

Benjamin Stoler

bstoler@cs.cmu.edu | (440) 724-3637 | <https://benstoler.com> | Pittsburgh, PA

EDUCATION

Carnegie Mellon University | Pittsburgh, PA

Doctor of Philosophy in Computer Science

Dec 2025

Advised by Prof. Jean Oh | Thesis Area: Safe Autonomous Driving and Robust Social Navigation

University of Michigan | Ann Arbor, MI

Master of Science in Engineering in Computer Science

Apr 2020

Bachelor of Science in Engineering in Computer Science | Minor in Multidisciplinary Design

May 2019

RESEARCH PROJECTS

Carnegie Mellon University BIG Lab | Pittsburgh, PA

SEAL: Skill-Enabled Adversary Learning

Feb 2024 – Sep 2024

- Developed a learned scoring function and adversarial skill policy, to enhance safety-critical scenario generation reactivity and fidelity, increasing adversary behavior realism by 35% over state-of-the-art baselines
- Implemented curriculum-based training with adversarially perturbed scenes, improving safety in navigation and control policies, and increasing task success rates by 20% in both in-distribution and out-of-distribution settings

SafeShift

Apr 2023 – Jan 2024

- Designed a novel scenario characterization and scoring framework to evaluate robustness in trajectory prediction under safety-informed distribution shifts, across a variety of state-of-the-art models
- Developed a domain adaptation and remediation strategy, reducing prediction collision rates by 10%

T2FPV: Trajectories to First-Person View

Jun 2022 – Mar 2023

- Systematized the construction of high-fidelity first-person view datasets from top-down trajectory data and conducted human path prediction experiments with realistic perception, contributing a novel error correction module
- Leveraged Unity for scene recreation and deep generative modeling for multi-modal, variational predictions

TrajAir

Aug 2021 – May 2022

- Researched machine learning methods for predicting aircraft trajectories in non-towered airspaces
- Utilized clustering and vector field methods to capture movement patterns and infer pilot intent

University of Michigan EFES Lab | Ann Arbor, MI

Agamoto

Sep 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, discovering and reporting 23 new bugs

PROFESSIONAL EXPERIENCE

Stack AV | Pittsburgh, PA

Mar 2024 – Aug 2024

Research Software Engineer Intern

- Developed and implemented SEAL on internal datasets, generating safety-critical scenarios and improving autonomous driving validation through advanced scenario characterization and clustering methods
- Contributed core simulator and machine learning code, including converting internal datasets to open-source formats, injecting behavior perturbations into ROS logs, and building tools for message alignment and dataset creation

Johns Hopkins University Applied Physics Lab | Laurel, MD & Remote

Sep 2020 – Aug 2023

Research Software Engineer – Robotics

- 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
- Architected containerized infrastructure for a hybrid-intelligent multi-agent system, used internally and externally

Amazon Web Services | Seattle, WA

Jun 2019 – Aug 2019

Software Development Engineer Intern

- Expanded an internal portal for the AWS Commerce Platform, enabling arbitrary querying of invoices
- Engineered a highly extensible data-flow pipeline, automatically transforming NoSQL data sources to SQL

SKILLS

Expertise: Machine Learning, Deep Learning, Generative Modeling, Computer Vision, Human-Robot Interaction

Languages: Python, C++, C, Java, JavaScript, MATLAB, SQL, Bash

Technologies: PyTorch, scikit-learn, Hydra, ROS, OpenCV, Bazel, AWS, Docker, Angular