

# Thomas Keady

## LINKS

Personal Website • [thomaskeady.github.io](https://thomaskeady.github.io)  
Linkedin • [linkedin.com/in/thomas-keady](https://linkedin.com/in/thomas-keady)  
CV • [read.cv/thomaskeady](https://read.cv/thomaskeady)

## EDUCATION

**JOHNS HOPKINS UNIVERSITY**  
BALTIMORE, MD  
Cumulative GPA: 3.56

**MSE IN ROBOTICS**  
Perception & Cognitive Systems  
May 2019

**BS IN ELECTRICAL ENGINEERING &  
COMPUTER ENGINEERING**  
May 2018

## SKILLS

**PROGRAMMING LANGUAGES**  
C++ • Python 3 • Bash • C

**TOOLS**  
ROS 2 • Git • Docker • Jupyter • Eclipse  
• MATLAB • VSCode • Altium

**OPERATING SYSTEMS**  
Linux • Windows 10 • MacOS

## ACHIEVEMENTS

**JOHN MUIR TRAIL**  
AUG. 2022 | CALIFORNIA, USA  
Successfully thru-hiked 210 miles over 16 days

**YOUNG MAKER COMPETITION**  
JULY 2019 | BEIJING, CHINA  
Second Prize for Kinect-powered weightlifting assistant

**DJI ROBOMASTER AI  
CHALLENGE @ ICRA**  
MAY 2019 | MONTREAL, CANADA  
Third Prize, highest ranking American team

## HOBBIES

- Reading
- Rock climbing
- Board games

## RELEVANT EXPERIENCE

### **SARCOS ROBOTICS | AUTONOMY & PERCEPTION ENGINEER**

April 2023 - present | Pittsburgh, PA

- Led successful field testing of our semi-autonomous robotic system to improve real world perception, manipulation & integration with third-party hardware
- Engineered computer vision algorithms for autonomy in semi-structured environments & developed tools for measuring performance across datasets
- Implemented & integrated a new user interface for tele-operation of a PTZ camera in a robotic system

### **MIT-PITT-RW | CORE TEAM MEMBER**

Dec. 2022 - present | Pittsburgh, PA

- Volunteering part time to improve racecar sensor data processing in C++, targeting better estimation and robustness to diverse environments
- Prepared for Indy Autonomous Challenge at CES, where the team placed 4th

### **GECKO ROBOTICS | ROBOTICS ENGINEER**

Aug. 2019 - Nov. 2022 | Pittsburgh, PA

- Developed localization codebase for mobile robots in challenging environments
- Developed algorithms to filter and interpret data from IMUs, odometry & 3D sensors
- Designed finite state machines to drive sensors and implemented them using object-oriented programming principles
- Researched, acquired & integrated diverse sensors & ground truth systems
- Iterated data processing pipelines for system performance analysis, visualized results and presented to stakeholders
- Designed, prototyped, integrated & deployed PCBs with custom firmware for mobile robot platforms
- Wrote embedded firmware for robot telemetry & inter-board communication
- Iterated board versions to improve reliability, DFM and DFA

### **ELECTRONIC TRACKING FOR EARTH MOVERS | ADVANCED ECE TEAM PROJECT MEMBER**

Sept. 2016 - May 2018 | Baltimore, MD

- Developed proof of concept for a mobile tracking system to prevent collisions between heavy machinery and construction workers
- Implemented Sequential Monte Carlo Particle Filter to estimate worker position relative to vehicle
- Experimented with software protocols and hardware platforms including networks of RFduinos, BLE Beacons, and iPhone receivers
- Won Best Technology Award and 3rd Place in Category at JHU Business Plan Competition 2018

### **APPLIED PHYSICS LABORATORY | ADVANCED APPLICATION SCHOLARS PROGRAM INTERN**

May 2016 - Aug. 2016 | Laurel, MD

- Wrote driver for lossless communication with wearable wireless sensing platform
- Implemented dead reckoning calculations in C++ from multi-IMU array data as outlined in "Foot-mounted inertial navigation made easy" publication from the OpenShoe Project
- Created Java Native Interface for driver integration with existing Java projects
- Modified solar battery charger to change buck-boost converter output from 12V to 25.2V