Dejin Wang

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EDUCATION

Northeastern University, **Ph.D in Interdisciplinary Engineering** Sept 2024 – Present

- **Selected Courses:** Machine Learning, Reinforcement Learning, Probability Theory

Nankai University, **MS in Operations Research and Cybernetics** Sept 2021 – Jun 2024

- **Selected Courses:** Pattern Recognition, Adaptive Control, Matrix Theory, GPA: 87.2/100

China University of Geosciences (Wuhan), **BS in Mechanical Engineering** Sept 2017 – Jun 2021

- **Selected Courses:** Advanced Mathematics, Calculus, Algebra, Theory of Machines, GPA: 89.7/100

PROFESSIONAL EXPERIENCE

Research Assistant, Northeastern University – Boston, MA Sep 2024 – Present

- Conducted advanced research on autonomous driving with a focus on **motion control**, **driving-style modeling**, and **risk-sensitive decision-making** for complex and uncertain environments.
- Designed and implemented **robust reinforcement learning** algorithms and evaluated them in simulation platforms including **CARLA, HighwayEnv** environments.
- Developed **Transformer-based** models that processed sequential driving observations to infer driving styles in real time, producing interpretable and uncertainty-aware style representations for downstream decision making.
- Developed a **Reward-Guided Domain Randomization** (RGDR) framework that guided the domain sampling process toward more informative environments, improving policy robustness under uncertain driving conditions.
- Developed a **state-only imitation** learning framework that learned a surrogate dynamics model from limited auxiliary interactions and recovered deterministic expert-like policies for autonomous driving.

Research Assistant, Nankai University – Tianjin, China Sep 2021 – June 2024

- Developed new control algorithms, including enhanced **PID MPC** control algorithms, and **multi-agent controllers** aimed at improving stability, responsiveness, and cooperative behavior in dynamic systems.
- Designed **Kalman filter–based information fusion** methods and **sensor-network estimation frameworks** that enabled robust state estimation under noise, partial observability, and heterogeneous sensor modalities.

Teaching Assistant, Nankai University – Tianjin, China Jan 2023 – June 2024

- Assisted in teaching undergraduate physics laboratory courses, supporting instruction in experimental design, measurement techniques, and data analysis.
- Held office hours, graded lab reports, assignments, and exams, and provided one-on-one academic guidance to help students strengthen conceptual understanding and improve experimental proficiency.

Skills

Tools and Software: Python (PyTorch, TensorFlow, Keras, JAX, NumPy, scikit-learn, SciPy, Pandas, Matplotlib), C, C++, OpenAI Gym), Git, Conda, Weights & Biases, Linux, Jupyter Notebook, Workload Managers (e.g., Slurm), MATLAB.

Technical Skills: Reinforcement Learning (RL), Multi-agent RL, Bayesian Statistics, Deep Learning, Machine Learning, Supervised/Unsupervised Learning, Transfer Learning, Generative AI, Statistical Analysis, Time Series Analysis, Signal Processing, Computer Vision, Bayesian Optimization, Gaussian Processes, Bandit Algorithms, Decision Theory, Active Learning, Boolean Kalman Filtering, Monte Carlo Simulations.

PUBLICATIONS AND POSTERS

Journals

2023 **D. Wang**, Z. Liu, and Z. Chen, "Robust event-triggered distributed fusion for multi-sensor systems with unknown failure rates," ***Journal of the Franklin Institute***

2023 **D. Wang**, F. Wang, Z. Liu, et al., "Discrete fixed-time observers over sensor networks with unknown noise," ***Ad Hoc Networks***

2023 **D. Wang**, Z. Liu, and Z. Chen, "An order insensitive optimal generalized sequential fusion estimation for stochastic uncertain multi-sensor systems with correlated noise," ***IET Signal Processing***

Conferences

2026 **D. Wang**, S. F. Ghoreishi, "SRPO: Self-Reflection Policy Optimization for Stable and Robust Autonomous Driving," **in *Proc. International Conf on Robotics and Automation. (ICRA)***

2026 **D. Wang**, S. F. Ghoreishi, "Entropy-Regularized Two-Stage State-Only Imitation Learning under Unknown Dynamics," **in *Proc. IEEE American Control Conf. (ACC)***

2025 **D. Wang**, S. F. Ghoreishi, "RGDR: Reward-Guided Domain Randomization for Autonomous Driving," **in *Proc. IEEE Intelligent Transportation Systems Conf. (ITSC)***

2025 **D. Wang**, S. F. Ghoreishi, "Robust Reinforcement Learning for Autonomous Driving in Uncertain Environments," **in *Proc. IEEE Intl. Conf. on Automation Science and Engineering. (CASE)***

2022 **D. Wang**, Z. Chen, and Z. Liu, "A fast mixed distributed fusion for systems with random parameter matrices and correlated noises," **in *Proc. 41st Chinese Control Conf. (CCC)***

2022 **D. Wang**, M. Li, F. Wang, et al., "Adaptive control of 3R manipulator in the workspace based on radial basis function neural network," **in *Proc. 2022 Chinese Intelligent Systems Conf. (CISC)***

Posters

2025 **D. Wang**. RGDR: Reward-Guided Domain Randomization for Autonomous Driving, **(Presented at the CEE Research Expo, Northeastern University, Boston, MA)**

2025 **D. Wang**. Probabilistic Adaptation for Robust Decision-Making of Autonomous Vehicles in Non-Stationary Environments, **(Presented at the 7th Annual Engineering Research Expo, Northeastern University, Boston, MA)**

2024 **D. Wang**. Probabilistic Adaptation for Robust Decision-Making of Autonomous Vehicles in Non-Stationary Environments, **(Presented at the Industry Leadership Night, Northeastern University, Boston, MA)**

Academic Service

- **3 reviews** for IEEE International Conference on Intelligent Transportation Systems (ITSC), 2025
- **1 review** for IEEE Conference on Decision and Control (CDC), 2025
- **2 reviews** for IEEE Transactions on Intelligent Transportation Systems (T-ITS), 2025, 2026
- **1 review** for The IEEE Intelligent Vehicles Symposium (IV), 2025
- **1 review** for The IEEE Open Journal of Vehicular Technology, 2025

Honors and Awards

- **Travel Award**, IEEE CASE Conf 2025, Los Angeles, USA, 2025
- **Civil and Environmental Engineering Fellowship**, Northeastern University, 2024–2025
- **China National Scholarship** (Top 2%), Nankai University, 2022–2023
- **First-class Graduate Student Scholarship**, Nankai University, 2022–2023
- **Graduate Recommended Examination Exemption Scholarship**, Nankai University, 2021
- **China National Scholarship** (<1%), China University of Geosciences (Wuhan), 2019–2020
- **Outstanding Student Model (School-level)**, China University of Geosciences (Wuhan), 2018, 2019, 2020