Laura Zheng

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Education

University of Maryland — College Park, MD
Ph.D in Computer Science, advised by Ming Lin @ GAMMA — Aug. 2020 – Aug. 2025

University of Maryland — College Park, MD
B.S. in Computer Science, University Honors; CS Departmental Honors; QUEST Honors — Aug. 2016 – Dec 2019

Conference Publications

1. **[ICML 2025] L. Zheng**, W. Wei, T. Wu, J. Clements, S. Revankar, A. Harrison, Y. Shen, M. Lin. *Adaptive Sensitivity Analysis for Robust Augmentation against Natural Corruptions in Image Segmentation*, 2025 International Conference on Machine Learning (ICML).

2. **[IROS 2025] L. Zheng***, H Yaghoubi Araghi*, T. Wu, S. Thalapanane, T. Zhou, M. Lin. *Quantifying and Modeling Driving Styles in Trajectory Forecasting*, 2025 International Conference on Intelligent Robots and Systems (IROS).

3. **[ICRA 2025]** S. Son*, **L. Zheng***, M. Lin. *Gradient-based Trajectory Optimization with Parallelized Differentiable Traffic Simulation*, 2025 IEEE International Conference on Robotics and Automation (ICRA).

4. **[IROS 2024] L. Zheng**, S. Son, J. Liang, X. Wang, B. Clipp, M. Lin. *Deep Stochastic Kinematic Models for Probabilistic Motion Forecasting in Traffic*, 2024 International Conference on Intelligent Robots and Systems (IROS).

5. **[IROS 2024]** S. Thalapanane, S. Kumar, G. SriHari, **L. Zheng**, J. Poveda, M. Lin. *TRAVERSE*: *T*raffic-*R*esponsive *A*utonomous *V*ehicle *E*xperience & *R*are-event *S*imulation for *E*nhanced safety, 2024 IEEE International Conference on Intelligent Robots and Systems (IROS).

6. **[ICRA 2024]** Y. Shen, **L. Zheng**, T. Zhou, M. Lin. *Task-Driven Domain-Agnostic Learning with Information Bottleneck for Autonomous Steering*, 2024 IEEE International Conference on Robotics and Automation (ICRA).

7. **[NeurIPS 2023]** S. Son, **L. Zheng**, R. Sullivan, Y. Qiao, M. Lin. *Gradient Informed Proximal Policy Optimization*, Thirty-Seventh Conference on Neural Information Processing Systems, 2023.

8. **[ICRA 2023] L. Zheng**, S. Son and M. C. Lin, *Traffic-Aware Autonomous Driving with Differentiable Traffic Simulation*, 2023 IEEE International Conference on Robotics and Automation (ICRA), London, United Kingdom, 2023, pp. 3517-3523, doi: 10.1109/ICRA48891.2023.10161408.

9. **[NeurIPS 2021]** Y. Shen, **L. Zheng**, M. Shu, W. Li, T. Goldstein, M. Lin, *Gradient-Free Adversarial Training Against Image Corruption for Learning-based Steering*, Advances in Neural Information Processing Systems, 2021. 26250–26263.

10. **[IROS 2020]** S. Akhauri, **L. Zheng**, M. C. Lin, *Enhanced transfer learning for autonomous driving with systematic accident simulation*, 2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2020. 5986–5993.

Ongoing Projects

1. **L. Zheng**, H Yaghoubi Araghi, T. Wu, T. Zhou, M. Lin. *PolySona: Parameter-Efficient Driving Style Modeling for Trajectory Prediction.*

2. **L. Zheng**, J. Poveda, J. Mullen, S. Revankar, M. Lin. *Personality Modeling for Explainable, Robust, and Safer Autonomous Driving.*

Oral Presentations

1. [**GC-Women 2023**] *Traffic-Aware Autonomous Driving with Differentiable Traffic Simulation.* Poster presentation.

2. [**BADUE @ IROS 2022**] *Exploring Contrastive Learning with Attention for Self-Driving Generalization.* Workshop presentation.

3. [**AGU 2019**] *Understanding Machine Learning in Earth Science: A Natural Language Processing Approach.* Conference poster. **Laura Zheng**, Arif Albayrak, William Teng, Mohammad Khayat, Long Pham.
   Developing a Machine-Learning-Based Processing Framework for Twitter and Other Crowdsourced Data. Conference poster. William Teng, Arif Albayrak, **Laura Zheng**, Rachel Li, Matteo Russo, Long Pham.

4. [**AGU 2020**] *Towards a Domain-Informed Search Engine for NASA Earth Science Data.* Conference poster. William Teng, Arif Albayrak, **Laura Zheng**, Abhinav Kumar, Lauryn Wu, Long Pham, Mohammad G Khayat, Mahabal Hegde.

Work Experience

Research Engineering Intern — May 2024 - Aug 2024
Waymo; Research Team — Oxford, United Kingdom

Research and Development Intern — May 2023 - Aug 2023
Kitware Inc. // Project: Large-scale microscopic traffic simulation — Carrboro, NC

Data Science Intern — June 2019 - Aug 2020
NASA Goddard Earth Sciences Data and Information Services Center / ADNET Systems — Greenbelt, MD

Undergraduate Research Assistant — August 2019 – Dec 2019
University of Maryland — College Park, MD

CRA-W DREU in Autonomous Driving — May 2019 – July 2019
University of North Carolina at Chapel Hill — Chapel Hill, NC

Teaching

CMSC 828X: Learning-based Modeling, Simulation and Animation, TA for Prof. Ming Lin — Fall 2022
CMSC 320: Data Science, TA for Prof. Jose Calderon — Spring 2021, 2022
CMSC 420: Data Structures, TA for Prof. Hanan Samet — Fall 2021
CMSC 131: Object-Oriented Programming, TA for Prof. Fawzi Emad — Fall 2020

Honors and Awards

Selected Speaker for the Future Leaders in Robotics and AI seminar series — Jan 2025
Selected for the Maryland Transportation Institute Fellowship — Aug 2024
Outstanding Graduate Assistant Award for AY 2023-24 — Jan 2024
Selected as Spotlight Talk at BADUE, IROS 2022 — Fall 2022
CS Summer Research Fellowship — Fall 2021
Grace Hopper Scholarship — Fall 2020
Cornell, Maryland, Max Planck Pre-doctoral Research School — Summer 2020
QUEST Program, Cohort 29 — Fall 2017 - Fall 2019
President's Scholarship — Fall 2016 - Spring 2020

Service

- **Mentorship.** Currently mentoring for Undergrad and Masters research, 6 students (2025); REU-CAAR Undergraduate Research Project Host (2025); Graduate Student Mentorship Program (2022-2024); 3x Graduate Research Project Mentor for Tech+Research Track at Technica (2020-2022).
- **Conference Reviewing.** Conference on Neural Information Processing Systems (NeurIPS) 2025; International Conference on Machine Learning (ICML) 2025; IEEE Robotics and Automation Letters (RA-L) 2023; International Conference on Robots and Automation (ICRA) 2023 - 2025; International Conference on Intelligent Robots and Systems (IROS) 2023 - 2025; Behavior-Driven Autonomous Driving in Unstructured Environments (BADUE Workshop) 2022;

Courses Taken

Foundations of Deep Learning, Learning-based Modeling, Simulation and Animation	Fall 2022
Robotics, Differentiable Programming, Advances in XR	Fall 2021, Spring 2022
Advanced Numerical Optimization, Data Visualization	Spring 2021
Parallel Computing, Interactive Technologies/HCI, ML Guarantees and Analysis	Fall 2020

Technical Skills

Programming Languages: Python, Java, C#, Racket
OS: Linux, Mac OSX, Windows
Software and Frameworks: Unity, PyTorch, Lightning, Tensorflow, CARLA, SUMO
Spoken Languages: English, Mandarin Chinese (Speaking Only)