Aidan Reilly

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Experience

Robotics Software Engineer II May 2024 – Present
Komatsu Mining *Pittsburgh, PA*

- Led the development of an end-to-end ROS2 autonomy stack with a focus on 3D perception and motion planning.
- Developed LiDAR perception and segmentation pipelines that interpret mine geometry (walls, ceilings, intersections) and identify precise cut locations for autonomous sequencing.
- Trained and deployed LiDAR object detection models (CUDA-PointPillars) to detect people, machinery, etc.
- Built LiDAR-based perception tools using ICP, including material-flow volume/velocity estimation and multi-LiDAR extrinsic calibration for automated sensor alignment.
- Implemented SLAM and LiDAR odometry with point-to-point and point-to-plane ICP to estimate vehicle pose and map underground mines in GPS-denied environments.
- Developed autonomy software in ROS2 and standalone C++, deploying with Docker on NVIDIA Jetson platforms

Robotics Software Engineer Intern May 2023 – Aug. 2023
Komatsu Mining *Pittsburgh, PA*

Teaching Assistant, Discrete Mathematics Aug. 2022 – May 2024
University of Pittsburgh *Pittsburgh, PA*

Education

Georgia Institute of Technology Online
M.S. Robotics – Specialization: Computational Perception | GPA: 4.0 *2027*

University of Pittsburgh Pittsburgh, PA
B.S. Computer Science *2024*

Projects

Indy Autonomous Challenge | *Universiry of Pittsburgh, MIT, CMU* June 2022 – Aug. 2023

- Trained camera models with PyTorch to detect opponent racecars.
- Trained PointPillars on pointclouds to detect opponent racecars.

Autonomous Navigation Assembly June 2022 – Dec. 2022

- Created an autonomous car from scratch using ROS2, NVIDIA Jetson, Raspberry Pi, LiDAR, and Cameras.
- Implemented and tuned 3D/Visual SLAM, motion planning, and encoder odometry.

Clothing Segmentation Extension | *University of Pittsburgh* Mar. 2023 – Apr. 2023

- Trained a machine learning model for live clothing segmentation and classification as a Chrome Extension.
- Placed 2nd overall in the 2023 SteelHacks Hackathon, winning the "User Experience" category.

Technical Skills

Languages: C++, Python, MATLAB

Frameworks: ROS2 Humble/Jazzy, Gazebo, Unreal Engine

Perception Packages: SLAM Toolbox, RTAB-Map, Cartographer, PointPillars, ORB-SLAM3

Libraries: OpenCV, PCL, NumPy, PyTorch, scikit-learn

Algorithms & Techniques: ICP, RANSAC, Optical Flow, Point Cloud Filtering, Voxelization

Developer Tools: Git, Docker, VS Code, PyCharm