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 Mechanics & Control

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, R, JavaScript, C/C++, Java, LaTeX, HTML/CSS
Tools: Ubuntu Linux, Robot Operating System (ROS), Git, CAD/3D-Printing
Skills: Evolutionary Computation, Kalman Filtering, Probabilistic Robotics

Work Experience

Robotics, Evolution, Adaptation, and Learning Laboratory, Norman, OK
NSF Research Assistant with Dr. Dean Hougen 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.

Interests/Activities/Other

- Earned the 2020 Campus Life Award and 2021 Letzeiser 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.