Thomas Detlefsen

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Education, Coursework, & Skills

M.S. in Robotic Systems Development (April 2025) Carnegie Mellon University Robotics Institute

QPA: 4.1/4.3 Pittsburgh, PA

University of Pittsburgh Swanson School of Engineering B.S. in Electrical Engineering (April 2022) GPA: 3.7/4.0

Pittsburgh, PA

Relevant Graduate Coursework

Computer Vision Manipulation, Estimation, and Control **Robot Mobility Systems Engineering**

Programming Languages (in descending proficiency)

Python **MATLAB** C++

Technologies and Frameworks

OpenCV ROS/ROS 2 PyTorch Git Linux

Experience

Carnegie Mellon University

Pittsburgh, PA

Research Associate - Biorobotics Lab

August 2021 – May 2023

- Developed localization and classification systems to track and identify material in a recycling facility
- Improved classification network for identifying e-waste by 5% and extended to new devices
- Deployed technology in a recycling facility and refined the systems based on user feedback

Robotics Institute Summer Scholar (RISS) - Biorobotics Lab

May 2021 – August 2021

- Developed a robust method for localization on legged robots using multiple cameras
- Wrote about findings in RISS Journal and presented at the University of Minnesota REU Poster Symposium
- Worked with the external networking and marketing team to introduce peers to program sponsors

Pittsburgh, PA **SMS Group Inc.**

Electrical & Automation Co-Op

August 2020 - December 2020

- Developed a Human Machine Interface (HMI) for the operation of a continuous caster at a steel mill
- Designed and redlined electrical drawings for terminal boxes and junction boxes
- Communicated and collaborated with different teams of engineers

University of Pittsburgh

Pittsburgh, PA

Undergraduate Teaching Assistant

August 2019 – April 2020

- Assisted 130 students learning MATLAB & C during lecture and office hours over two semesters
- Monitored assessments and provided feedback on students' submissions
- Aided professor with course adaptation in the transition to online courses

Projects & Activities

Indy Autonomous Challenge

Perception Sub-team Lead

August 2020 – October 2021

A high-speed head-to-head race on the Indianapolis Motor Speedway using a full-scale Dallara Indy-Lights vehicle

- Adapted, implemented, and tested a learning-based 3D monocular camera object detection method
- Developed onboarding material to introduce students to machine learning and object detection
- Drove the technical direction and managed the work distribution for a sub-team of 7 people
- Assisted with corporate outreach to solicit sponsorships for a \$400,000 goal

Pitt Robotics & Automation Society

August 2020 - April 2022

President, Director of Operations, Perception Sub-team Lead & Project Manager

Pitt Institute of Electrical and Electronics Engineers

August 2020 – April 2022

Participating Member

Awards & Honors

NSF Research Experience for Undergraduates Scholarship Swanson School of Engineering Dean's Honor List

May 2021