Laura Zheng

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Summary

First-year computer science PhD student who is highly motivated to learn and proactive in problem solving. Has leadership and support roles in peer-reviewed publications, and extensive experience with machine learning and data science libraries, documentation conventions, presentation, and other soft skills. Seeking summer research internship roles broadly in autonomous driving and computer vision.

Education

University of Maryland College Park, MD
Computer Science PhD Student *Aug. 2020 – Present*

University of Maryland College Park, MD
Bachelor of Science in Computer Science *Aug. 2016 – Dec 2019*

Experience

Intern June 2019 - Aug 2020
NASA Goddard Space Flight Center / ADNET Systems *Greenbelt, MD*

- Developed a publication metadata data collection pipeline for scientists at Goddard
- Researched and applied named entity recognition and relationship extraction natural language processing models on research literature text for knowledge base construction
- Attended various Geoscience academic conferences to present my group's work

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

- Researched and developed vehicle accident scenarios in Unity Game Engine
- Conducted literature review of existing traffic studies and pre-crash scenarios
- Gained experience in academic paper writing

Publications and Projects

Improving Generalization of Transfer Learning Across Domains ICRA 2021

- Project website: https://gamma.umd.edu/stltransfer
- *Currently under review at IROS 2021*
- Proposed an enhanced transfer learning model which improves generalization to unseen test domains using spatio-temporal features, saliency, gradient, and edge maps

Driving through the Lens: Improving Generalization of Learning-based Steering using Simulated Adversarial Ex

- *Coauthor, currently under review at ICLR 2021*
- Explored the domain gap between real, virtual, and style transferred images
- Analyzed the influence of image quality reduction over various noises, occurring digitally and naturally

Enhanced Transfer Learning for Autonomous Driving with Systematic Accident Simulation IROS 2020

- Project website: https://gamma.umd.edu/etladsas
- Systemically parameterized and simulated common accident scenarios in Unity
- Contributed a proof of concept in combining simulated driving data and real-world driving data to train an imitation learning model

Understanding ML in Earth Science: A Natural Language Processing Approach AGU 2019

- Presented this project as an e-lightning presentation at the American Geophysical Union winter meeting in 2019
- Visualized relationships between academic publications in Earth Science and Machine Learning
- Drew insights using natural language processing in order to find relationships between machine learning methods and Earth Science research tasks

Technical Skills

Languages: Python, Java, C#, Racket, C/C++
Developer Tools: Git, VS Code, Visual Studio, Eclipse, Sphinx Documentation, Anaconda