Aidan Reilly

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Experience

Komatsu Mining 05/2024 - 08/2024
Robotics Software Engineer Intern *Pittsburgh, PA*

- Developed autonomous navigation, perception, and simulation software for underground mining vehicles and machinery using C++, Python, ROS2, and Linux.
- Implemented 3D SLAM with LiDAR, camera, radar, and imu, increasing operational efficiency by 70%.
- Wrote perception algorithms to perform object segmentation and feature extraction using OpenCV and PCL.
- Leveraged CUDA to offload tasks to NVIDIA Jetson AGX GPUs, reducing computational speeds by 60%.
- Created complex simulated environments using Unreal Engine 5, utilizing popular plugins and Rapyuta.
- Extensively used Bash and the Linux command line to manage ROS2 packages and configurations.

Komatsu Mining 05/2023 - 08/2023
Robotics Software Engineer Intern *Pittsburgh, PA*

- Developed the core autonomy software stack for underground mining machinery in GPS-denied environments.
- Implemented lidar nodes for 2D SLAM, estimating volume and velocity, segmenting objects, and plane extraction.
- Wrote an executable that procedurally generates URDFs, streamlining development in Gazebo simulations.

University of Pittsburgh 08/2022 - 05/2023
Teaching Assistant, Discrete Mathematics *Pittsburgh, PA*

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

Projects — Portfolio

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

- Built an autonomous robot car, utilizing lidar/camera SLAM for indoor localization, mapping, and navigation.
- Engineered a 3D-printed chassis from scratch using CAD, efficiently placing electronic components.
- Performs sensor processing with ROS2, C++, and Python on an NVIDIA Jetson and Arduino running Linux.

Indy Autonomous Challenge — MIT-PIT-RW | driverless.mit.edu/mitpittrw 01/2024 - present

- Developing software for an autonomous racecar that competes internationally at speeds of over 150mph.
- Trained machine learning models for real-time obstacle recognition and avoidance using lidar and HD camera.

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 - *Combined Cumulative GPA: 3.72*

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,

Skills

Programming: C++17, Python3, Bash, CUDA, OpenCV, TensorFlow, PyTorch, YOLO, MATLAB, Java
Development: Git, Docker, Azure DevOps, Visual Studio Code, Blender, Linux, Ubuntu 20/22, Windows 10/11
Job Related: TensorFlow, PyTorch, MATLAB, Linux, Google CoLab