Building Robots That Can Perform Complex Tasks With and Around People

Siddhartha Srinivasa
Finmeccanica Associate Professor

CURRENT RESEARCH

Designing robots and developing their complex algorithms to solve real world issues

There are over six million people in the US alone—ranging from people with disabilities to older adults— who need assistive care. Current technology has great potential to improve their quality of life, and to ease the burden of their healthcare costs. Dr. Siddhartha Srinivasa, Finmeccanica Associate Professor at Carnegie Mellon University is addressing this issue with his research in robotics. His work involves building robots that can physically and forcefully interact with the world (i.e. pick up objects, feed someone, and defuse bombs), with and around people. Through his technological breakthroughs in robotics, Dr. Srinivasa aims to help people in need of care.

He focuses on both developing algorithms for motion planning, manipulation, control, perception, and machine learning, and also on designing, building, and deploying physical systems that perform complex manipulation tasks in the real world. Robots work very well on factory floors which are structured for robots. But a home looks nothing like a factory floor; it is filled with clutter and uncertainty. By endowing robots with simple models of physics, Dr. Srinivasa's work enables robots to understand the clutter and uncertainty present in our everyday environment, enabling them to work seamlessly and effortlessly with and around humans.

Dr. Srinivasa works with a team of members from over six countries who specialize in computer science, mechanical engineering, electrical engineering, mathematics, and physics, calling themselves the Personal Robotics Lab. They also collaborate extensively with researchers around the world, as well as with clinicians at the Rehabilitation Institute of Chicago (RIC) for patient trials.

His...

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AFFILIATION

Carnegie Mellon University

EDUCATION

- Ph.D. at The Robotics Institute 2001-2005,Carnegie Mellon University

AWARDS

- RSS Best Systems Paper Award Finalist, 2015
- IEEE ICRA Best Paper Award Finalist, 2015
- IEEE ICRA Best Video Award Finalist, 2014
- Finmeccanica Chair in Computer Science, 2013-16
- RSS Best Paper Award Finalist, 2013
- and 2 more...

RESEARCH AREAS

Technology, Computational Sciences / Mathematics, Informational Sciences / Internet, Robotics

FUNDING REQUEST

Your funding will help expedite Dr. Srinivasa's extensive robotic research, which currently needs 4-5 years more of focussed applied research to move their technology to a state of testing it in the real world. Lab costs total $1M/year. $90K/year supports a robotics Ph.D. student, $50K-$200K funds equipment costs, and $50K goes toward the extensive user studies run with able bodied and disabled users. His goal is for his robotic technology to be widely used within the next 10 years.