Robotics and Vision Scientist

iRobot
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iRobot Employment Opportunity Profile

- Title: **Robotics and Vision Scientist**
- Reports to: VP of Advanced Systems and Technology
- Location: Pasadena, CA, USA

The Company:

iRobot designs and builds robots that make a difference. iRobot was founded in 1990 by Massachusetts Institute of Technology roboticists with the vision of making practical robots a reality. In 2012, iRobot generated $436 million in revenue and employed more than 500 of the robot industry's top professionals, including mechanical, electrical and software engineers and related support staff. iRobot stock trades on the NASDAQ stock market under the ticker symbol IRBT. iRobot's corporate headquarters are located in Bedford, Mass. The company also has offices in California, the United Kingdom, China and Hong Kong.

iRobot has made some of the world's most important robots. iRobot's home robots are revolutionizing the way people clean – inside and out. More than 8 million home robots have been sold worldwide. The award-winning iRobot Roomba vacuum cleaning robot is leading the charge. Roomba made practical robots a reality for the first time and showed the world that robots are here to stay. iRobot's acclaimed line of home robots also includes the iRobot Scooba floor washing robot, the iRobot Verro pool cleaning robot and the iRobot Looj gutter cleaning robot.

As a pioneer in the robot industry, iRobot's goal is to drive innovation, serve as an industry catalyst and change the world by fueling the era of robots.

To support and encourage the development of robot technology, iRobot offers comprehensive resources for third-party developers, providing information and products that facilitate the creation and easy integration of new payloads, behaviors and capabilities on iRobot platforms. iRobot collaborates with external developers from government agencies, academic institutions and small and large businesses to create and bring to market innovations that help warfighters and public safety professionals tackle dangerous missions with less risk.

iRobot's Research Group performs cutting-edge research to meet the advanced needs of sponsors with integrated robotic solutions. The Research Group pursues R&D opportunities with leading academic research institutions, businesses and other technology innovators, leveraging experience as a systems integrator and putting together best-in-class teams of partners from a wide range of technology areas.

With more than two decades of leadership in the robot industry, iRobot remains committed to providing platforms for invention and discovery, developing key partnerships to foster technological exploration and building robots that improve the quality of life and safety standards worldwide.

Position Purpose:

Design, implement, test and document robotics and vision algorithms in C and C++ on Linux/Windows and on embedded platforms. One of the main focuses of the position is the development of novel vision-based algorithms for mobile robotics navigation, particularly vision-based navigation and vision-based SLAM. Another main focus is the design of state-of-the-art algorithms for fusion of vision and dead-reckoning information. Particular emphasis is placed on embeddable algorithms for consumer applications.

Requirements:

- A solid engineering background with hands-on experience designing and developing robotics and/or vision systems.
- Understanding of and experience with any of the following: object recognition, structure from motion, 3D reconstruction, ego-motion estimation, feature extraction and matching, face recognition.
- Strong analytical skills and mathematical foundation.
- Good understanding of computer systems.
- Minimum of 3 years experience in algorithm implementation using C and C++.
- Excellent verbal and written communications skills.
- Ability to work independently, without direct supervision.
- Strong problem solving skills and ability to learn quickly.
- **Minimum Degree**: PhD in Computer Vision, Robotics, or related field.

Nice to have:

- Understanding of and experience with any of the following: behavior-based control, navigation, path-planning, obstacle avoidance, SLAM, vision-based SLAM, estimation and control.
- Image processing experience including image sensors and image acquisition familiarity.
- Embedded programming experience.
- Algorithm development with Matlab.
- Ability to build/assemble/modify electronic assemblies or robots into various configurations for test purposes.

*Interested candidates should apply online to: https://careers-irobot.icims.com or send email to dl-pas-careers@irobot.com

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