

Job Openings in Robotics Controls and Autonomy at Jet Propulsion Laboratory

As NASA's lead center for robotic exploration, Jet Propulsion Laboratory develops advanced robotics controls and autonomy to enable increasingly capable missions to planetary bodies. Technologies are also developed for non-NASA sponsors. The Robotics Controls area of the Mobility and Robotic Systems section (robotics.jpl.nasa.gov) has four groups that provide controls and autonomy for robotic systems across a wide range of domains including surface and aerial mobility, manipulation, and maritime and multi-agent autonomy.



Preferred candidates will have a Masters or Ph.D. from a leading robotics program. Practical experience with hardware and field experimentation is valuable. Research roles include development and implementation of novel concepts relevant to space exploration needs and publishing results. Flight roles include algorithm development, implementation, and validation for NASA flight missions. Candidates are sought across a range of skills including the following:

- Perception, planning, navigation, machine learning, and autonomy for surface, underwater, and aerial mobility systems
- Manipulator and vehicle concepts, control, and autonomy
- Autonomous navigation and mobility
- Sensor fusion for localization and mapping
- Multi-robot architecture and behavior design
- Learning and estimation of system and interaction models
- Distributed estimation, world model building, knowledge sharing
- Distributed task recognition, allocation, and scheduling
- Embedded C/C++/Python robotic software development

JPL robotics has contributed to many NASA missions including Mars Exploration Rover, Mars Science Laboratory, Mars InSight, and Mars 2020 (including Perseverance rover and Ingenuity helicopter). The Mars Sample Return Lander will collect the core samples from the Mars 2020 mission and launch them into Mars orbit for return to Earth. Development is underway for lunar missions to demonstrate advanced manipulation and collaborative mobile robot teams. A potential Enceladus Lander mission would collect and analyze ice surface material that was ejected by continuously erupting plumes from the subsurface ocean, or a snake robot could slither down the vents to the subsurface ocean.

JPL robotics also supports research efforts for non-NASA sponsors that develop technologies which could benefit future NASA missions. JPL's RoboSimian robot participated in the DARPA Robotics Challenge (<http://www.jpl.nasa.gov/video/details.php?id=1382>). JPL also participated in the DARPA Subterranean Challenge (<https://costar.jpl.nasa.gov/>), DARPA RACER (<https://www.darpa.mil/news-events/2022-01-13>), and developed the CARACaS multi-agent maritime autonomy for the US Navy.

How to Apply: Contact Dr. Paul Backes at backes@jpl.nasa.gov, or submit an application at: https://citjpl.wd5.myworkdayjobs.com/Jobs/job/JPL-Campus/Robotics-Controls-Engineer-II_R2726