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. [**NeurIPS 2023**] S. Son, **L. Zheng**, R. Sullivan, Y. Qiao, M. Lin. *Gradient Informed Proximal Policy Optimization.*

2. [**ICRA 2023**] **L. Zheng**, S. Son, M. Lin. *Traffic-Aware Autonomous Driving with Differentiable Traffic Simulation.*

3. [**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.

4. [**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**, S. Son, M. Lin. *Kinematic Priors for Vehicle Trajectory Forecasting* (Under Review).

3. **L. Zheng***, Y. Shen*, S. Revankar, S. Liao, M. Lin. *Data augmentation methods for computer vision robustness benchmarks.*

4. Y. Shen, **L. Zheng**, T. Zhou, M. Lin. *Task-Driven Domain-Agnostic Learning with Information Bottleneck for Autonomous Steering* (Under Review).

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.

Research Experience

Research and Development Intern — May 2023 - Aug 2023
Kitware Inc. — 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 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