Hudson Kortus

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Education

BS Robotics Engineering *05/2026*
Worcester Polytechnic Institute GPA 3.9/4.0
Coursework: *Unified Robotics I-IV, Software Engineering, Designing Advanced 3D Printers, Deep Learning for Perception*

Work Experience

Advanced Manufacturing and Automation Co-Op *06/2023 – 08/2024*
TTM Technologies
Summer 2024
- Participated in mechanical redesign of precision PCB punch, increasing manufacturability and reducing cost.
- Designed and executed an in-depth tooling study using statistical process control and ANOVA analysis in MiniTab, resulting in a re-evaluation of punch design that saved the company $25,000 per unit.

Summer 2023
- Developed a robotic workcell with integrated vision (Teledyne Sherlock) to pick, place, and solder 0505 electric components, within a precision of less than 1 thou, improving process throughput by 800%.
- Performed preventative maintenance on advanced 3D printer for radio lenses and multilayer PCBs.

Full-Stack Web Intern *02/2021 – 05/2022*
Shodor Education Foundation
- Developed and maintained a LAMP website accumulating 3 to 4 million views per month to provide award winning, free educational tools for students and educators in STEM.
- Applied Java, PHP, and JavaScript skills to restructure legacy code.

Projects

Lead Software Engineer *03/2025 – 04/2025*
Software Engineering
- Led a team of 11 peers in the rapid 5-week Agile development of a full-stack PERN web application for Mass General Brigham hospitals, enabling patients to navigate from home to specific hospital departments.
- Organized work using Scrum methodology, Git for version control, and Jira for task tracking.
- Architected and integrated pathfinding algorithms (DFS, A*) with animated routes, text-to-speech directions, multi-floor support, and real-time map updates.

Sim2Real CNN Model *09/2024 – 09/2024*
Deep Learning for Perception
- Developed a U-Net style Convolutional Neural Network (CNN) to identify and segment drone racing windows.
- Generated 50,000 synthetic training images using Blender and Python to train the model.
- Achieved 95% accuracy when deploying the trained model in real-world applications (see website for results).

Pathfinding Autonomous Robot *03/2024 – 05/2024*
Unified Robotics IV
- Programmed mobile robot to navigate and map unknown maze A* and SLAM using ROS with Python.
- Integrated a Monte-Carlo Particle filter for localization using generated map.
- Filtered noise with Kalman filter to implement reactive obstacle avoidance and pure pursuit path finding.

Skills

SolidWorks • Manufacturing • PCB Design • C++ • Java • Python • PyTorch • OpenCV • MATLAB • ROS/ROS2 • Gazebo • Git • Blender • Neural Networks • Linux • Agile Development • Scrum • LaTeX