Benjamin Stoler

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EDUCATION

Carnegie Mellon University | Pittsburgh, PA   August 2021 – Present
Doctor of Philosophy in Computer Science
Advised by Dr. Jean Oh | *Thesis Area:* Robustness in Social Robot Navigation

University of Michigan | Ann Arbor, MI
Master of Science in Engineering in Computer Science   September 2019 – April 2020
Bachelor of Science in Engineering in Computer Science   September 2016 – May 2019
Minor in Multidisciplinary Design

RESEARCH PROJECTS

Carnegie Mellon University BIG Lab | Pittsburgh, PA
SafeShift   April 2023 – Present
- Creating a novel scenario characterization and scoring framework to study robustness in autonomous driving trajectory prediction, under a safety-informed distribution shift setting
- Developing a domain adaptation and remediation strategy, reducing prediction collision rates by 10%

T2FPV   June 2022 – March 2023
- Systematized a method for constructing high-fidelity first-person view datasets from top-down trajectory data, and performed human path prediction experiments with realistic perception therein
- Leveraged Unity for scene recreation and deep generative modeling approaches for multi-modal, variational predictions, contributing a novel error correction and imputation module

TrajAir   August 2021 – May 2022
- Researched machine learning methods for predicting aircraft trajectories in non-towered airspaces
- Applied clustering and vector field approaches to capture movement patterns and recognize intent

University of Michigan EFES Lab | Ann Arbor, MI
Agamotto   September 2019 – May 2020
- Designed and constructed a system to find persistent memory bugs in applications by utilizing symbolic execution
- Led investigation and experimentation on Oracle's NVM Direct framework, resulting in 23 new bugs discovered

PROFESSIONAL EXPERIENCE

Johns Hopkins University Applied Physics Lab | Laurel, MD & Remote   September 2020 – August 2023
Associate Professional Staff – Robotics Research Group
- Coordinated adversarial assays and scenario generation for robustness in various UAV autonomy tasks
- Devised policy-agnostic similarity metrics for MDPs, improving transfer performance in GridWorld environments
- Established an open-source benchmark for studying transfer and meta learning in 2D arcade settings
- Architected containerized infrastructure for a hybrid-intelligent, multi-agent system, used by both internal APL developers and external performers

Amazon Web Services | Seattle, WA   June 2019 – August 2019
Software Development Engineer Intern
- Expanded an internal portal for the AWS Commerce Platform organization, enabling querying of invoices based on arbitrary constraints
- Engineered a highly extensible data-flow pipeline, automatically transforming NoSQL data-sources to SQL

JPMorgan Chase & Co. | Ann Arbor, MI & Jersey City, NJ   January 2018 – December 2018
Student Software Engineer – Multidisciplinary Design Program
- Launched a web-based, real-time batch monitoring dashboard, following the design-thinking process, consisting partly of user interviews, paper prototypes, and quality assurance testing
- Implemented full-stack features in Angular (TypeScript) and Spring (Java)

SKILLS

Expertise: Machine Learning, Deep Learning, Generative Modeling, Computer Vision, Human Robot Interaction
Languages: Python, C++, C, Java, JavaScript (ES6), MATLAB, SQL, Bash
Technologies: PyTorch, Scikit Learn, Angular, AWS, Robot Operating System (ROS), OpenCV