SIHONG (HOLLY) HE

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EDUCATION

University of Connecticut *Aug 2019 - present*
PhD student in Computer Science, GPA: 3.97/4.00 Storrs, CT, USA

University of California, Irvine *Sep 2017 - Mar 2019*
Master of Science in Statistics, GPA: 3.63/4.00 Irvine, CA, USA

Southern University of Science and Technology *Sep 2013 - Jun 2017*
Bachelor of Science in Financial Mathematics, GPA: 3.52/4.00 Shenzhen, China

PUBLICATION

[J1] Data-Driven Distributionally Robust Vehicle Balancing for Mobility on Demand Systems
Fei Miao, **Sihong He**, Lynn Pepin, Shuo Han, Abdeltawab M. Hendawi, Mohamed E. Khalefa, John A. Stankovic, and George J. Pappas.
ACM Transactions on Cyber-Physical Systems (TCPS), 2021.

[C1] Data-Driven Distributionally Robust Electric Vehicle Balancing for Mobility-on-Demand Systems under Demand and Supply Uncertainties
Sihong He, Lynn Pepin, Guang Wang, Desheng Zhang, and Fei Miao
IEEE International Conference on Intelligent Robots and Systems (IROS), 2020.

UNDER SUBMISSION

[J2] Data-Driven Distributionally Robust Electric Vehicle Balancing for Autonomous Mobility-on-Demand Systems under Demand and Supply Uncertainties
Sihong He, Zhili Zhang, Shuo Han, Lynn Pepin, Guang Wang, Desheng Zhang, John A. Stankovic, and Fei Miao

[J3] FairMove: Data-Driven Fairness-Aware Deep Reinforcement Learning for Large-Scale Electric Taxi Fleet Management
Guang Wang, Shuxin Zhong, **Sihong He**, Shuai Wang, Fei Miao, Zheng Dong, and Desheng Zhang

[C2] Robust Electric Vehicle Balancing under Demand and Supply Uncertainties Using Constrained Multi-Agent Reinforcement Learning
Sihong He, Shuo Han ,and Fei Miao

[C3] Robust Multi-Agent Reinforcement Learning Under Training Partners' Policy Uncertainty
Songyang Han, **Sihong He**, Zhili Zhang, and Fei Miao

[C4] Robust Multi-Agent Reinforcement Learning Under Adversarial State Perturbations
Songyang Han, Sanbao Su, **Sihong He**, Shuo Han, Haizhao Yang, and Fei Miao

[C5] Robust Markov Game with State Adversary
Sihong He, Shuo Han, and Fei Miao

HONORS

Invited Presentation at the Interdisciplinary Forum on Intelligent Transportation	*2022*
Predocorotal Fellowship (UConn)	*2021*
Selected Presentation at the NSF Cyber-Physical Systems Principal Investigators' Meeting	*2021*
GE Advanced Manufacturing Fellowship (UConn), Cigna Graduate Scholarship (UConn)	*2020*
Cigna Graduate Scholarship (UConn)	*2019*
Outstanding Student Award (Sustech)	*2017*
Startup Scholarship (Sustech), Sunshine Fellowship (Sustech)	*2016*
Startup Scholarship (Sustech), Student Research Grant Award from Guangdong Province	*2015*
Government Scholarship (Sustech), Yunlong Fellowship (Sustech)	*2014*
Freshman Scholarship (Sustech)	*2013*

SERVICE

Diversity Communications Advisory Group for School of Engineering (UConn)	*Member*
ISSS Grad Buddy Program (UConn)	*Graduate Buddy*
Ad Hoc Networks, Flexible and Printed Electronics, TKDE, CDC, ACC, AAAI	*Reviewer*
The 2022 International Conference on Innovations in Computing Research	*Program Committee*
American Journal of Science, Engineering and Technology	*Editorial Board Member*

SKILLS

Python, Java, Matlab, R, MySql, Tensorflow, OpenAI-gym

WORK EXPERIENCE

Department of Computer Science and Engineering, UConn *Aug 2019 - present*
Research Assistant

· Conducted research work on topics: Robust Optimization, Robust Reinforcement Learning (RL), Multi-agent RL, Smart City, Diversified Portfolios, etc.

Department of Statistics, UC Irvine *Jan 2018 - Jan 2019*
Teaching Assistant

· Held office hour and marked assignments for "Introduction to Statistics" and "Introduction to Biostatistics".

Big Data Center, Sunshine Insurance Group, Beijing *Aug 2018 - Sep 2018*
Data Science Intern

· Built a Single-Factor Threshold Model for monitoring risks using machine learning algorithms.
· Applied MySql to manage databases, and Shiny to build an R application to analyze data semi-automatically.
· Improved time efficiency by 60% after using new models and systems.
· Coordinated the collaboration between the Big Data Center and the Risk Management Department.

Department of Mathematics, Sustech *Sep 2016 - Feb 2017*
Teaching Assistant

· Held office hour and marked assignments for "Security Investment (Optimization)".

SELECTED PROJECTS

Robust Reinforcement Learning Algorithm for E-Taxi Balancing *April 2020 - present*
Reinforcement Learning(RL)/Multi-Agent RL/Deep Learning/Python/Tensorflow

· Designed a robust multi-agent reinforcement learning algorithm to deal with the E-taxi balancing problem.
· Constructed a simulator as the experimental platform and our algorithm performs better under uncertainties.

Machine Learning Application in Portfolio Construction *Nov 2019 - Present*
Investment Optimization theory/ Python/Clustering/Pandas library

· Cooperated with an investment company - Engelhart Commodities Trading Partners.
· Construct investment portfolios using machine learning algorithm and make reports per week.
· Built an automatic system to input data, process data and output portfolios.

Robust Optimization Methods for Taxi Dispatching *Aug 2019 - March 2020*
Convex Optimization/Mathematical Proof/Python/CVXPY library

· Designed a distributionally robust optimization method to solve the taxi dispatching problem under uncertainties.
· Cleaned large transportation data sets using python.
· Verified our algorithm is much robust using CVXPY and proved theorems using convex optimization theory.