

# John K. Hall

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Graduate student studying robotics engineering with experience developing automated solutions. Looking to employ my extensive programming and mechanical design knowledge to tackle unique and challenging tasks. Eager to collaborate in a team environment and apply strong communication and presentation skills.

## Education

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**Worcester Polytechnic Institute (WPI), Worcester, MA**

Bachelor's of Science in Robotics Engineering, Minor in Mechanical Engineering, 4.0 GPA *May 2025*

Pursuing a Master's of Science in Robotics Engineering, 4.0 GPA *May 2026*

## Skills

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**Programming Languages/Packages:** C++, C, Java, Python, MATLAB, ROS, OpenCV

**Software:** SolidWorks CSWA Certified, Fusion 360, Git, Linux, WSL, Microsoft Suite, VS Code

## Work Experience

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**PAR Systems, St. Paul, MN – Software Engineer Intern** *June 2025 – Current*

- Employ Agile methods to collaborate with a team of eight to develop R&D software solutions.
- Created service modules and UI elements to support Fanuc robot control and RGB-D camera streams.
- Built autonomous image collection pipeline to train machine learning models for part inspection.

**Trane Technologies, St. Paul, MN – Operations Intern** *May 2023 – Aug. 2024*

- Prototyped a work cell to autonomously transfer a surface mounted component from packaging to production tray. Utilized OpenCV to identify components and G-code to control a hobby robot.
- Completed research to buy an automated thermal paste dispenser to increase productivity and reduce material costs. Developed workflow and began integrating robot into production for PCB assemblies.

**WPI Admissions, Worcester, MA – Tour Guide, Admissions Associate** *Jan. 2022 – Present*

- Co-present informational sessions for prospective students and families visiting WPI's campus.
- Attend college fairs and open houses to represent and promote WPI to a wider audience.

## Relevant Projects

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**FuTURE Lab** *Aug. 2025 – Present*

- Conduct research alongside medical device company to advance vision capabilities of endoscopy.
- Collaborate with other researchers in weekly lab meetings along with corporate sponsors on-site.

**Major Qualifying Project – Cleaning Ocean Plastics** *Aug. 2024 – May 2025*

- Worked with a team of six to design, manufacture, and program an aquatic robot to identify and collect floating plastic waste along shorelines. Wrote a comprehensive report detailing the full year's work.
- Modeled robot assembly in SolidWorks before using low-cost and reproducible construction methods.
- Created an Extended Kalman Filter to localize the robot from GPS and sensor data shared in ROS2.

**Unified Robotics Series I – IV** *Aug. 2022 – Dec 2023*

- Implemented simultaneous location and mapping (SLAM) on a small robot with a lidar scanner using ROS. Developed frontier exploration algorithms and obstacle avoidance procedures to navigate maze.
- Developed pick and place robotic arm control systems including forward and inverse position kinematics, trajectory planning, torque control and an image processing pipeline to sort various objects.

## Activities & Leadership

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WPI Men's Ultimate Frisbee Club – President

Phi Kappa Theta Fraternity – Vice President of Membership

Tau Beta Pi Engineering Honors Society