

Ford Motor Company, Research and Advanced Engineering, is hiring a 2019 summer intern. The primary focus of the intern will be formal verification of C++ and Python code for robots. The intern will also support testing, verification and validation for a safety monitor on an autonomous vehicle. The intern project will support a team to perform active verification of planned trajectories generated by the motion planner of an autonomous vehicle.

Measurable Objectives

- Identify and demonstrate a scalable C++ formal verification technique for robots and autonomous vehicles
- Identify and demonstrate a scalable Python formal verification technique for robots and autonomous vehicles
- Write a technical report on C++ and Python formal verification
- Tests using formal verification, debug and validate a safety monitor (developed using C++ and Python) on a robot or an autonomous vehicle

Expected Qualifications

- Pursuing Bachelor's, Master's Degree or PhD. in Electrical, Mechanical or Aerospace Engineering or Computer Science.
- Undergraduate student must be within 1 year of graduation
- Research experience in formal verification of C++ or Python would be invaluable
 - Please include related publications in the resume
- Advanced proficiency in C++
 - Proof such as Git link or publication would be appreciated
- Proficiency in Python
- Experience in theorem proving would be an asset
- Experience in ROS/Cyber-RT/Autoware/Apollo would be an asset

Expected Major Contributions

At the end of internship, a presentation on:

- C++ and Python formal verification
- Tests using formal verification, debug and validation of a safety monitor (developed using C++ and Python) on a robot or an autonomous vehicle
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Expected Benefits to Intern

Experience application challenges of active formal verification of planned trajectories

Employment Eligibility Requirement

Candidates for this position with Ford Motor Company must be legally authorized to work in the United States (students with an F-1 Visa with proper work authorization are eligible). Verification of employment eligibility will be required at the time of hire. Visa sponsorship is not available for this position.

Qualified applicants should send resumes directly to the hiring manager, Peggy Caveney, mcavene1@Ford.com, no later than February 10, 2019.