Prof. Siddhartha Srinivasa

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Biosketch

PI Srinivasa is the Boeing Endowed Professor at The Paul G. Allen School of Computer Science & Engineering at the University of Washington, and an IEEE Fellow for contributions to robotic manipulation and human-robot interaction. He is a full-stack roboticist, with the goal of enabling robots to perform complex manipulation tasks under uncertainty and clutter, with and around people. To this end, he founded the Personal Robotics Lab in 2005. He is/was a PI on the Quality of Life Technologies NSF ERC, RCTA, DARPA ARM-S, DARPA RACER, and the DARPA Robotics Challenge, has built several robots (HERB, ADA, CHIMP, MuSHR), and has written software frameworks (OpenRAVE, DART) and best-paper award winning algorithms (CBiRRT, CHOMP, BIT*, Legibility, LazySP) used extensively by roboticists around the world. Srinivasa received a B.Tech in Mechanical Engineering from the Indian Institute of Technology Madras in 1999, and a PhD in 2005 from the Robotics Institute at Carnegie Mellon University.

Education

Ph.D., Carnegie Mellon University (CMU) — August 2005
Advisors: Michael Erdmann & Matthew Mason — Thesis: *Control Synthesis for Dynamic Contact Manipulation*

B. Tech., Indian Institute of Technology Madras (IITM) — August 1999
Advisor: A. Radhakrishnan — Thesis: *Reverse Engineering using the Structured Lighting Technique*

Employment

Professor	2023-
Boeing Endowed Professor in Computer Science & Engineering	2017-23
Computer Science & Engineering Department, University of Washington	
Finmeccanica Associate Professor in Computer Science	2013-17
Associate Professor	2011-13
The Robotics Institute, Carnegie Mellon University	
Member, Board of Directors, Zordi Inc.	2021-
Distinguished Engineer, Cruise Inc.	2022-25
Director, Robotics AI, Amazon Inc.	2018-22
First Wave Founder, Berkshire Grey Inc.	2014-18
Senior Research Scientist, Intel Labs Pittsburgh	2005-11

Honors and Awards

- ACM/IEEE HRI Best Paper Award Finalist for Systems [26], 2025
- ACM/IEEE HRI Best Demo Award Winner [15], 2024
- ACM/IEEE HRI Best Paper Award Winner for Design [25], 2023
- ACM/IEEE HRI Best Paper Award Winner for Technical Advances in HRI [14], 2019
- ICAPS Best Student Paper Award Winner [24], 2019
- ICAPS Best Paper Award Winner [16], 2018

- IEEE Fellow, 2018
- ACM/IEEE HRI Best Paper Award Finalist [4], 2018
- Boeing Endowed Professorship in Computer Science, 2017-23
- CMU Women's Association outstanding graduating senior advisor (Rachel Holladay), 2017
- IEEE ICRA Best Vision Paper Award Finalist [20], 2016
- RSS Best Systems Paper Award Finalist [19], 2015
- IEEE ICRA Best Conference Paper Award Finalist [8], 2015
- IEEE ICRA Best Video Award Finalist [3], 2014
- Finmeccanica Chair in Computer Science, 2013-16
- RSS Early Career Spotlight Award, 2013
- RSS Best Paper Award Finalist [11], 2013
- IEEE ICRA Best Manipulation Paper Award Finalist [17], 2013
- Robotics Institute Cool Person of the Year Award, 2012
- Okawa Foundation Research Grant, 2012
- Office of Naval Research Young Investigator Award, 2012
- IEEE RO-MAN Best Paper Award Finalist [10], 2012
- RSS Best Paper Award Finalist [9], 2012
- RAS Most Active Technical Committee Award: Mobile Manipulation, 2011
- ACM/IEEE HRI Best Paper Award Winner [22], 2010
- IEEE IROS Best Paper Award Finalist [7], 2010
- IEEE ICRA Best Manipulation Paper Award Finalist [2], 2010
- IEEE ICRA Best Vision Paper Award Finalist [5], 2009
- Intel Corporate Technology Group Divisional Recognition Awards, May, July, Oct 2008
- Intel Research Pittsburgh Lab Research Awards, January, July 2006, January 2007
- Indian National Mathematics Olympiad, 1994

Five Most Relevant Publications

[A] Liyiming Ke*, Yunchu Zhang*, Abhay Deshpande, Abhishek Gupta, and Siddhartha Srinivasa. CCIL: Continuity-based Data Augmentation for Corrective Imitation Learning. In *International Conference on Learning Representations*, 2024

[B] J. Spencer, S. Choudhury, M. Barnes, M. Schmittle, M. Chiang, P. Ramadge, and S.S. Srinivasa. Expert intervention learning: An online framework for robot learning from explicit and implicit human feedback. *Autonomous Robots*, 46:99–113, 2022

[C] S. Nikolaidis, D. Hsu, and S.S. Srinivasa. Human-robot mutual adaptation in collaborative tasks: Models and experiments. *The International Journal of Robotics Research*, 36(5-7):618–634, 2017

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

[E] 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

Five Other Significant Publications

[A] Jaein Lim, Mahdi Ghanei, Connor Lawson, Siddhartha Srinivasa, and Panagiotis Tsiotras. Lazy incremental search for efficient replanning with bounded suboptimality guarantees. *The International Journal of Robotics Research*, 2024

[B] 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

[C] 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

[D] D. Berenson, S.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

[E] 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**)

Qualifications

The PI has significant experience related to the proposed project including the following select projects:

- **ONR SquadBot.** In this ONR-sponsored project, IHMC is developing the Nadia humanoid robot, and creating a "SquadBot" system, a humanoid robot system that demonstrates the potential of robots operating as part of a squad in urban operations, with the focus on building search. PI Srinivasa has contributes motion planning, grasping, and perception algorithms to the project. Work in this project will leverage the SquadBot platform as a potential demonstrator of the learning algorithms developed.
- **DARPA RACER (Aggressive, Resilient, High-speed Navigation in Off-road Terrain).** PI Srinivasa's team at UW has been developing a framework for fluent motion planning for high-speed off-road navigation, integrating components such as fast replanning, contingency planning, and learning from experience.
- **DARPA Robotics Challenge (DRC).** PI Srinivasa was a lead PI of the the Carnegie Mellon UNiversity (CMU) team which built CHIMP, a four-limbed robot which finished third in the overall challenge. PI Srinivasa was responsible for the motion planning, grasping, and manipulation stack of the robot.
- **DARPA Autonomous Robotic Manipulation - Software (ARM-S).** PI Srinivasa was a lead PI of the Carnegie Mellon University team which won the DARPA ARM-S challenge, a series of complex physical manipulation tasks including door opening, drilling, and changing the tyre of a car using an autonomous bimanual manipulator. PI Srinivasa's algorithms for the motion planning , manipulation, control, and shared autonomy were deployed on the robot.
- **Army Research Laboratory's Robotics Collaborative Technology Alliance (RCTA).** PI Srinivasa's UW team worked with NASA/JPL's ROMAN platform, developing a motion planning stack for mobile manipulation. The team demonstrated the efficacy of their framework across a series of challenging real-world manipulation tasks including clearing debris on rough outdoor terrain.

References

[1] D. Berenson, S.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.

[2] L.Y. Chang, S.S. Srinivasa, and N.S. Pollard. Planning pre-grasp manipulation for transport tasks. In *IEEE International Conference on Robotics and Automation*, 2010. **Best Manipulation Paper Award Finalist**.

[3] N. Chavan-Dafle, A. Rodriguez, R. Paolini, B. Tang, S.S. Srinivasa, M. Erdmann, M.T. Mason, I. Lundberg, H. Staab, and T. Fuhlbrigge. Extrinsic dexterity: In-hand manipulation with external forces. In *IEEE International Conference on Robotics and Automation*, 2014. **Best Video Award Finalist**.

[4] M. Chen*, S. Nikolaidis*, H. Soh, D. Hsu, and S.S. Srinivasa. Planning with trust for human-robot collaboration. In *ACM/IEEE International Conference on Human-Robot Interaction*, 2018. **Best Conference Paper Award Finalist**.

[5] A. Collet, D. Berenson, S.S. Srinivasa, and D. Ferguson. Object recognition and full pose registration from a single image for robotic manipulation. In *IEEE International Conference on Robotics and Automation*, 2009. **Best Vision Paper Award Finalist**.

[6] 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.

[7] M.R. Dogar and S.S. Srinivasa. Push-grasping with dexterous hands: Mechanics and a method. In *IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2010. **Best Conference Paper Award Finalist**.

[8] A.D. Dragan, K. Muelling, J.A. Bagnell, and S.S. Srinivasa. Movement primitives via optimization. In *IEEE International Conference on Robotics and Automation*, 2015. **Best Conference Paper Award Finalist**.

[9] A.D. Dragan and S.S. Srinivasa. Formalizing assistive teleoperation. In *Robotics: Science and Systems*, 2012. **Best Conference Paper Award Finalist**.

[10] A.D. Dragan and S.S. Srinivasa. Online customization of teleoperation interfaces. In *IEEE International Symposium on Robot and Human Interactive Communication*, 2012. **Best Conference Paper Award Finalist**.

[11] A.D. Dragan and S.S. Srinivasa. Generating legible motion. In *Robotics: Science and Systems*, 2013. **Best Conference Paper Award Finalist**.

[12] 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**).

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

[14] D. Gallenberger, T. Bhattacharjee, Y. Kim, and S.S. Srinivasa. Transfer depends on acquisition: Analyzing manipulation strategies for robotic feeding. In *ACM/IEEE International Conference on Human-Robot Interaction*, 2019. **Best Paper Award Winner for Technical Advances in HRI**.

[15] E.K. Gordon*, R.K. Jenamani*, A. Nanavati*, Z. Liu, H. Bolotski, R. Karim, D. Stabile, A. Kashyap, B. H. Zhu, X. Dai, T. Schrenk, J. Ko, T.A.K. Faulkner, T. Bhattacharjee, and S.S. Srinivasa. An adaptable, safe, and portable robot-assisted feeding system. In *ACM/IEEE International Conference on Human-Robot Interaction*, 2024. **Best Demo Award Winner**.

[16] N. Haghtalab, S. Mackenzie, A.D. Procaccia, O Salzman, and S.S. Srinivasa. The Provable Virtue of Laziness in Motion Planning. In *International Conference on Automated Planning and Scheduling*, 2018. **Best Conference Paper Award Winner**.

[17] S. Javdani, M. Klingensmith, J.A. Bagnell, N.S. Pollard, and S.S. Srinivasa. Efficient touch based localization through submodularity. In *IEEE International Conference on Robotics and Automation*, 2013. **Best Manipulation Paper Award Finalist**.

[18] Liyiming Ke*, Yunchu Zhang*, Abhay Deshpande, Abhishek Gupta, and Siddhartha Srinivasa. CCIL: Continuity-based Data Augmentation for Corrective Imitation Learning. In *International Conference on Learning Representations*, 2024.

[19] M. Klingensmith, I. Dryanovski, S.S. Srinivasa, and J. Xiao. CHISEL: Real time large scale 3d reconstruction onboard a mobile device. In *Robotics: Science and Systems*, 2015. **Best Systems Paper Award Finalist**.

[20] M. Klingensmith, S.S. Srinivasa, and M. Kaess. Articulated robot manipulator simultaneous localization and mapping (ARM-SLAM). In *IEEE International Conference on Robotics and Automation*, 2016. **Best Vision Paper Award Finalist**.

[21] 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.

[22] M.K. Lee, S. Kiesler, J. Forlizzi, S.S. Srinivasa, and P. Rybski. Gracefully mitigating breakdowns in robotic services. In *ACM/IEEE International Conference on Human-Robot Interaction*, 2010. **Best Conference Paper Award Winner**.

[23] Jaein Lim, Mahdi Ghanei, Connor Lawson, Siddhartha Srinivasa, and Panagiotis Tsiotras. Lazy incremental search for efficient replanning with bounded suboptimality guarantees. *The International Journal of Robotics Research*, 2024.

[24] A. Mandalika, S. Choudhury, O. Salzman, and S.S. Srinivasa. Generalized Lazy Search for Robot Motion Planning: Interleaving Search and Edge Evaluation via Event-based Toggles. In *International Conference on Automated Planning and Scheduling*, 2019. **Best Student Paper Award Winner**.

[25] A. Nanavati*, P. Alves-Oliveira*, T. Schrenk, E.K. Gordon, M. Cakmak, and S. S. Srinivasa. Design principles for robot-assisted feeding in social contexts. In *ACM/IEEE International Conference on Human-Robot Interaction*, 2023. **Best Design Paper Award Winner**.

[26] Amal Nanavati, Ethan K Gordon, Taylor A Kessler Faulkner, Yuxin (Ray) Song, Johnathan Ko, Tyler Schrenk, Vy Nguyen, Bernie Hao Zhu, Haya Bolotski, Atharva Kashyap, Sriram Kutty, Raida Karim, Liander Rainbolt, Rosario Scalise, Hanjun Song, Ramon Qu, Maya Cakmak, and Siddhartha S Srinivasa. Lessons learned from designing and evaluating a robot-assisted feeding system for out-of-lab use. In *ACM/IEEE International Conference on Human-Robot Interaction*, 2025. https://robotfeeding.io/publications/hri25a/.

[27] S. Nikolaidis, D. Hsu, and S.S. Srinivasa. Human-robot mutual adaptation in collaborative tasks: Models and experiments. *The International Journal of Robotics Research*, 36(5-7):618–634, 2017.

[28] J. Spencer, S. Choudhury, M. Barnes, M. Schmittle, M. Chiang, P. Ramadge, and S.S. Srinivasa. Expert intervention learning: An online framework for robot learning from explicit and implicit human feedback. *Autonomous Robots*, 46:99–113, 2022.

[29] 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.