

# YINSONG WANG

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H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology

## EDUCATION

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**Northeastern University, United States**

*Jul 2021 - August 2024*

Ph.D. in Industrial Engineering transferred from Texas A&M University

Department of Mechanical and Industrial Engineering

Advisor: Shahin Shahrampour

**Texas A&M University, United States**

*Sep 2018 - Jun 2021*

Ph.D. in Industrial and Systems Engineering

Department of Industrial and System Engineering

Advisor: Shahin Shahrampour

**The Hong Kong Polytechnic University, Hong Kong**

*Aug 2017 - Jan 2019*

M.S. in Manufacturing System Engineering and Management

Department of Industrial and Systems Engineering

**Shandong University, China**

*Sep 2013 - Jun 2017*

B.E. in Mechanical Engineering

Department of Mechanical Engineering.

## EXPERIENCE

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**Georgia Institute of Technology, United States**

*Sep 2024 - Present*

Postdoctoral Fellow at H. Milton Stewart School of Industrial and Systems Engineering

Co-supervisors: Yu Ding, Xiao Liu

## RESEARCH INTEREST

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Machine Learning, Statistics, Information Theory, Sequential Decision Making, Optimization, Cross-Modal Learning, Meta Learning, Kernel Methods, Real-time Density Estimation, Distributed Learning

## PUBLICATIONS

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### Journal Papers

- J1 **Yinsong Wang**, Shahin Shahrampour, “TAP: The attention patch for cross-modal knowledge transfer from unlabeled data,” *Transactions on Machine Learning Research*, 2024
- J2 **Yinsong Wang**, Yu Ding, Shahin Shahrampour, “TAKDE: Temporal adaptive kernel density estimator for real-time dynamic density estimation,” *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 45, no. 11, pp. 13831–13843, 2023
- J3 Simon Foucart, Chunyang Liao, Shahin Shahrampour, **Yinsong Wang**, “Learning from non-random data in Hilbert spaces: An optimal recovery perspective,” *Sampling Theory, Signal Processing, and Data Analysis*, vol. 20, no. 1, p. 5, 2022 [Authors listed alphabetically]
- J4 **Yinsong Wang**, Shahin Shahrampour, “ORCCA: Optimal randomized canonical correlation analysis,” *IEEE Transactions on Neural Networks and Learning Systems*, vol. 34, no. 8, pp. 5024–5036, 2021

- J5 Maryam Zahabi, **Yinsong Wang**, Shahin Shahrampour, “Classification of officers driving situations based on eye-tracking and driver performance measures,” *IEEE Transactions on Human-Machine Systems*, vol. 51, no. 4, pp. 394–402, 2021

### Peer-Reviewed Conference Papers

- C1 **Yinsong Wang**, Jing Zhang, Daniel Nikovski, Takaya Yamamoto, “Estimating traffic density using transformer decoders,” *The 4th International Workshop on Statistical Methods and Artificial Intelligence*, Leuven, Belgium, Mar. 2024, pp. 1027–1032
- C2 **Yinsong Wang**, Yu Ding, Shahin Shahrampour, “Tracking dynamic gaussian density with a theoretically optimal sliding window approach,” *The 4th International Conference on Dynamic Data Driven Applications Systems*, Cambridge, USA, Oct. 2022, pp. 275–282
- C3 **Yinsong Wang**, Hessam MahdaviFar, Kamran Entesari, Shahin Shahrampour, “Cell association via voundary detection: A scalable approach based on data-driven random features,” *The 54th Asilomar Conference on Signals, Systems, and Computers*, Virtual, Nov. 2020, pp. 1142–1146
- C4 **Yinsong Wang**, Shahin Shahrampour, “Distributed parameter estimation in randomized one-hidden-layer neural networks,” *The 2020 American Control Conference*, Virtual, Jul. 2020, pp. 737–742

### Under Review

- P1 **Yinsong Wang**, Quan Zeng, Xiao Liu, Yu Ding, “Mutual Information Surprise: Rethinking unexpectedness in autonomous systems,” submitted to *INFORMS Journal of Data Science*
- P2 **Yinsong Wang**, Shahin Shahrampour, “Understanding measure consistency regularization via neural net distance,” submitted to *IEEE Transactions on Pattern Analysis and Machine Intelligence*

### Working Papers

- W1 Score-based Mean Embedding for Distribution Regression (lead author)
- W2 Continuous Mutual Information Surprise (lead author)
- W3 Fast Kernel Kalman Filter (co-author)

### Patent

- T1 Jing Zhang, **Yinsong Wang**, Daniel Nikovski, “System and method for estimating a future traffic density in an environment,” (U.S. Patent No. 20240304081A1). United States Patent and Trademark Office.
- T1 Jing Zhang, **Yinsong Wang**, Daniel Nikovski, “System and method for estimating a future traffic density in an environment,” (EU Patent No. EP4457791A1). European Patent Office.

### HONORS & AWARDS

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| • <b>Yamamura Research Award</b><br>Northeastern University                        | <i>Apr 2025</i> |
| • <b>Teaching Fellow Award</b><br>Northeastern University                          | <i>Dec 2023</i> |
| • <b>John and Katharine Cipolla Ph.D. Merit Award</b><br>Northeastern University   | <i>Dec 2022</i> |
| • <b>Best Poster Awards</b><br>Texas A&M University ISEN Department Poster Session | <i>Nov 2019</i> |

- **ISEN department scholarship**  
Texas A&M University ISEN Department

*Jan 2019*

## TEACHING

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### **Instructor at Georgia Institute of Technology (Instructor on Record Assisted by TAs)**

*Jan 2025 - Apr 2025*

Courses:

- ISyE 7406 (Graduate): Data Mining and Statistical Analysis  
Average Instructor Related Rating: 4.82/5

### **Teaching Fellowship at Northeastern University (Instructor on Record Assisted by TAs)**

*Jan 2024 - Apr 2024*

Courses:

- IE 3412 (Undergraduate): Engineering Probability and Statistics  
Average Instructor Related Rating: 4.58/5 (Department Mean: 4.45/5)

### **Graduate Teaching Assistant at Texas A&M University**

*Sep 2018 - Jun 2021*

Courses:

- ISEN 613 (Graduate): Engineering Data Analysis
- ISEN 625 (Graduate): Simulation Methods and Applications
- ISEN 355 (Undergraduate): System Simulation

## INTERN

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### **Research Intern at Mitsubishi Electric Research Labs (MERL)**

*May 2023 - Aug 2023*

Hosts: Arvind Raghunathan, Daniel Nikovski, Jing Zhang

### **Research Intern at Mitsubishi Electric Research Labs (MERL)**

*Jan 2022 - Apr 2022*

Hosts: Daniel Nikovski, Jing Zhang

## SERVICE

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### **Conference:**

- Session Chair IISE 2025, Atlanta, GA
- Session Chair INFORMS 2023, Pheonix, AZ

### **Reviewer**

- IEEE Transactions on Signal Processing (TSP)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- Transactions on Machine Learning Research (TMLR)
- Artificial Intelligence Review
- Measurement
- International Conference on Machine Learning (ICML) 2025
- International Conference on Learning Representations (ICLR) 2024, 2025
- Conference on Neural Information Processing Systems (NeurIPS) 2024, 2025
- International Conference on Artificial Intelligence and Statistics (AISTATS) 2024, 2025

- IEEE International Symposium in Information Theory (ISIT) 2024
- IEEE American Control Conference (ACC) 2021, 2022
- Learning for Dynamics and Control Conference (L4DC) 2020