

Intuitive
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Robotics Engineer for Improved User Experience

Location: US-CA-Sunnyvale, California

Categories: Engineering

Schedule: Full-time

Requisition ID: 190124

To apply, please visit: <https://careers.intuitive.com/jobs/190124?lang=en-us>

You can also send your resume directly to Ambarish.Goswami@intusurg.com

Company Description:

Joining Intuitive Surgical means joining a team dedicated to using technology to benefit patients by improving surgical efficacy and decreasing surgical invasiveness, with patient safety as our highest priority.

The idea of surgical robotics was little more than a curiosity until 1999, the year Intuitive Surgical introduced the da Vinci® Surgical System. Today, Intuitive Surgical is the global leader in the rapidly emerging field of robotic-assisted minimally invasive surgery. Intuitive Surgical is also the leader in capturing surgical operative data, from over 3,600 surgical robotic systems used by over 33,000 surgeons globally.

About our User-Facing SA Team:

The Systems Analysts (SA) are a unique group of engineers at Intuitive Surgical, who are responsible for developing the entire motion control and behavioral algorithms for the robots. We are deeply involved in the technical aspects of the robots, such as kinematics, dynamics, control, and teleoperation. Our daily conversation contains words such as friction, numerical calculation, filter parameter, encoder resolution, workspace, singularity, impedance, and motor current. We are guided by the fundamental requirements that robot motion must be safe, intuitive and effective.

The User-Facing SA is a new group in the company, which strives to develop a better technical understanding of the everyday usability aspects of our robots by bringing user-experience information to a closer contact with the principled approaches of systems analysis. Our mandate is to be attentive to the needs of the end-users as well as the in-house customers, such as service engineers, and promote significant changes that maintain and enhance our solid technical core and helps develop a supremely capable, robust and user-friendly product. With the singular goal of improving robot performance and user experience, we continuously monitor and address all motion control issues of the da Vinci system that affect its ease of use and influence the quality and consistency of surgery.

Position Description:

We are looking for a person with a thorough understanding of robotic and electro-mechanical systems who will primarily manage and contribute to improving the myriads of messages that a complex system can generate during its operation. These messages are very important; they are the pulse of a system. These messages can relate to safety, user-interaction, routine checks, or can be of predictive nature, and have their origin to an external force, to a sensor component or to the magnitude of current in a motor. Special attention is given to user-facing messages.

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The person should also be receptive to feedback from various end-users, who may not have a scientific background, and analyze them for their technical content and discuss potential remedies to the rest of the team.

By nature, the position involves regular interaction with a number of different teams such as Human Factors, User Experience Interaction, Data Services, and will be rich in product and user experience. The responsibility may span multiple products as part of a continuing effort.

The ideal candidate for this position should have an MS or PhD in Mechanical or Electrical Engineering or in Computer Science with relevant technical experience with robots and mechatronic systems. Background in machine learning is a bonus, as there are great opportunities to treat system message data at a global level and explore tell-tale patterns.

Day-to-day responsibilities:

- Become a vital member of the User-Facing SA Team in helping set priorities and strategies, and measurable objectives and performance.
- Understand the system error messaging process, and help the team manage past and future messaging and data. Anticipate needs.
- Communicate system performance to the organization as a whole
- Analyze complex electro-mechanical devices for dynamic safety and clinical risk
- Identify gaps in messaging, recommend technical modifications to bridge the gap
- Participate in clinical observations and experiments to directly experience system behavior and messaging
- Create automated analytical reports to sustain program quality and improve efficiency

Skill/Job Requirements:

- MS or PhD in Mechanical or Electrical Engineering, or in Computer Science
- Experience in robotics and electro-mechanical systems
- Demonstrate intuitive understanding of mechanical phenomena with ability to do rigorous analysis.
- C/C++ and Matlab programming skills, as well as hardware, software, and mechanism integration skills. Knowledge of Python would be a plus.
- Knowledge of Machine Learning is a plus.
- Demonstrate excellent communication skills both written and verbal.
- Have the ability to work independently, and the determination to get through challenging problems.
- Be guided by strong engineering intuition for mechatronic systems and at the same time be detail oriented and able to develop and push a single solution to completion.
- Ability to build and manage relationships with both internal and external teams.
- Strong sense of service for both internal and external customers.
- Desire to make work fun.

We are an AA/EEO/Veterans/Disabled employer.

We will consider for employment qualified applicants with arrest and conviction records in accordance with fair chance laws.