Meng Wang

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Education

Univ. of Massachusetts Amherst
PhD, Industrial Engineering and Operations Research
2021.7 - 2025.1

Worcester Polytechnic Institute
MS, Mathematics and Computer Science | *2016.8 - 2018.5*

Central Univ. of Fin. & Econ.
BS, Statistics | *2012.9 - 2016.6*

Skills

- Programming:
Python, **C++**, R, JavaScript, SQL
- ML Frameworks:
PyTorch, **TensorFlow**, scikit-learn, Pandas, **HuggingFace**, Plotly, Shiny
- Cloud & Big Data:
AWS (Boto3, SageMaker, DynamoDB), Hadoop, Spark
- Other:
Git, **Docker**, ROS, QGIS

Honors and Awards

- PhD Fellowship ($45k), New England University Transportation Center.

- Doctoral Fellowship for Outstanding Students ($12k), UMass College of Engineering.

- Winner (1/12) of Graduate Qualifying Project, WPI Data Science Graduate Research.

Services

- Reviewer for IJHCI, AutoUI, TRB, HFES, 2021-2024.

- TA for UMass MIE657 Human Factors Engineering, 2022.

- TA for WPI CS595 Information Retrieval and Social Media, 2018.

Results-driven Machine Learning Engineer with 6+ years of experience in **developing and deploying AI** across **computer vision** and **LLMs**. Proficient in cutting-edge ML frameworks such as PyTorch, TensorFlow, Hugging Face Transformers, and AWS, with a focus on delivering scalable, real-world impact.

Experience

2025.1 - PRESENT   **Waymo**   Software Engineer
- Developing automated data-mining pipelines for detecting anomalies and long-tail cases in driving data. (C++)

2024.1 - 2024.5   **Honda Research Institute**   Research Intern
- Developed and implemented **Vision Transformer** and **multimodal ML models** to analyze driver behavior and well-being using video, kinematics, and physiological data, achieving **82.78%** accuracy. (PyTorch, OpenAI API, HuggingFace, ROS)
- Applied Large Language Models (LLMs) active learning techniques to create a high-quality benchmark dataset.
- First-authored a research paper currently under review at IEEE Robotics and Automation Letters (RA-L).

2022.5 - 2022.8   **AAA Foundation for Traffic Safety**   Research Intern
- Created road complexity indices using **panoptic segmentation** of street view images to improve the analysis of crash factors. (PyTorch, Detectron2)
- Developed time series models to analyze the impact of COVID-19 on crash patterns, improving the accuracy of crash pattern forecasting and identifying anomalies for proactive intervention. (R)

2021.7 - 2025.2   **UMass Amherst**   Graduate Research Assistant
- Built a framework with **multimodal LLMs** and **deep learning models** to analyze roadway scenes and model drivers' cognitive workload, leveraging large-scale naturalistic driving datasets. (HuggingFace, OpenAI API, SKLearn)
- Optimized model performance and integrated **geospatial data pipelines** for real-time analysis of crash likelihood, achieved **90.15%** accuracy in crash likelihood prediction. (PyTorch, QGIS)

2020.3 - 2021.6   **MIT**   Machine Learning Engineer
- Optimized CV/ML algorithms to analyze driver mental states from large-scale datasets, focusing on model accuracy and scalability for real-time processing.
- Built an **automated AWS pipeline** for data annotation, model training, and deployment, incorporating CI/CD practices for continuous model updates.

2018.8 - 2020.3   **AdaViv (MIT DesignX Startup)**   Data Scientist
- Built computer vision models for plant **anomaly detection**, optimizing model performance for large-scale production deployment. (Keras, Mask RCNN, Docker)
- Built an end-to-end AWS pipeline for data processing and model deployment, ensuring scalability and efficiency. (DynamoDB, SageMaker)

Selected Publications

[1] **Wang, M.**, Zhang, F., & Roberts, S. C. (2024). A simulator study assessing the effectiveness of training and warning systems on drivers' response performance to vehicle cyberattacks. *Accident Analysis & Prevention* (IF: 5.7).

[2] Ding, L., Terwilliger, J., Parab, A., **Wang, M.**, Fridman, L., Mehler, B., and Reimer, B. (2023). "CLERA: a unified model for joint cognitive load and eye region analysis in the wild." *ACM Transactions on Computer-Human Interaction (**TOCHI**)*.