

Ethan Park

> **Robotics Engineer | Motion Planning, Perception & Controls**

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// summary

Robotics Engineer with 3.5 years of experience building autonomous mobile robots and robotic manipulation systems from prototype to production. Developed navigation, perception, and motion-planning software in ROS 2, C++, and Python; deployed 60+ robots with 99.2% uptime and reduced pick cycle time by 33%. MS in Robotics (Carnegie Mellon) with hands-on experience in sensor fusion, SLAM, and industrial arm integration.

// skills

Robotics Software: ROS/ROS 2, C++17, Python, MoveIt, Nav2, Gazebo, SLAM (Cartographer, ORB-SLAM), Motion Planning (RRT*, OMPL), Kalman Filtering, Sensor Fusion

Perception & AI: OpenCV, PCL, Point Clouds, 3D Vision, YOLO, PyTorch (Basics), Intel RealSense, LiDAR (Velodyne, Ouster), Camera Calibration

Hardware & Integration: FANUC, Universal Robots, ABB Arms, Servo/BLDC Motors, CAN, EtherCAT, STM32, Embedded Linux, PLC Integration, SolidWorks, Docker, Git, CI/CD

// experience

Robotics Software Engineer

Jun 2023 – Present

Keystone Autonomous Systems — Pittsburgh, PA

- Develop navigation and fleet-coordination software (ROS 2, C++) for warehouse AMRs; deployed 60+ robots across 3 sites with 99.2% uptime.
- Built a vision-guided bin-picking pipeline (RealSense + PCL + MoveIt) that reduced pick cycle time by 33% and reached 98.5% grasp success.
- Implemented EKF-based sensor fusion (LiDAR, IMU, wheel odometry), improving localization accuracy from 8 cm to 2.5 cm.
- Created Gazebo simulation and CI test suite (250+ tests) that cut regression testing time from 3 days to 4 hours.
- Collaborate with mechanical, electrical, and safety teams to meet ISO 10218 and ISO 3691-4 requirements.

Robotics Engineer (Intern to Full-Time)

Jul 2022 – May 2023

Allegheny Automation & Controls — Pittsburgh, PA

- Integrated FANUC and UR cobot cells with PLCs and vision systems for 8 customer applications.
- Wrote trajectory-generation and collision-checking modules in C++, reducing cycle time by 18% on a palletizing cell.
- Calibrated multi-camera hand-eye systems, achieving sub-millimeter placement accuracy.
- Debugged EtherCAT and CAN communication issues, improving system reliability by 30%.

// projects

Autonomous Racing Robot (CMU): Led perception stack for 1/10-scale autonomous car; placed 2nd in F1TENTH international competition.

Open-Source: Maintainer of a ROS 2 package for point-cloud filtering with 350+ GitHub stars.

// education

Master of Science in Robotic Systems Development

Carnegie Mellon University — Pittsburgh, PA
2022 | GPA 3.9

B.S. in Mechanical Engineering

Purdue University
2020

// certifications

- ROS 2 Developer Certification
- NVIDIA DLI: Fundamentals of Deep Learning
- OSHA 10-Hour; FANUC Certified Robot Operator