Hudson Kortus

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EDUCATION

BS Robotics Engineering 05/2026
Worcester Polytechnic Institute GPA 3.9/4.0
Relevant Coursework: *Unified Robotics I - IV, Embedded Computing, Advanced 3d Printing, Deep learning for Perception*

PROFESSIONAL EXPERIENCE

Advanced Manufacturing and Autonomation Co-Op 06/2023 – 08/2024
TTM Technologies
Summer 2024
- Designed and executed an in-depth tooling study on a high-precision punch to categorize tooling repeatability
- Utilized statistical process control and ANOVA charts in MiniTab to discern repeatability deviations
- Communicated findings leading to a re-evaluation of punch redesign, saving the company $50,000

Summer 2023
- Developed and implemented a robot to autonomously pick, place, and solder high precision circuit board components with a 6-DOF robotic arm, improving system capability by 800%
- Designed and integrated high precision vision algorithms using Teledyne Sherlock for robot control
- Researched, calibrated and performed preventative maintenance on variable dielectric 3D printer for radio lenses, and Nano Dimension Dragonfly IV PCB 3D printer

Full-Stack Web Intern 02/2021 – 05/2022
Shodor Education Foundation
- Developed and maintained a 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

Payload Division Lead 10/2022 – 05/2024
Intercollegiate Rocket Engineering Competition (IREC)
- Designed payload to eject and steer with a novel circular parachute to a self determined landing site
- Managed a 46 member team to design and manufacture an autonomous payload to be launched to 10,000ft
- Integrated 7 subsystems, and collaborated with Rocket and Programming teams to meet system requirements

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)

Vision-Based Color Sorting Robot Arm 01/2024 – 03/2024
Finial Project Unified Robotics 3
- Programmed vision-based object detection with real-time trajectory planning to pick and place colored objects
- Calculated inverse, forward, and velocity kinematics for a 4-DOF robot arm using MATLAB
- Built a custom simulator for data collection, singularity detection, and collision detection

Pathfinding Autonomous Robot 03/2024 – 05/2024
Finial Project Unified Robotics 4
- Programmed mobile robot to map unknown maze with SLAM using ROS and Python
- Integrated a Monte-Carlo Particle filter for localization using generated map
- Filtered noise LIDAR data to implement reactive obstacle avoidance and pure pursuit path finding

SKILLS

SolidWorks • PCB Design • DFA/DFM • Metal-machining • C++ • Java • Python • PyTorch • MATLAB/Mathmatica • ROS/ROS2 • GIT • Gazebo • YOLO • Soft-Robotics • Neural Networks