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Braden Brooker

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LinkedIn

Work Experience

NSF Funded REU Research Assistant | Oregon State University Robotics — Corvallis, OR | June 2024 – Aug 2024

- Built a **simulation** using **ROS2** and **Gazebo** to model movement behavior of a prototype Autonomous Underwater Vehicle (AUV) for further use in fully autonomous controller development.
- Developed **autonomous controller** software for AUV capable of controlling pitch/yaw and waypoint following.
- Generated a dataset in simulation using **PyBullet**, **ROS2**, **Gazebo** and **Python** for use in training a semantic segmentation-based grasp pose estimation **machine learning model** to improve grasp failure recovery.
- Trained and evaluated grasp planning machine learning model for use in grasp failure recovery

Software Engineer Intern | Agility Robotics — Tangent, OR | June 2023 – Aug 2023

- Developed scalable **perception** systems for use in robot performance testing using **Python** and **C++**.
- Conducted daily robotic system testing, **unit testing** and **debugging** via both IDE and **Linux CLI**.
- **Quickly adapted** to custom-built data evaluation pipelines used in producing industry leading robotics.
- Introduced to the topic of **machine learning** using tools such as **PyTorch**, **Tensorflow** and **SciKit**-Learn.

Computer Architecture TA | Pacific Lutheran University — Parkland, WA | Spring 2023 – Winter 2023

- Aiding with **teaching** in the introduction of students to **computer architecture** using **assembly code**.

Projects

Senior Capstone - 3D Scene Reconstruction Using Sensor Fusion - Sponsored By Sierra Nevada Corporation

- Collaborated with our industry sponsor to develop **3-D scene reconstruction** simulation software for multiple cameras, lidar and other onboard vehicle sensors. Technologies and Algorithms used include Computer Vision, Deep Learning, Kalman Filter, Image Manipulation, Python, C++, ROS and Docker while using an Agile Workflow.

Particle Forge - Web Based Particle Simulator

- Collaborated with peers to develop a **particle simulator** with the intent of modeling **fluid dynamics**. Built using **Three.Js** for visual design and behaviors and is rendered Using **WebGPU** graphics framework.

F1Tenth Autonomous Car

- Designed software systems to autonomously operate a remote-controlled vehicle. On board systems include an IMU, lidar, depth camera sensor as well as a motor controller framework overseen by Nvidia Jetson.

Personal Portfolio Website – Visit My Page - Tools used include: HMTL, JavaScript, CSS, React, Git/GitHub version control.

Education

Pacific Lutheran University — **Parkland, Washington | September 2022 – May 2025**

- Bachelors of Science – Computer Science | Minor in Data Science — Cumulative GPA: 3.9

Relevant Coursework: Intro to CS, Data Structures and Algorithms, Artificial Intelligence, Computer Architecture, Programming Languages, Statistical Computing, Objects and Design, Operating Systems

Tacoma Community College — **Tacoma, Washington | Sep 2020 – June 2022**

- Associate of Arts – General Studies — Cumulative GPA: 3.95