Prof. Siddhartha Srinivasa (Principal Investigator)

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(a) Professional Preparation

Bachelor of Technology, Mechanical Engineering, Indian Institute of Technology Madras	August 1999
Master of Science, Robotics, Carnegie Mellon University	August 2001
Doctor of Philosophy, Robotics, Carnegie Mellon University	August 2005

(b) Appointments

Finmeccanica Associate Professor, The Robotics Institute, Carnegie Mellon University	2011-Present
Senior Research Scientist, Intel Labs Pittsburgh	2005-2011

(c-i) Five Most Relevant Products

[1] A.D. Dragan and S.S. Srinivasa. Integrating human observer inferences into robot motion planning. *Autonomous Robots*, 37(4):351–368, 2014

[2] A.D. Dragan, K.T. Lee, and S.S. Srinivasa. Teleoperation with intelligent and customizable interfaces. *Journal of Human-Robot Interaction*, 1(3), 2013

[3] K. Strabala, M.K. Lee, A.D. Dragan, J. Forlizzi, S.S. Srinivasa, M. Cakmak, and V. Micelli. Towards seamless human-robot handovers. *Journal of Human-Robot Interaction*, 2(1), 2013

[4] M. Zucker, R. Ratliff, A.D. Dragan, M. Pivtoraiko, M. Klingensmith, C. Dellin, J.A. Bagnell, and S.S. Srinivasa. CHOMP: Covariant Hamiltonian Optimization for Motion Planning. *The International Journal of Robotics Research*, 32(9–10):1164–1193, 2013

[5] A.D. Dragan and S.S. Srinivasa. A policy blending formalism for shared control. *The International Journal of Robotics Research*, 32(7):790–805, 2013. (Conference version was **Best Conference Paper Award Finalist, RSS 2012**)

(c-ii) Five Other Significant Products

[1] M.C. Koval, N.S. Pollard, and S.S. Srinivasa. Pre- and post-contact policy decomposition for planar contact manipulation under uncertainty. *The International Journal of Robotics Research*, 35(1–3):244–264, 2016

[2] A. Collet, B. Xiong, C. Gurau, M. Hebert, and S.S. Srinivasa. HerbDisc: Towards lifelong robotic object discovery. *The International Journal of Robotics Research*, 34(1):3–25, 2015

[3] R. Paolini, A. Rodriguez, S.S. Srinivasa, and M.T. Mason. A data-driven statistical framework for post-grasp manipulation. *The International Journal of Robotics Research*, 33(4):600–615, 2014

[4] R.A. Knepper, S.S. Srinivasa, and M.T. Mason. Toward a deeper understanding of motion alternatives via an equivalence relation on local paths. *The International Journal of Robotics Research*, 31(2):168–187, 2012

[5] D. Berenson, S. Srinivasa, and J. Kuffner. Task Space Regions: A framework for pose-constrained manipulation planning. *The International Journal of Robotics Research*, 30(12):1435–1460, 2011

(d) Synergistic Activities

- **Curricula:** Developed two new graduate level courses, in robotic manipulation and robot autonomy:
  16-843 Manipulation Algorithms Graduate-level course on the theory and algorithms that enable robots to physically manipulate their world including the geometry of manipulation configuration spaces, motion planning, synthesizing robust grasps for dexterous hands, reconfiguring clutter, and physics-based actions.
  16-662 Robot Autonomy Graduate-level course on manipulation, motion planning, perception, navigation, and machine learning algorithms for mobile manipulators with strong hands-on component where students implement their assignments and class projects on a real mobile manipulation platform.
- **Open-source Software, Hardware and Benchmarks:** Barrett Technology "puck" motor controller; OWD, the Open WAM driver; COMPS, a constrained planning framework; MOPED, for object recognition and pose estimation; CHOMP, a gradient algorithm for trajectory optimization; GATMO, for navigation among movable objects; the YCB Object and Model Benchmark Dataset. The software is used by over 20 research groups around the world.
- **Service. Chairs and Editorships:** Editor, International Journal of Robotics Research 2013-; Editor, IEEE/RSJ IROS 2014-; Founding Chair, IEEE Robotics and Automation Soc. Technical Committee on Mobile Manipulation 2010-12; Founding Program Chair, Robotics Track AAAI 2012-13; Area Chair, RSS 2012-13; Associate Editor, IEEE ICRA 2010-13; Associate Editor, IEEE/RSJ IROS 2011-12. **Workshops Organized:** IEEE ICRA 2015: Optimal Robot Motion Planning IEEE ICRA 2015:Benchmarking in Manipulation Research: The YCB Object and Model Set, IEEE IROS 2014: Rehabilitation and Assistive Robotics: Bridging the Gap Between Clinicians and Roboticists, IEEE IROS 2014: Robot Manipulation: What has been achieved and what remains to be done?, HRI 2013: Collaborative Manipulation: New Challenges for Robotics and HRI, and several others. **Selected Program Committees:** Human Robot Interaction 2012, 13, 14, 15; International Joint Conference on Artificial Intelligence (IJCAI) 2012; International Conference on Automated Planning and Scheduling (ICAPS) 2010; Robotics: Science and Systems (RSS) 2009, 10; AAAI Physically Grounded AI Track 2009, 11.
- **Undergraduate Education:** The Personal Robotics Lab has engaged over 50 undergraduates at CMU, including students from underrepresented groups, through class projects, independent projects, workstudies during the school year, and REU summer research. The lab developed a self-sustaining culture of attracting top undergraduate students in CS, ME, EECS and BME, and many of these students continue on to graduate school, some with NSF fellowships. **Participation of underrepresented groups:** Srinivasa is a mentor for the Robotics Summer Scholars Program for underrepresented students, and has mentored 10 students since 2012 (4 female).
- **Public and K-12 outreach. Press:** The Personal Robotics Lab generates significant interest from the general public, with features in National Geographic, Scientific American, Popular Science, Wired Magazine, PBS, and the BBC. HERB was named one of the "World's most advanced robots" in Businessweek. Srinivasa's work was featured on the nsf.gov website and on NSF Science Nation. **Lab tours and talks:** Robot projects like ours generate great interest in the community and are frequently targeted by outreach programs in local area high schools. HERB is a magnet for lab tours, with almost one tour a week. Srinivasa has hosted kindergarten, elementary, and high school groups, and given talks at local schools. The lab also demos at the annual National Robotics Week event for area high schools, which brings over 300 students for a day of lab tours and talks.