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 – Present
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. [**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).

2. [**IROS 2024**] S. Thalapanane, S. Kumar, G. SriHari, **L. Zheng**, J. Poveda, M. Lin. *TRAVERSE: Traffic-Responsive Autonomous Vehicle Experience & Rare-event Simulation for Enhanced safety*, 2024 IEEE International Conference on Intelligent Robots and Systems (IROS).

3. [**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).

4. [**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.

5. [**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.

6. [**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.

7. [**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**, J. Poveda, J. Mullen, S. Revankar, M. Lin. *Personality Modeling for Explainable, Robust, and Safer Autonomous Driving.*

2. **L. Zheng**, Y. Shen, Tony Wu, Wenjie Wei, Jacob Clements, S. Revankar, M. Lin. *Data augmentation methods for computer vision robustness benchmarks.*

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	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

Outstanding Graduate Assistant Award for AY 2023-24	Jan 2024
Selected as Spotlight Talk at BADUE at 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

- **Student Mentorship.** Graduate Student Mentorship Program (2022-2023); Current mentor for undergrad research, 3 students (2023); 3x Graduate Research Project Mentor for Tech+Research Track at Technica (2020-2022).

- **Conference and Workshop Reviewer.** IEEE Robotics and Automation Letters (RA-L) 2023; International Conference on Intelligent Robots and Systems (IROS) 2023; Behavior-Driven Autonomous Driving in Unstructured Environments (BADUE Workshop) 2022; International Conference on Intelligent Robots and Systems (IROS) 2020.

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

Languages: Python, Java, C#, Racket, C/C++
OS: Linux, Mac OSX, Windows
Software and Frameworks: Unity, PyTorch, Lightning, Tensorflow, CARLA, SUMO
Developer Tools: Git, VS Code, Visual Studio, Eclipse, Sphinx Documentation, Anaconda, LaTeX