

Kevin Robb

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Available: May – Dec. 2022

EDUCATION

- Northeastern University**, Boston, MA 2021–2023
Candidate for M.S. Robotics, with CS Concentration
Related courses: Mobile Robotics, Robot Sensing & Navigation
- The University of Oklahoma**, Norman, OK 2021
B.S. Engineering Physics, B.S. Mathematics | Summa cum Laude
Related courses: Applied Statistical Methods, Abstract Linear Algebra

TECHNICAL KNOWLEDGE

- Languages:** Python, MATLAB, R/Rmd, C/C++, Java, JavaScript, LaTeX, Bash
Software: Ubuntu Linux, Git, Robot Operating System (ROS), OpenCV
Theory: Probabilistic Robotics, Kalman Filtering, Evolutionary Computation
Other: CAD/3D-Printing, Soldering, Machine Shop, Power Tools

WORK EXPERIENCE

- Robotics, Evolution, Adaptation, and Learning Laboratory**, Norman, OK
NSF Research Assistant with Dr. Dean Houglen 2018–2021
- Experimented with the relationship between nurturing and risk in a simulated population.
 - Applied evolutionary computation techniques to optimize Kalman Filter parameters for a simulated mobile robot in changing environments (outperforming manual tuning).
 - Published a [paper](#) in THURJ 2019, a student journal at the University of Oklahoma.
- Office of Admissions & Recruitment, University of Oklahoma**, Norman, OK
Campus Tour Guide | Team Lead 2018–2021
- Led general walking tours and personalized visits for prospective students and families.
 - Delegated tasks on shift, oversaw interviews, and trained new guides.

PROJECTS

- Final Project, Mobile Robotics Course @ NEU** Fall 2021
- Developed software base for a turtlebot3 to map any closed environment autonomously using frontier exploration and the Cartographer SLAM package.
 - Wrote ROS node to detect AprilTags in the environment and produce a correct list of all global tag poses in SE(3), leveraging multiple measurements via GTSAM.
 - Implemented custom particle filter using Monte Carlo localization and EDT.
- Intelligent Ground Vehicle Competition, Auto-Nav Challenge** 2020–2021
- Led a team of 7 students in building a 3'×4' autonomous vehicle.
 - Developed an Extended Kalman Filter to perform on-the-fly localization.
 - Designed CAD assembly of the robot and custom-printed sensor mounts.
 - Won 1st place and Rookie of the Year at the 2021 IGVC.
- National Robotics Challenge, Autonomous Vehicle Competition** 2019–2020
- Constructed ROS architecture for a small race car that was able to complete a known course autonomously in minimal time.
 - Produced navigation system to generate a trajectory and follow it using Pure Pursuit.
 - Implemented a PID controller to publish commanded headings and velocities.

AWARDS & ACTIVITIES

- Earned the 2021 Letzeiser Award and 2020 Campus Life Award at the University of Oklahoma.
- Won 2nd place in Hacklahoma 2021, and 3rd place in Hacklahoma 2020.
- Made [Bee Clicker](#), a 2019 Hacklahoma project that instills a care for honeybees via a webgame.
- Participated in the ACM International Collegiate Programming Competition, 2017–2020.
- FIRST Tech Challenge alumni and volunteer.