

Kevin Robb

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EDUCATION

- Northeastern University**, Boston, MA 2021–Present
Candidate for M.S. Robotics, with CS Concentration
Related courses: Mobile Robotics, Robot Sensing & Navigation
- The University of Oklahoma**, Norman, OK 2017–2021
B.S. Engineering Physics, B.S. Mathematics | Summa cum Laude
Related courses: Applied Statistical Methods, Abstract Linear Algebra

SKILLS

C++, Python, MATLAB, JavaScript, Java, R, Bash, Ubuntu Linux, Git, ROS, LaTeX
Bayesian Filtering (Kalman Filter, EKF, UKF, Particle Filter), Localization, SLAM, Linear Algebra
Computer Vision, Probabilistic Robotics, Motion Planning, Genetic Algorithms, Sensor Fusion

EXPERIENCE

- Piaggio Fast Forward (PFF)**, Perception & Autonomy Team 2022–Present
Robotics Software Engineering Intern
 - Developed dynamic localization and path-planning components from the ground-up for a new autonomous behavior on the *gitamini* consumer mobile robot. (C++)
 - Implemented new features into a large existing software architecture with multiple contributors.
 - Integrated “ground truth” data from OptiTrack motion capture studio into visualizations of robot data for simulating & verifying new algorithms. (Python)
- Robotics, Evolution, Adaptation, and Learning Laboratory (REAL Lab)** 2018–2021
NSF Research Assistant with Dr. Dean Hougen
 - Applied evolutionary computation techniques to optimize Kalman Filter parameters for a simulated mobile robot in changing environments (outperforming manual tuning). (Python)
 - Characterized the relationship between nurturing and risk in a simulated population. (Java)
 - Published a paper [↗](#) in THURJ, a student journal at the University of Oklahoma.
- Office of Admissions & Recruitment**, University of Oklahoma 2018–2021
Campus Tour Guide / Team Lead
 - Led general walking tours and personalized visits for prospective students and families.
 - Delegated tasks on shift, oversaw interviews, and trained new guides.

PROJECTS

- EKF-SLAM Implementation** (Personal Project) Summer 2022
 - Created custom simulator for a 2D mobile robot in ROS Noetic. (Python)
 - Derived & implemented both EKF & UKF to perform online landmark-based SLAM. (C++)
 - Integrated path planning & navigation architecture to explore the environment. (Python)
- Intelligent Ground Vehicle Competition (IGVC)**, Auto-Nav Challenge 2020–2021
 - Led a team of students in building a 2'×3'×3' autonomous vehicle.
 - Developed an EKF to fuse incoming GPS, IMU, and encoder data with motor commands to perform online mobile robot localization. (C++)
 - Detected safe drivable area (free of lanes & obstacles) with RGB camera and LiDAR.
 - Designed physical chassis to be extremely modular for quick disassembly for transport.
 - Made in CAD & 3D-printed several parts (e.g., sensor mounts) for use on the robot.
 - Won 1st place and Rookie of the Year at the 2021 IGVC.
- National Robotics Challenge (NRC)**, Autonomous Vehicle Competition 2019–2020
 - Constructed ROS architecture for a small custom “race car” platform that was able to complete a known course autonomously in minimal time.
 - Made system to generate trajectories and navigate using Pure Pursuit. (Python)
 - Implemented a PID controller to smooth & publish motor commands. (Python)