YINSONG WANG

ywang4542@gatech.edu
H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology

EDUCATION

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

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

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

PUBLICATIONS

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," (EP Patent No. EP4457791A1). European Patent Office.

HONORS & AWARDS

- **Yamamura Research Award** *Apr 2025*
  Northeastern University
- **Teaching Fellow Award** *Dec 2023*
  Northeastern University
- **John and Katharine Cipolla Ph.D. Merit Award** *Dec 2022*
  Northeastern University
- **Best Poster Awards** *Nov 2019*
  Texas A&M University ISEN Department Poster Session

- **ISEN department scholarship** *Jan 2019*
  Texas A&M University ISEN Department

TEACHING

Instructor at Georgia Institute of Technology *Jan 2025 - Apr 2025*
(Instructor on Record Assisted by TAs)
Courses:

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

Teaching Fellowship at Northeastern University *Jan 2024 - Apr 2024*
(Instructor on Record Assisted by TAs)
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

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

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