Aidan Reilly

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Experience

Komatsu Mining Summer, 2024

Robotics Software Engineer Intern

- Developed software for autonomous mining vehicles using **C++, Python, Linux, ROS2,** and **Unreal Engine 5**
- Engaged throughout the entire development lifecycle, from project creation to underground testing.
- Converted an underground mining vehicle from manual control to semi-autonomy, increasing efficiency by 70%.
- Implemented **perception, mapping, localization, and navigation** algorithms for **3D lidar & visual SLAM**.
- Leveraged CUDA to offload tasks and pointcloud processing to the GPU, reducing computation by 60%.
- Designed complex environments within Unreal Engine 5, simulating robots with lidar, radar, camera, and IMU.

Komatsu Mining Summer, 2023

Robotics Software Engineer Intern

- Developed the core autonomy software stack for underground mining products that operate globally.
- Implemented 2D SLAM and NAV2 using lidar, odometry, and imu; wrote nodes for lidar/camera processing
- Utilized C++, Python, and ROS2 on NVIDIA Jetsons; Extensively used Gazebo, Azure DevOps, and Docker.

University of Pittsburgh 2022 - 2024

Teaching Assistant, Discrete Mathematics

- Supported students through recitation, tutoring, and office hours; Managed grading for homework and quizzes.

Portfolio

ANA (Autonomous Navigation Assembly) | github.com/Razzi86/ana_bot 08/2023 - present

- Build an autonomous robot car capable of autonomously mapping and navigating indoor environments.
- Designed its 3D-printed chassis from scratch with CAD, efficiently placing it's lidar, camera, motors, and Jetson.

Indy Autonomous Challenge — MIT-PIT-RW | driverless.mit.edu/mitpittrw 08/2023 - 05/2024

- Trained machine learning models for an autonomous racecar that competes internationally at speeds of 150mph.
- Member of the perception team, focused on processing real-time camera and lidar feeds

Clothing Segmentation Extension | github.com/DW-Han/fashion-segmentation-rep 08/2023 - 09/2023

- Developed a Chrome extension for live clothing segmentation and classification, achieving 86% accuracy.
- Placed 2nd overall in the 2023 SteelHacks hackathon, winning the "User Experience" category.

Education

University of Pittsburgh 2024

Honors *- B.S. in Computer Science, Minor in Mathematics, GPA: 3.6*

Delaware County Community College 2021

Honors *- Transferred, Computer Science, GPA: 3.9*

Coursework: Computer Vision, Deep Learning, Data Structures & Algorithms, AI, Practical AI, Operating Systems, Software Quality Assurance, Computer Organization & Assembly Language

Skills

Languages:	C++17, Python3, Java, C, CUDA, MATLAB, Bash
Development:	Git, Docker, VS Code, UNIX (Ubuntu), Azure DevOps, Blender, NVIDIA Jetson, CAD
Libraries:	PyTorch, Tensorflow, OpenCV, NumPy, Pandas, PyQt5
Robotics:	ROS2, SLAM, NAV2, Gazebo, Unreal Engine 5, ICP, lidar, radar, rgb camera, imu