Prof. Siddhartha Srinivasa

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Employment

Boeing Endowed Professor in Computer Science & Engineering 2017-
Computer Science & Engineering Department, The University of Washington at Seattle

Director, Robotics AI, Amazon Inc. 2018-

First Wave Founder, Berkshire Grey Inc. 2014-18

Finmeccanica Associate Professor in Computer Science 2013-17
Associate Professor, The Robotics Institute, Carnegie Mellon University 2011-13

Senior Research Scientist, Intel Labs Pittsburgh 2005-11

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*

Honors and Awards

- ACM/HRI Best Paper Award Winner for Technical Advances in HRI [46], 2019
- ICAPS Best Student Paper Award Winner [52], 2019
- IEEE Fellow, 2018
- ICAPS Best Paper Award Winner [63], 2018
- ACM/IEEE HRI Best Paper Award Finalist [61], 2018
- Boeing Endowed Professorship in Computer Science, 2017-∞
- CMU Women's Association outstanding graduating senior advisor (Rachel Holladay), 2017
- IEEE ICRA Best Vision Paper Award Finalist [90], 2016
- RSS Best Systems Paper Award Finalist [110], 2015
- IEEE ICRA Best Conference Paper Award Finalist [104], 2015
- IEEE ICRA Best Video Award Finalist [114], 2014
- Finmeccanica Chair in Computer Science, 2013-16
- RSS Early Career Spotlight Award, 2013
- RSS Best Paper Award Finalist [128], 2013
- IEEE ICRA Best Manipulation Paper Award Finalist [129], 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 [136], 2012
- RSS Best Paper Award Finalist [135], 2012
- RAS Most Active Technical Committee Award: Mobile Manipulation, 2011

- ACM/IEEE HRI Best Paper Award Winner [156], 2010
- IEEE IROS Best Paper Award Finalist [154], 2010
- IEEE ICRA Best Manipulation Paper Award Finalist [152], 2010
- IEEE ICRA Best Vision Paper Award Finalist [164], 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

Mentoring

Current Students

Gilwoo Lee	Ph.D.		*Scalable Bayesian Reinforcement Learning*	2015-
Brian Hou	Ph.D.			2016-
Aditya Vamsikrishna	Ph.D.			2016-
Samuel Ainsworth	Ph.D.			2016-
Sherdil Niyaz	Ph.D.			2017-
Liyiming Ke	Ph.D.			2017-
William Agnew	Ph.D.	+Pedro Domingos		2017-
Ethan Gordon	Ph.D.			2018-
Matthew Schmittle	Ph.D.	+Dieter Fox		2018-
Amal Nanvati	Ph.D.	+Maya Cakmak		2019-

Current Postdoctoral Fellows

Tapomayukh Bhattacharjee 2017-
Christoforos Mavrogiannis 2019-

Current Staff

Rosario Scalise 2017-

Alumni - Postdoc

Sanjiban Choudhury 2018-2019
Now: Researcher, Aurora

Matthew Barnes 2018-2019
Now: Software Engineer, Google

Fereshteh Sadeghi 2019

Oren Salzman 2016-2019
Now: Assistant Professor, Technion

Daqing Yi 2016-2018
Now: Software Engineer, Google

Henny Admoni 2015-2017
Now: Assistant Professor, CMU

Aaron Johnson 2015-2016
Now: Assistant Professor, CMU

Alumni - Ph.D.

Stefanos Nikolaidis, Ph.D. 2014-2018
Thesis: *Mathematical Models of Adaptation in Human-Robot Collaboration* Now: Assistant Professor, USC

Zita Marinho, Ph.D. (+Geoff Gordon) 2012-2018

Thesis: *Moment-based Algorithms for Structured Prediction* — Now: Research Scientist, Sacoor Brothers

Laura Herlant, Ph.D. — 2013-2018
Thesis: *Algorithms, Implementation, and Studies on Eating with a Shared Control Robot Arm*
Now: Senior Robotics Research Scientist, iRobot

Shervin Javdani, Ph.D. (+Drew Bagnell) — 2011-2017
Thesis: *Acting under Uncertainty for Information Gathering and Shared Autonomy* — Now: Robotics Engineer, Aurora

Jennifer King, Ph.D. — 2012-2016
Thesis: *Robust Rearrangement Planning using Nonprehensile Interaction* — Now: Robotics Engineer, Berkshire Grey

Michael Koval, Ph.D. (+Nancy Pollard) — 2012-2016
Thesis: *Robust Manipulation via Contact Sensing* — Now: Software Engineer, Waymo

Christopher Dellin, Ph.D. — 2009-2016
Thesis: *Completing Manipulation Tasks Efficiently in Complex Environments* — Now: Roboticist, Nuro

Matt Klingensmith, Ph.D. (+Michael Kaess) — 2013-2016
Thesis: *Tracking and Calibrating Robot Arms using SLAM Techniques* — Now: Roboticist, Boston Dynamics

Anca Dragan, Ph.D. — 2009-2015
Thesis: *Legible Robot Motion Planning* — Now: Assistant Professor, Berkeley

Mehmet Dogar, Ph.D. — 2008-2013
Thesis: *A Framework for Manipulation in Cluttered Environments* — Now: Assistant Professor, Leeds

Alvaro Collet, Ph.D. (+Martial Hebert) — 2009-2012
Thesis: *Lifelong Robotic Object Perception* — Now: Engineering Lead, Facebook

Dmitry Berenson, Ph.D. (+James Kuffner) — 2006-2011
Thesis: *Constrained Manipulation Planning* — Now: Associate Professor, Michigan

Alumni - M.S.

Jeongseok Lee, M.S. — 2016-18
Thesis: *A Linear-Time Variational Integrator for Multibody Systems* — Now: Engineer, Amazon

Pengju Jin, M.S. — 2017
Thesis: *Highly Robust Pose Estimation from Single Frame RGBD* — Now: Researcher, Aurora

Shushman Choudhury, M.S. — 2015-2017
Thesis: *Anytime Geometric Motion Planning on Large Dense Roadmaps* — Now: Ph.D. Stanford

Rosario Scalise, M.S. (+Stephanie Rosenthal) — 2015-2017
Thesis: *Human-Centered Design of Robot Explanations* — Now: Research Staff, UW

Shen Li, M.S. (+Stephanie Rosenthal) — 2015-2017
Thesis: *Automatically Evaluating and Generating Clear Robot Explanations* — Now: Ph.D., MIT

Evan Shapiro, M.S. — 2013-15
Thesis: *A Hierarchical Framework for Configuration Space Task Planning* — Now: CEO, Coda Protocol

Aaron Walsman, M.S. — 2013-15
Thesis: *ROCK: Robust Object Constellation for Kinematic Pose* — Now: Ph.D. UW

Elizabeth Cha, M.S. (+Jodi Forlizzi) — 2012-14

Thesis: *Robots in the Home: Qualitative and Quantitative Insights into Kitchen Organization* Now: Engineer, Waymo

Kyle Strabala, M.S. 2010-2012
Thesis: *Learning the Communication of Intent Prior to Physical Collaboration* Now: Scientist, Near Earth Autonomy

Garratt Gallagher, M.S. (+Drew Bagnell) 2007-2009
Thesis: *GATMO: A Generalized Approach to Tracking Movable Objects* Now: Google Robotics

Martin Herrmann, M.S. (+Dr.-Inf. Uwe Hanebeck, Universität Karlsruhe) 2009
Thesis: *Active scene and object reconstruction for robotic manipulation from vision and laser* Now: TU Braunschweig

Alvaro Collet, M.S. (+Chris Atkeson) 2007-2009
Thesis: *Object Recognition and Full Pose Registration from a Single Image for Robotic Manipulation*

Alumni - Other

Ajinkya Kamat, Staff 2018-2019
Research: *Outdoor Unstructured Mobile Manipulation* Now: MRSD, CMU

Youngsun Kim, Staff 2017-2019
Research: *Robot-Assisted Feeding* Now: Engineer, Amazon

Hanjun Song, Staff 2016-2019
Research: *Sensing Shear Forces During Food Manipulation* Now: Ph.D. MIT

Rachel Holladay, B.S. 2013-2017
Thesis: *Following Paths in Task Space: Distance Metrics and Planning Algorithms* Now: Ph.D. MIT

Pyry Matikainen, Teaching Fellow 2015-2017
Research: *Visual Computing*

Prasanna Velagapudi, Research Scientist 2012-2014
Research: *Multi-Step Mobile Manipulation* Now: Director of Engineering, Berkshire Grey

Graduate Interns

Rishabh Madan (IIT Kharagpur)	2019-2020
Sara Sheikholeslami (UBC)	2019
Lerrel Pinto (CMU)	Summer 2019
Daniel Gallenberger (TU Munich)	Spring 2018
Stefania Pellegrinelli (ITIA-CNR)	Fall 2015
Marco Cognetti (University of Rome)	Spring 2015
Joshua Haustein (Universität Karlsruhe)	2014
Henny Admoni (Yale)	Summer 2013
Georg Bartels (TU Bremen)	Summer 2013
Katie Correll	Spring 2013
Michael Koval	Summer 2012
Steven Gray (Penn)	Summer 2011
Vincenzo Micelli (University of Parma)	January 2011 - August 2011
Tim Niemueller (RWTH Aachen)	July 2010 - December 2010
Peter Kaiser (Universität Karlsruhe)	September 2010 - December 2010
Maya Cakmak (Georgia Tech)	Summer 2010
Alex Sorokin (UIUC)	September 2009 - April 2010
Lillian Chang	Summer 2009
Ross Knepper	Summer 2009
Laura Lindzey	Summer 2009

Manel Martinez	June-November 2009
Julius Ziegler (Universität Karlsruhe)	August-November 2009
Nico Blodow (TU Munich)	February-April 2009
Geoffrey Hollinger	Summer 2008
Kevin Peterson	Summer 2008
Nathan Ratliff	Summer 2007, 2008
Martin Rufli (ETH, Zürich)	Summer 2008
Rosen Diankov	September 2008 - January 2009
Michael Ashley-Rollman	Summer 2006
Stuart Anderson	Summer 2006
Michael DeRosa	Summer 2006
Ashish Deshpande (U.Mich)	Summer 2006
Jiaxin Fu	Summer 2006
Preethi Bhatt	Summer 2006

Undergraduate Interns

Sumegh Roychowdhury (IIT Kharagpur)	Summer 2020
Sidharth Talia (Bharati Vidyapeeth College of Engineering)	Summer 2020
Rajat Kumar Jenamani (IIT Kharagpur)	Summer 2019
Jeffrey Maxwell	2019
Shivam Singhal	2019
Savanna Yee	2018
Nanda Sundaresan	2018
Kaiden James Field	2018
Connor Geiman	2018
Tao Jin	2018
Rahul Vernwal (IIT Kharagpur)	Summer 2018
Maha Alrashed (BU)	Summer 2018
Abdullah Albakry (NC State)	Summer 2018
Ramon (Yiren) Qu	2017-
Nanda Sundaresan	2017
Jeffrey Maxwell	2017
Vinitha Ranganeni	Spring 2015-2017
Kevin Zhang	Spring 2015-2017
Pengju Jin	Fall 2014-2017
Joey Fernau	Spring 2015
Angela Wang	Fall 2014
Peter McHale	Fall 2014
Vikram Sunder	Spring 2014
Don Zheng	Spring 2014
Neil Jassal	Spring 2014
Myles Blodnick	Spring 2014
Scott Martin	Spring 2014
Yuyang Guo	Fall 2013 - Fall 2014
Rachel Holladay	Fall 2013-2017
Andrey Kurenkov (Georgia Tech)	Summer 2013
Abhijeet Tallavajhula (IIT)	Summer 2012
Bo Xiong (Connecticut)	Summer 2012
Corina Guaru (Jacobs)	Summer 2012
Debidatta Dwebi (IIT)	Summer 2012
Kenton Lee (Penn)	Summer 2012
Dominic Zirbel	Summer 2012
Tom Mullins	Fall 2011
Nick Stanley	Fall 2011
Alex Zirbel	Fall 2011 - Fall 2012
Tudor Achim	Summer 2009-Fall 2010

Andrew Yeager	Fall 2009
Ian-Clanton Thuon	Fall 2008 - Spring 2009
Daniel Dewey	Summer 2007 - Spring 2008

Ph.D Thesis Committees

Senka Krivic (University of Innsbruck)	2019
Arunkumar Byravan (UW)	2019
Justin Huang (UW)	2018
Connor Schenk (UW)	2017-18
Kiril Solovey (Technion)	2018
Sanjiban Choudhury (CMU)	2013-17
Venkatraman Narayanan (CMU)	2013-17
Breelyn Kane Styler (CMU)	2011-18
Mike Phillips (CMU)	2011-15
Alberto Rodriguez (CMU)	2007-13
Ross Knepper (CMU)	2006-11
Nathan Ratliff (CMU)	2004-09

Publications (Google Scholar)

Refereed Journals

[1] J.G. Gammell, T. Barfoot, and S.S. Srinivasa. Batch Informed Trees (BIT*): Informed asymptotically optimal anytime search. *The International Journal of Robotics Research*, 2020. (To appear).

[2] B. Yang, P.E. Lancaster, S.S. Srinivasa, and J.R. Smith. Benchmarking robot manipulation with the rubik's cube. *IEEE Robotics and Automation Letters*, 2020.

[3] T. Bhattacharjee, G. Lee, H. Song, and S.S. Srinivasa. Towards robotic feeding: Role of haptics in fork-based food manipulation. *IEEE Robotics and Automation Letters*, 2019.

[4] M. Chen, S. Nikolaidis, H. Soh, D. Hsu, and S.S. Srinivasa. Trust-aware decision making for human-robot collaboration: Model learning and planning. *ACM Transactions on Human-Robot Interaction*, 2019. (To appear).

[5] R. Holladay, O. Salzman, and S.S. Srinivasa. Minimizing task-space fréchet error via efficient incremental graph search. *IEEE Robotics and Automation Letters*, 2019.

[6] Jeongseok Lee, Michael X. Grey, Sehoon Ha, Tobias Kunz, Sumit Jain, Yuting Ye, Siddhartha S. Srinivasa, Mike Stilman, and C. Karen Liu. DART: Dynamic animation and robotics toolkit. *The Journal of Open Source Software*, 3(22):500, feb 2018.

[7] J.G. Gammell, T. Barfoot, and S.S. Srinivasa. Informed sampling for asymptotically optimal path planning. *IEEE Transactions on Robotics*, 34(4):966–984, 2018.

[8] S. Javdani, H. Admoni, S. Pellegrinelli, S.S. Srinivasa, and J.A. Bagnell. Shared autonomy via hindsight optimization for teleoperation and teaming. *The International Journal of Robotics Research*, 37(7):717–742, 2018.

[9] S. Nikolaidis, M. Kwon, J. Forlizzi, and S.S. Srinivasa. Planning with verbal communication for human-robot collaboration. *ACM Transactions on Human-Robot Interaction*, 7(3), 2018.

[10] B. Calli, A. Singh, J. Bruce, W. W. Aaron, K. Konolige, S.S. Srinivasa, P. Abbeel, and A.M. Dollar. YCB benchmarking project: Object set, data set and their applications. *Journal of The Society of Instrument and Control Engineers*, 56(10):792–797, 2017.

[11] I. Dryanovski, M.K. Klingensmith, S.S. Srinivasa, and J. Xiao. Large-scale, real-time 3D scene reconstruction on a mobile device. *Autonomous Robots*, 41(6):1423–1445, 2017.

[12] M. Ghorbel, J. Pineau, R. Gourdeau, S. Javdani, and S.S. Srinivasa. A decision-theoretic approach for the collaborative control of a smart wheelchair. *International Journal of Social Robotics*, pages 1–15, 2017.

[13] 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.

[14] A. Johnson, J. King, and S.S. Srinivasa. Convergent planning. *IEEE Robotics and Automation Letters*, 2016.

[15] M. Klingensmith, S.S. Srinivasa, and M. Kaess. Articulated robot manipulator simultaneous localization and mapping (ARM-SLAM). *IEEE Robotics and Automation Letters*, 2016.

[16] 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.

[17] B. Calli, A. Walsman, A. Singh, S.S. Srinivasa, P. Abbeel, and A.M. Dollar. Benchmarking in manipulation research: Using the Yale-CMU-Berkeley object and model set. *IEEE Robotics and Automation Magazine*, 22(3):36–52, 2015.

[18] 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.

[19] A.D. Dragan, R. Holladay, and S.S. Srinivasa. Deceptive robot motion: synthesis, analysis and experiments. *Autonomous Robots*, 39(3):331–345, 2015.

[20] M.C. Koval, N.S. Pollard, and S.S. Srinivasa. Pose estimation for planar contact manipulation with manifold particle filters. *The International Journal of Robotics Research*, 34(7):922–945, 2015.

[21] A. Stentz, H. Herman, A. Kelly, E. Meyhofer, G.C. Haynes, D. Stager, B. Zajac, J.A. Bagnell, J. Brindza, C. Dellin, M. George, J. Gonzalez-Mora, S. Hyde, M. Jones, M. Laverne, M. Likhachev, L. Lister, M.D. Powers, O. Ramos, J. Ray, D.P. Rice, J. Scheifflee, R. Sidki, S.S. Srinivasa, K. Strabala, J.P. Tardif, J. Valois, J.M. Vandeweghe, M.D. Wagner, and C. Wellington. CHIMP, the CMU highly intelligent mobile platform. *Journal of Field Robotics*, 32(2):209–228, 2015.

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

[23] 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.

[24] M.R. Dogar, M.C. Koval, A. Tallavajhula, and S.S. Srinivasa. Object search by manipulation. *Autonomous Robots*, 36(1–2):153–167, 2013.

[25] M.R. Dogar and S.S. Srinivasa. Physics-based manipulation in human environments. *Journal of the Robotics Society of Japan*, 31(4):353–357, 2013.

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

[27] 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**).

[28] 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.

[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.

[30] M.R. Dogar and S.S. Srinivasa. A planning framework for non-prehensile manipulation under clutter and uncertainty. *Autonomous Robots*, 33(3):217–236, 2012. (Conference version was **Best Conference Paper Award Finalist, IEEE IROS 2010**).

[31] 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.

[32] M.T. Mason, A. Rodriguez, S.S. Srinivasa, and A.S. Vazquez. Autonomous manipulation with a general-purpose simple hand. *The International Journal of Robotics Research*, 31(5):688–703, 2012.

[33] S.S. Srinivasa, D. Berenson, M. Cakmak, A. Collet, M.R. Dogar, A.D. Dragan, R.A. Knepper, T. Niemueller, K. Strabala, M. Vandeweghe, and J. Ziegler. HERB 2.0: Lessons learned from developing a mobile manipulator for the home. *Proceedings of the IEEE*, 100(8):1–19, 2012.

[34] 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.

[35] A. Collet, M. Martinez, and S.S. Srinivasa. The MOPED framework: Object recognition and pose estimation for manipulation. *The International Journal of Robotics Research*, 30(10):1284–1306, 2011. (Conference version was **Best Vision Paper Award Finalist, IEEE ICRA 2009**).

[36] S.S. Srinivasa, D. Ferguson, C.J. Helfrich, D. Berenson, A. Collet, R. Diankov, G. Gallagher, G. Hollinger, J. Kuffner, and M.V. Weghe. HERB: A Home Exploring Robotic Butler. *Autonomous Robots*, 28(1):5–20, 2010.

[37] P. Yang, R.A. Freeman, G.J. Gordon, K.M. Lynch, S.S. Srinivasa, and R. Sukthankar. Decentralized estimation and control of graph connectivity for mobile sensor networks. *Automatica*, 46(2):390–396, 2010.

[38] S.S. Siddhartha, R. Narasimha, A.J. Basu, and S.V. Kailas. Coherent structures in numerically simulated jets with and without off-source heating. *Fluid Dynamics Research*, 26(2):105–117, 2000.

Refereed Conferences

[39] T. Bhattacharjee, E.K. Gordon, R. Scalise, M.E. Cabrera, A. Caspi, M. Cakmak, and S.S. Srinivasa. Is more autonomy always better? exploring preferences of users with mobility impairments in robot-assisted feeding. In *ACM/IEEE International Conference on Human-Robot Interaction*, 2020.

[40] V. Roulet, M. Fazel, S.S. Srinivasa, and Z. Harchaoui. On the Convergence of the Iterative Linear Exponential Quadratic Gaussian Algorithm to Stationary Points. In *American Controls Conference*, 2020.

[41] S. Ainsworth, M. Barnes, and S.S. Srinivasa. Mo states mo problems: Emergency stop mechanisms from observation. In *Advances in Neural Information Processing Systems*, 2019.

[42] M. Bhardwaj, S. Choudhury, B. Boots, and S. Srinivasa. Leveraging Experience in Lazy Search. In *Robotics: Science and Systems*, 2019.

[43] T. Bhattacharjee, M.E. Cabrera, A. Caspi, M. Cakmak, and S.S. Srinivasa. A community-centered design framework for robot-assisted feeding systems. In *International ACM SIGACCESS Conference on Computers and Accessibility*, 2019.

[44] L. Chan, D. Hadfield-Menell, S.S. Srinivasa, and A.D. Dragan. The assistive multi-armed bandit. In *ACM/IEEE International Conference on Human-Robot Interaction*, 2019.

[45] R. Feng, Y. Kim, G. Lee, E.K. Gordon, M. Schmittle, S. Kumar, T. Bhattacharjee, and S.S. Srinivasa. Robot-assisted feeding: Generalizing skewering strategies across food items on a plate. In *International Symposium on Robotics Research*, 2019.

[46] 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**.

[47] L. Ke, X. Li, Y. Bisk, A. Holtzman, Z. Gan, J. Liu, J. Gao, Y. Choi, and S.S. Srinivasa. Tactical rewind: Self-correction via backtracking in vision-and-language navigation. In *IEEE Conference on Computer Vision and Pattern Recognition*, 2019. **Oral**.

[48] R. Kumar, A. Mandalika, S. Choudhury, and S.S. Srinivasa. LEGO: Leveraging experience in roadmap generation for sampling-based planning. In *IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2019.

[49] P. Lancaster, J.R. Smith, and S.S. Srinivasa. Improved proximity, contact, and force sensing via optimization of elastomer-air interface geometry. In *IEEE International Conference on Robotics and Automation*, 2019.

[50] G. Lee, Z. Deng, S. Ma, T. Shiratori, S.S. Srinivasa, and Y. Sheikh. Talking with hands 16.2m: A large-scale dataset of synchronized body-finger motion and audio for conversational motion analysis and synthesis. In *International Conference on Computer Vision*, 2019.

[51] G. Lee, B. Hou, A. Mandalika, J. Lee, S. Choudhury, and S.S. Srinivasa. Bayesian policy optimization for model uncertainty. In *International Conference on Learning Representations*, 2019.

[52] 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**.

[53] S. Niyaz, A. Kuntz, O. Salzman, R. Alterovitz, and S.S. Srinivasa. Optimizing motion-planning problem setup via bounded evaluation with application to following surgical trajectories. In *IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2019.

[54] V. Roulet, S.S. Srinivasa, D. Drusvyatskiy, and Z. Harchaoui. Iterative Linearized Control: Stable Algorithms and Complexity Guarantees. In *International Conference on Machine Learning*, 2019.

[55] R. Rowe, S. Singhal, D. Yi, T. Bhattacharjee, and S.S. Srinivasa. Desk organization: Effect of multimodal inputs on spatial relational learning. In *IEEE International Symposium on Robot and Human Interactive Communication*, 2019.

[56] B. Saund, S. Choudhury, S.S. Srinivasa, and D. Berenson. The blindfolded robot : A bayesian approach to planning with contact feedback. In *International Symposium on Robotics Research*, 2019.

[57] R. Scalise, J. Thomason, Y. Bisk, and S.S. Srinivasa. Improving robot success detection using static object data. In *IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2019.

[58] H. Song, T. Bhattacharjee, and S.S. Srinivasa. Sensing shear forces during food manipulation: Resolving the trade-off between range and sensitivity. In *IEEE International Conference on Robotics and Automation*, 2019.

[59] T. Weng, L. Perlmutter, S. Nikolaidis, S.S. Srinivasa, and M. Cakmak. Robot object referencing through situated legible projections. In *IEEE International Conference on Robotics and Automation*, 2019.

[60] R. Aronson, T. Santini, T. Kübler, E. Kasneci, S.S. Srinivasa, and H. Admoni. Eye-hand behavior in human-robot shared manipulation. In *ACM/IEEE International Conference on Human-Robot Interaction*, 2018.

[61] 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**.

[62] S. Choudhury, S.S. Srinivasa, and S. Scherer. Bayesian active edge evaluation on expensive graphs. In *International Joint Conference on Artificial Intelligence*, 2018.

[63] 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**.

[64] A. Hefny, Z. Marinho, W. Sun, S.S. Srinivasa, and G. Gordon. Recurrent predictive state policy networks. In *International Conference on Machine Learning*, 2018.

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Seminars

Army Research Laboratories	2019
Carnegie Mellon University	2019
Northwestern	2018
Toyota Technological Institute at Chicago	2018
Georgia Tech	2018
Amazon	2018
Microsoft Research	2017
Carnegie Mellon	2017
Princeton	2017
University of Washington	2017
Harvard	2016
MIT	2016
National University of Singapore	2014
University of Pennsylvania	2011
National Taiwan University	2010
Indian Institute of Technology Madras	2010
West Penn Hospital	2007

Others: Too numerous to count.

Teaching

CSE 490R Robotics Winter 2017-
Paul G. Allen School for Computer Science & Engineering
Brand new undergraduate-level robotics course on robotics in the real world. The course covers state estimation (particle filters, motion models, sensor models etc), planning/control (search based planners, lattice based planners, trajectory following techniques etc), and perception and learning (object detection, learning from demonstrations etc.). Student teams implement algorithms on the RACECAR platform developed by Prof. Srinivasa for the course.

CSE 599 Advanced Robotics Fall 2017-
Paul G. Allen School for Computer Science & Engineering
Brand new graduate-level robotics course on motion planning algorithms. The course covers the Piano Movers Problem, sampling-based planning, minimum dispersion graphs, efficient search, lazy and anytime planning, planning under uncertainty with application to mobile manipulators and humanoid robots, with a focus on algorithmic foundations and theorem proving.

16-843 Manipulation Algorithms Fall 2012-16
The Robotics Institute, Carnegie Mellon University

Brand new graduate-level robotics course on the theory and algorithms that enable robots to physically manipulate their world. The course covers the geometry of manipulation configuration spaces, motion planning in these spaces, synthesizing robust and stable grasps for dexterous hands, reconfiguring clutter, task-level planning of multi-stage manipulation, physics-based actions, and addressing perception and model uncertainty, with application to mobile manipulators and humanoid robots.

16-662 Robot Autonomy Spring 2012-16
The Robotics Institute, Carnegie Mellon University
Brand new graduate-level robotics course on manipulation, motion planning, perception, navigation, and machine learning algorithms for mobile manipulators. The course covers theory and algorithms, and has a strong hands-on component where students implement their assignments and class projects on a real mobile manipulation platform.

16-741 Mechanics of Manipulation Spring 2009
The Robotics Institute, Carnegie Mellon University
Co-taught with Matt Mason
Graduate-level robotics core course on model-based robotic manipulation. To develop techniques for rigid body mechanics, kinematic constraint, Coulomb friction, gravity, and impact, and apply these techniques to manipulation problems including picking and placing, parts orienting, assembly, and mobile manipulation.

Professional Activities

Board Member	RSS Foundation	2016-
Editor	International Journal of Robotics Research (IJRR)	2014-
Editor	IEEE/RSJ IROS	2014-2016
Editor	A Roadmap for U.S. Robotics: From Internet to Robotics	2013
Guest Editor	IJRR, RSS Special Issue	2013
Guest Editor	Autonomous Robots, RSS Special Issue	2013
Guest Editor	IEEE RAM, Special Issue on Mobile Manipulation	2012
Associate Editor	IEEE/RSJ IROS	2011-2012
Associate Editor	IEEE ICRA	2010-2013

Selected Organization

Organizer	UW CSE MSR Summer Institute on Social Robotics	2018
Program Chair	Robotics: Science and Systems (RSS)	2017
Organizer	Dagstuhl Seminar on Multimodal Manipulation Under Uncertainty	2015
Presentations Chair	IEEE IROS	2014
Chair	IEEE ICRA Best Manipulation Paper Award Committee	2013
Publications Chair	RSS	2013
Founding Program Chair	Robotics Track AAAI	2012-2013
Senior Program Committee	AAAI	2012-2013
Founding Chair	IEEE RAS Technical Committee on Mobile Manipulation	2010-2012
Short Presentations Chair	RSS	2012
Area Chair	RSS	2011-2012

Workshops Organized: Too numerous to count.

Long-term Program Committees: International Conference on Human-Robot Interaction (HRI) 2012-; International Conference on Automated Planning and Scheduling (ICAPS) 2010-; Robotics: Science and Systems (RSS) 2009-; Workshop on the Algorithmic Foundations of Robotics (WAFR) 2012-; AAAI Special Track on Physically Grounded AI 2009-2011.

University Service

Member	UW CSE Graduate Admissions Committee	2017-18
Member	RI Curriculum Program Committee	2015-2017
Member	RI Faculty Hiring Committee	2015-2017
Chair	SCS ACM Doctoral Dissertation Award Committee	2014
Chair	RI Admissions Committee	2014
Member	RI Director Search Committee	2014
Member	SCS Student Teaching Award Committee	2014
Member	SCS Graduate Fellowship Committee	2012-2014
Member	RI Admissions Committee	2012-2015
Member	QoLT Director Search Committee	2012

Grants

Current

US Army Research Laboratory — 2020-21
Scalable, Adaptive, and Resilient Autonomy — $150,000
Title: *Safe, Fluent, and Generalizable Outdoor Autonomy*
co-PI, PI: Byron Boots, UW

HONDA — 2018-21
HONDA Research Institute — $2,700,000
Title: *Formalizing Mathematical Models of Curiosity*
PI

Office of Naval Research (#ONR N00014-16-R-BA01) — 2017-20
Long Range BAA for Navy and Marine Corps Science and Technology — $2,096,633
Title: *Enabling dexterous physics-based manipulation via a learning framework for shared autonomy*
PI

National Science Foundation (#1839371) — 2018-21
Division of Mathematical Sciences, the Division of Computing and Communication Foundations, and the Division of Information and Intelligent Systems — $125,000
Title: *Safe Imitation Learning for Robotics*
co-PI, PI: Zaid Harchaoui, UW

Past

RCTA T3 — 2017-18
Robotics Collaborative Technology Alliance — $355,594
Title: *Robust Outdoor Mobile Manipulation*
PI

Amazon — 2017-18
Amazon Research Award — $80,000
Title: *Data Efficient Policy Search for Reinforcement Learning*
PI

National Science Foundation (#1748582) — 2017-19
National Robotics Initiative (NRI) — $453,379
Title: *NRI: Collaborative Research: Learning Deep Sensorimotor Policies for Shared Autonomy*
PI, co-PI: Sergey Levine, Berkeley

National Science Foundation (#1544797) — 2015-18
Cyber-Physical Systems (CPS) — $435,928

Title: *CPS: Synergy: Collaborative Research: Learning control sharing strategies for assistive cyber-physical systems*
PI, co-PI: Brenna Argall, Northwestern

National Science Foundation (#1409003) 2014-18
Robust Intelligence, Division of Information & Intelligent Systems (IIS) $358,737
Title: *RI: Medium: The Foundations of a Manipulation Repertoire*
Co-PI, PI: Matt Mason, Co-PI: Michael Erdmann, CMU

National Institute of Health R01 (#R01EB019335) 2014-17
Title: *A Formalism for Customizing and Training Intelligent Assistive Devices*
PI, co-PI: Brenna Argall, Northwestern

Office of Naval Research (#ONR BAA 13-0001) 2014-17
ONR Basic Research Challenges in the Science of Autonomy
Title: *Mental Simulation of Intentions for Collaborative Human-Robot Learning and Planning*
co-PI, PI: Andrea Thomaz, Georgia Tech.

Toyota 2013-2017
Toyota Motor Engineering & Manufacturing (TEMA)
Title: *Physics-based Intelligent Manipulation in Clutter*
PI

Defense Advanced Research Projects Agency 2015-16
Simplifying Complexity in Scientific Discovery (SIMPLEX)
Title: *An Architecture for Shared Autonomy via Optimal Control*
PI

Richard King Mellon Foundation 2016
Title: *Intelligent asisstive technology for individuals with physical disabilities*
PI

Office of Naval Research 2012-15
Young Investigator Award (ONR-YIP)
Title: *Enabling Advanced Autonomous Physical Manipulation Capabilities for Robots in Human-Robot Teams*
PI

Defense Advanced Research Projects Agency (#DARPA-BAA-12-39) 2012-15
Robotics Challenge Track A
Co-PI, PI: Tony Stenz, CMU

Intel 2012-14
Embedded Computing Science and Technology Center
Title: *Lifelong Learning in the Real World*
Joint PI with: Drew Bagnell, CMU

ABB Research Grant 2013-14
Title: *In-hand manipulation with a simple gripper*
co-PI, PI: Matt Mason, CMU

Research for Advanced Manufacturing in Pennsylvania (RAMP) 2013
Title: *Robotics-enhanced, Cost-effective Motion Test Equipment for Inertial MEMS Devices*
PI, co-PI: David Bourne, CMU. Industry Collaborator: Acutronic Inc.

National Science Foundation (#1208388, $ 150,456) 2012-13
National Robotics Initiative (NRI)
Title: *Addressing Clutter and Uncertainty for Robotic Manipulation in Human Environments*
PI, co-PI: Kevin Lynch, Northwestern

National Science Foundation (#1228906, $ 24,808) 2012-13
Robust Intelligence, Division of Information & Intelligent Systems (IIS)
Title: *EAGER: Building Intelligent Mobile Manipulators for Assistive Care*
Co-PI, PI: Matt Mason, CMU

National Science Foundation (#0916557, $ 515,079) 2009-13
Robust Intelligence, Division of Information & Intelligent Systems (IIS)
Title: *A Simple but General Hand*
Co-PI, PI: Matt Mason, CMU

National Science Foundation (#0540865, $ 16,105,954) 2006-16
Ret Supplements, Engineering Research Centers, Human Resources Development
Title: *Quality of Life Technology Engineering Research Center*
QoltBots Project Leader, PI: Takeo Kanade, CMU

Defense Advanced Research Projects Agency (#DARPA-BAA-10-28) 2010-11
Autonomous Robotic Manipulation Software Track (ARM-S)
Title: *REARM: Robust Extensible Autonomous Robotic Manipulation*
Co-PI, PI: SRI

National Science Foundation (#0646448, $ 99,785) 2009-12
Small Business Phase II , Division of Industrial Innovation & Partnerships (IIP)
Title: *Methodology for Applying Haptic Robotics to Agile Manufacturing*
Subcontractor, PI: William Townsend, Barrett Technologies

Selected Press Coverage (Longer list)

2019

Fast Company	The best interactive design of the year
Geek Wire	Robotic race car platform from Univ. of Washington designed to speed research around A.I.
BBC News	Robot arm can feed people with mobility issues

2018

MIT Tech Review	Research robots sometimes left unsecured on the internet, study finds
KUOW Public Radio	The Record: Robotics
Washington Post	An expert explains how close we are to 'The Jetsons.'
GeekWire	UW's HERB robot makes cameo on X-Files as automated sushi waiter

2017 (moved to UW)

BBC World Live	Autonomous Weapons that use AI
IEEE The Institute	IEEE Members Build Robots to Help People with Disabilities Live Independently
New York Times	Learning to love our robot co-workers
GeekWire	Robotics expert moves entire team to UW, including famous Oreo-cracking robot

2016

Wired	Come on, Let's Give the Robots Hands Already
Discovery Channel	Robot Vision
Yahoo Tech	Meet the man building HERB – the closest thing we have to Rosie the Robot
Huffpost Tech	Robot Butler's Creativity Surprises Its Own Makers
Tech Republic	What Zuckerberg can learn from CMU's HERB

2015

USA Today	Where the Jobs Are: Workers vs Automation
The Guardian	Robots are leaving the factory floor and heading for your desk — and your job
New York Times Magazine	Uber Would Like to Buy Your Robotics Department
Pittsburgh Post-Gazette	'Robots' like you have never seen them before

2014

National Geographic	Robots 3D IMAX Movie
Washington Post	HERB: A robot that can unload a dishwasher and (sometimes) take apart an Oreo
National Geographic	Going Deep with David Rees: How to open a door
The Verge	Robot city: how the machines are driving Pittsburgh's future
Pittsburgh Post Gazette	CMU play pairs HERB the robot with human actor
Politico	Robots at Work
Discovery Channel	When Will My Robotic Housekeeper Be Ready?
NPR	Robots that Care: The Quality of Life Technology Center Changing the World of Caregiving

2013

CNN	When it's too hard to separate Oreos...
Discovery Channel	Autonomous Robot Comprehends Objects On Its Own
New York Times	Disruptions: Helper Robots Are Steered, Tentatively, to Care for the Aging
Wall Street Journal	Not the Jetsons, but Rosie could be your nurse
Time Magazine	Welcome to Roboburgh
CBS	Robotic Servants are here to help

2012

Engadget	Robotic butlers, bartenders and receptionists at Carnegie Mellon
Popular Science	HERB the Robot Butler Microwaves Your Dinner For You
Time Magazine	Meet HERB, the Robot Butler That Knows How to Use a Microwave
Fast Company	This Week In Bots: Will Your Kids Give Robots Civil Liberties?
NPR	Marketplace: Good Robots Make Jobs
National Geographic	Us. And them. Robots are being created that can think, act, and relate to humans. Are we ready?

2007-2011 (At Intel)

NSF Science Nation	HERB: A robot to help around the house
Scientific American	Can Robots Be Programmed to Learn from Their Own Experiences?
BBC	The dawn of intelligent machines
Businessweek	World's most advanced robots
Fast Company	Intel's Robot Butler Serves, Clears, and Does Dishes
Wired Magazine	Butler Robot Can Fetch Drinks, Snacks
Granta	What I think about when I think about robots
Discovery Channel	The robot butler
Popular Science	Rise of the Helpful Machines: Meet 10 of the most advanced human-assist 'bots from around the world

Extracurricular

- 140/13,072=0.01-th Place overall and 12/790=0.01-th Place in age group, Pittsburgh Half Marathon, 2017
- 6th Place overall and 1st Place in age group, Montour Trail Half Marathon, 2016
- 3rd Place, Finish MS 5M Run, 2015
- Fastest advisor-student time, Random Distance Run, 2013
- LaSalle Bank Chicago Marathon 2007, 2008
- Pittsburgh AB Squash League champion 2005
- Pittsburgh C Squash League champion 2002
- Institute silver medalist in Badminton, Indian Institute of Technology Madras 1998
- Institute bronze medalist in Tennis, Indian Institute of Technology Madras 1997, 1998