, Songyang Han, Jiangwei Wang, and **Fei Miao**, “Spatial-Temporal-Aware Safe Multi-Agent Reinforcement Learning of Connected Autonomous Vehicles in Challenging Scenarios”, in proceedings of the IEEE International Conference on Robotics and Automation (ICRA), pp. 5574-5580, May 2023. arXiv:2210.02300.
28. Songyang Han, Shanglin Zhou, Jiangwei Wang, Lynn Pepin, Jie Fu, Caiwen Ding, and **Fei Miao**, “Shared Information-Based Safe And Efficient Behavior Planning For Connected Autonomous Vehicles”, the 37<sup>th</sup> AAAI conference on Artificial Intelligence, DCAA Workshop, **Best paper award**.
29. Alaa Selim, Junbo Zhao, Fei Ding, Sung Yeul Park, and **Fei Miao**, “Deep Reinforcement Learning for Distribution System Cyber Attack Defense with DERs”, accepted, IEEE PES North American Innovative Smart Grid Technologies Conference, 2023.
30. Jiangwei Wang, Lili Su, Songyang Han, Dongjin Song and **Fei Miao**, “Towards Safe Autonomy in Hybrid Traffic: The Power of Information Sharing in Detecting Abnormal Human Drivers Behaviors”, the 31<sup>st</sup> International Joint Conference on Artificial Intelligence (IJCAI’22) Workshop, AI4TS: AI For Time Series Analysis: Theory, Algorithms, and Applications, July 22.
31. Songyang Han, He Wang, Sanbao Su, Yuanyuan Shi, and **Fei Miao**, “Stable and Efficient Shapley Value-Based Reward Reallocation for Multi-Agent Reinforcement Learning of Autonomous Vehicles”, in proceedings of the IEEE International Conference on Robotics and Automation (ICRA), pp. 8765-8771, May 2022.
32. Chenghong Wang, Jieren Deng, Xianrui Meng, Yijue Wang, Ji Li, Sheng Lin, Shuo Han, **Fei Miao**, Sanguthevar Rajasekaran and Caiwen Ding, “A Secure and Efficient Federated Learning Framework for NLP”, in Proceedings of the 2021 conference on Empirical Methods in Natural Language Processing (EMNLP 2021), Nov. 2021, pp. 7676-7682.
33. Xiaoyang Xie, Kangjia Shao, Yang Wang, **Fei Miao**, and Desheng Zhang, “Automated Type-Aware Traffic Speed Prediction based on Sparse Intelligent Camera System”, in Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Oct. 2021, pp. 4869-4874, doi: 10.1109/IROS51168.2021.9636559.
34. Deniz Gurevin, Mikhail Bragin, Caiwen Ding, Shanglin Zhou, Lynn Pepin, Bingbing Li, and **Fei Miao**, “Enabling Retrain-free Deep Neural Network Pruning using Surrogate Lagrangian Relaxation”, in *Proceedings of the 30<sup>th</sup> International Joint Conference on Artificial Intelligence (IJCAI-21)*, pp. 2497-2504, Aug. 2021.
35. Shanglin Zhou, Mimi Xie, Yufang Jin, **Fei Miao**, Caiwen Ding, “An End-to-end Multi-Task Object Detection using Embedded GPU in Autonomous Driving”, 22<sup>nd</sup> International Symposium on Quality Electronic Design (ISQED’21), pp.122-128.
36. Yukun Yuan, Meiyi Ma, Songyang Han, Jack Stankovic, Desheng Zhang, **Fei Miao**, Shan Lin, “DeResolver: A Decentralized Negotiation and Conflict Resolution Framework for Smart City Services”, in proceedings of the *12<sup>th</sup> ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS), May 2021, pp. 98-109 (Best Paper Award)*.
37. Guang Wang, Shuxin Zhong, Shuai Wang, **Fei Miao**, Zheng Dong, Desheng Zhang, “Data-Driven Fairness-

- Aware Vehicle Displacement for Large-Scale Electric Taxi Fleets”, in *Proceedings of the 37th IEEE International Conference on Data Engineering (ICDE)*, 2021, pp.1200-1211.
38. Sihong He, Lynn Pepin, Guang Wang, Desheng Zhang, **Fei Miao**, “Data-Driven Distributionally Robust Electric Vehicle Balancing for Mobility-on-Demand Systems under Demand and Supply Uncertainties”, in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 2165-2172, Oct. 2020.
  39. Songyang Han, Jie Fu, **Fei Miao**, “Exploiting Beneficial Information Sharing Among Autonomous Vehicles”, in *Proceedings of the 58th IEEE Conference on Decision and Control (CDC)*, pp. 2226-2232, Nice, France, 2019.
  40. Qixing Wang, **Fei Miao**, Jie Wu, Yuan Niu, Chengliang Wang, Nicholas Lowmes, “Dynamic Pricing for Autonomous Vehicle E-hailing Services Reliability and Performance Improvement”, in *Proceedings of the IEEE 15th International Conference on Automation Science and Engineering (CASE)*, Vancouver, BC, Canada, 2019, pp. 948-953.
  41. Y. Yuan, D. Zhang, **F. Miao**, J. Chen, T. He and S. Lin. p<sup>2</sup>Charging: Proactive Partial Charging for Electric Taxi Systems, in *Proc. of the 39th IEEE International Conference on Distributed Computing Systems (ICDCS)*, pp. 688-69, July 2019.
  42. Lizhi Wang, Lynn Pepin, Yan Li, **Fei Miao**, Amir Herzberg, Peng Zhang and Christopher Leigh, “Securing Power Distribution Grid Against Power Botnet Attacks”, in *Proceedings of the IEEE PES General Meeting*, Atlantic, GA, USA, 2019, pp.1-5.
  43. Walter O. Krawec, **Fei Miao**, “Game Theoretic Security Framework for Quantum Key Distribution”, in *Proceedings of the 9th Conference on Decision and Game Theory for Security*, Seattle, WA, USA, Oct. 2018.
  44. Yukun Yuan, Desheng Zhang, **Fei Miao**, John A. Stankovic, Tian He, George Pappas and Shan Lin, “Dynamic Integration of Heterogeneous Transportation Modes under Disruptive Events”, in *Proceedings of the 9th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS)*, pp. 65-76, CPSWeek, 2018.
  45. Xiang Deng, **Fei Miao** and Daniel D. Lee, “Artificial Invariant Subspace with Potential Functions for Humanoid Robot Balancing”, in *Proceedings of the 2017 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Vancouver, BC, 2017, pp. 4538-4545.
  46. Ximing Chen, **Fei Miao**, George J. Pappas and Victor M. Preciado “Hierarchical Data-Driven Vehicle Dispatch for Large-Scale Ride-sharing Networks”, in *Proceedings of the 56th Conference on Decision and Control (CDC)*, pp. 4458-4463, Dec. 2017.
  47. **Fei Miao**, Shuo Han, Abdeltawab M. Hendawi, Mohamed E. Khalefa, John A. Stankovic, George J. Pappas, "Data-Driven Distributionally Robust Vehicle Balancing Using Dynamic Region Partitions", in *Proceedings of the 8th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS)*, CPSWeek, pp. 261-271, 2017 (**11 pages, acceptance rate < 24%**).
  48. **Fei Miao**, Shuo Han, Shan Lin, George J. Pappas, “Robust Taxi Dispatch under Model Uncertainties”, in *Proceedings of the 54th Conference on Decision and Control (CDC)*, pp. 2816-2821, Osaka, Japan, 2015.
  49. **Fei Miao**, Shan Lin, Sirajum Munir, John A. Stankovic, Hua Huang, Desheng Zhang, Tian He, George J. Pappas, “Taxi Dispatch with Real-Time Sensing Data in Metropolitan Areas- a Receding Horizon Control Approach”, in *Proceedings of the 6th ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS)*, CPSWeek, pp. 100–109, Seattle, WA, 2015 (**Best Paper Award Finalist, 3/91**).
  50. **Fei Miao**, Quanyan Zhu, Miroslav Pajic and George J. Pappas, “Coding Sensor Outputs for Injection Attacks Detection”, in *Proceedings of the 53rd Conference on Decision and Control (CDC)*, pp.5776 – 5781, Los Angeles, CA, 2014.
  51. **Fei Miao**, Quanyan Zhu, Miroslav Pajic and George J. Pappas, “A Moving-Horizon Hybrid Stochastic Game for Secure Control of Cyber-Physical Systems”, in *Proceedings of the 53rd Conference on Decision and Control (CDC)*, pp.517-522, Los Angeles, CA, 2014.
  52. **Fei Miao**, Miroslav Pajic and George J. Pappas, “Stochastic Game Approach for Replay Attack Detection”, in *Proceedings of the 52th Conference of Decision and Control (CDC)*, pp.1854-1859, Florence, Italy, 2013.
  53. **Fei Miao**, Miroslav Pajic, Rahul Mangharam and George J. Pappas, “Networked Realization of Discrete-Time Controllers”, in *Proceedings of American Control Conferences (ACC)*, pp.2996-3001, Washington D.C. MD, 2013.

## SELECTED TALKS

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1. “Learning and Control for Safety, Efficiency and Security of Cyber-Physical Systems”, Keynote speaker, workshop on Co-Design and Coordination of Future Mobility Systems, IEEE Conference on Intelligent Transportation Systems, Oct. 2022.
2. “Learning and Control for Safety, Efficiency and Security of Cyber-Physical Systems”, ETH, invited

- talk, Aug. 2022.
3. “Learning and Control for Safety, Efficiency and Security of Cyber-Physical Systems”, invited talk, University of Southern California Department of Computer Science Seminar, March. 2022.
  4. “Learning and Control for Safety, Efficiency and Security of Cyber-Physical Systems”, invited talk, John Hopkins University Department of Electrical & Computer Engineering Seminar, March. 2022.
  5. “Learning and Control for Safety, Efficiency and Security of Cyber-Physical Systems”, invited talk, Carnegie Mellon University Robotics Institute, Feb. 2022.
  6. “Attack Detection and Secure Control of Cyber-Physical Systems”, invited talk, tutorial for Industrial Control System Security, Design, Automation and Test in Europe Conference (DATE’ 21), Feb. 2021.
  7. “Improving Efficiency in Heterogeneous Electric Vehicle Fleets”, invited talk, NSF CPS PI meeting workshop “Coupled Communications and Autonomy Challenges in Connected Autonomous Vehicles”, Nov. 2019.
  8. “Learning for Robust Control and Optimization: Efficiency and Safety of Autonomous Transportation Systems”, ITS Transportation Seminar, UC Berkeley, Nov. 2019.
  9. “Data-Driven Dynamic Robust Resource Allocation: Application to Efficient Transportation”, invited talk, EE, Harvard, Apr. 2018.
  10. “Data-Driven Robust Resource Allocation”, invited talk, MIT, Mar. 2016.

## **Research Group**

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### **PhD Students**

1. Sihong He (CSE Uconn, Female)
2. Zhili Zhang (CSE Uconn)
3. Sanbao Su (CSE Uconn)
4. Huiqun Huang (CSE Uconn)
5. Lynn Pepin (CSE Uconn)

### **PhD Graduated**

1. Songyang Han (CSE Uconn, 2018-2023, now Research Scientist at Sony AI)
2. Jiangwei Wang (ECE Uconn, 2018-2023, now Data Scientist at Eversource Energy)

### **Undergraduate Research Students**

1. Steven Santos (McNair Program for Minority Student)
2. Shihab Khalfalla (McNair Program for Minority Student)

### **Undergraduate Research Students Alumni**

1. Keyur Shah
2. Renukanandan Tumu: now PhD at Upenn, NSF Graduate Research Fellowship (GRFP) Awardee

## **TEACHING EXPERIENCE**

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<b>Instructor, CSE4820/CSE5819 Introduction to Machine Learning</b>	Spring 2022
<b>Instructor, CSE5309/SE5201 Embedded/Networked Systems Modeling Abstractions</b>	Spring 2022
<b>Instructor, CSE5095/SE5201 Embedded/Networked Systems Modeling Abstractions</b>	Spring 2021
<b>Advisor, CSE Undergrad Capstone Project: Reinforcement Learning for Autocar</b>	Spring 2021
First place among 40 capstone project teams	
<b>Instructor, CSE4820/CSE5819 Introduction to Machine Learning</b>	Fall 2020
<b>Instructor, CSE5095/SE5201 Embedded/Networked Systems Modeling Abstractions</b>	Spring 2020
<b>Instructor, CSE5095/SE5201 Embedded/Networked Systems Modeling Abstractions</b>	Fall 2019
<b>Instructor, CSE4095 Introduction to Machine Learning</b>	Spring 2019
<b>Instructor, CSE5095/SE5301 Embedded/Networked Systems Modeling Abstractions</b>	Spring 2018
<b>Instructor, CSE4095 Introduction to Machine Learning</b>	Fall 2017
<b>Department of Computer Science and Engineering, University of Connecticut</b>	

## **SYNERGISTIC ACTIVITIES AND PROFESSIONAL SERVICE**

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### **Panelist**

NSF CISE Directorate S&CC Program, 2022

NSF CISE Directorate CPS Program, 2021

NSF CISE Directorate IIS Program, 2020

NSF CISE Directorate S&CC Program, 2020

Review and summarize proposals on panel discussion, write panel discussion report and summary

### **Associate Editor**

IEEE Conference on Decision and Control, 2017

American Control Conference, 2017-

Meta Reviewer, AAAI

### **Conference Organization**

Program Co-Chair, 17th International Symposium on Distributed Autonomous Robotic Systems (DARS 2024)

Publication chair, IEEE 7th IEEE International Conference on Industrial Cyber-Physical Systems, 2024

Organizing Committee, NSF CPS PI Meeting, 2022

Organizing Committee, 2021 Design, Automation and Test in Europe Conference (DATE) Workshop on Industrial Control Systems and Cyber-Physical Systems

Organizing Committee, Eversource Energy Center Annual Workshop, 2020

Session Organizing Chair, 2019 IEEE 15th International Conference on Automation Science and Engineering (CASE) Special Session on Security of Cyber-Physical Systems

### **Technical Program Committees**

1. ICCPS Technical Committee, CPS-IoT Week 2023-

2. IEEE Control Systems Society Technical Committee member on Smart Cities (2018-)

3. The Third International Workshop on Science of Smart City Operations and Platforms Engineering (SCOPE), co-located with Cyber-Physical Systems Week 2018

4. 7th IEEE Annual International Workshop on Mission-Oriented Wireless Sensor and Cyber-Physical System Networking (MiSeNet 2018) at IEEE INFOCOM'18

5. 1<sup>st</sup> IEEE International Symposium on Nanoelectrical and Information Systems (iNIS 2015)

### **Reviewer of Journals**

IEEE Transactions on Neural Networks and Learning Systems

ACM Transactions on Cyber-Physical Systems

Automatica

IEEE Transactions on Automatic Control

IEEE Transactions on Control Systems Technology

IEEE Transactions on Control of Network Systems

IEEE Control Systems Letters (L-CSS)

IEEE Transactions on Intelligent Transportation Systems

### **Reviewer of Conferences**

International Joint Conference on Artificial Intelligence (IJCAI)

AAAI Conference on Artificial Intelligence

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

IEEE/RAS International Conference on Robotics and Automation (ICRA)

ACM/IEEE International Conference on Cyber-Physical Systems (CPSWEEK, ICCPS)\_

IEEE Conference on Decision and Control (CDC)

American Control Conference (ACC)

## **UNIVERSITY SERVICE**

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### **Committees**

Graduate Studies Committee, University of Connecticut, 2021- 2022

Workload Committee, University of Connecticut, 2021-2022

Robotics Program Proposal and Preparing Committee, University of Connecticut, 2021

Four Tenure-track Search Committee, University of Connecticut, Aug 18-present

**Ph.D. Thesis Committees**

Yukun Yuan, SUNY-Stony Brook University, 2022

Xingyu Wang, University of Connecticut, 2022

Qianqian Tong, University of Connecticut, 2021

Jue Wang, University of Connecticut, 2021

Qixing Wang, University of Connecticut, 2019

**Undergrad Honored Thesis**

Keyur Shah, University of Connecticut, 2020

Renukanandan Tumu, University of Connecticut, 2020

**Undergrad Research Advisor for McNair Scholar Program**

Steven Santos, 2020-2021 (Minority Student)

Shihab Khalfalla, 2020-2021 (Minority Student)

**Education and Outreach**

Young Scholars Senior Summit (YSSS) for High School Scholars Research Site Host, Summer 2021

Uconn High School Research Program Advisor, Academic Year 2021-2022