

Sudharshan Suresh

Email suddhus@gmail.com
Homepage <https://suddhu.github.io>
[G Scholar](#) / [LinkedIn](#) / [Github](#)

Current Appointment

2024 – Present **Boston Dynamics, Staff Research Scientist**
Technical lead on the Atlas VLA team, training humanoid policies with alternative data sources, like egocentric human data (more details soon). I split time between ML training, robot deployment, and coordinating data collection efforts. Previously, I was responsible for vision and whole-body manipulation that powered the Atlas sequencing demos ([video](#), [blog](#)).

Education

2019 – 2024 **Carnegie Mellon University**
Ph.D. in Robotics
[Perception amidst interaction: spatial AI with vision and touch for manipulation](#)
Advisor: Michael Kaess
Committee: Nancy Pollard, Shubham Tulsiani, Mustafa Mukadam, Alberto Rodriguez

2017 - 2019 **Carnegie Mellon University**
M.S. in Robotics
[Localization and Active Exploration in Indoor Underwater Environments](#)

2013 - 2017 **National Institute of Technology, Trichy, India**
Bachelors in Instrumentation and Controls
Graduated with honors

Past Experience

2022 - 2024 **Meta FAIR, Visiting Researcher**
Dexterous manipulation at Embodied AI team

2016 **Carnegie Mellon Planetary Robotics Lab, Research Intern**
Lunar rover autonomy and navigation

2015 **Indian Institute of Science, Research Intern**
Visual saliency and human cognition

Honors and Awards

2025 [RSS Pioneers 2025](#)
One of 33 Ph.D. and early-career researchers

2024 [Science Robotics cover feature](#)
For work on NeuralFeels with neural fields

2021 Best paper award in service robotics finalist, ICRA

2020 Hima and Jive Fellowship in Computer Science

2017 RECAL Alumni Award and Sri. Avinash Memorial Award

2017 OPJEMS Scholar

2015 - 2017 Cargill Global Scholar

Publications

Peer-reviewed Publications

- 2024 P.1 S. Suresh, H. Qi, T. Wu, T. Fan, L. Pineda, M. Lambeta, J. Malik, M. Kalakrishnan, R. Calandra, M. Kaess, J. Ortiz, and M. Mukadam. **NeuralFeels with neural fields: Visuo-tactile perception for in-hand manipulation.**
Science Robotics, Nov. 2024
Featured as journal cover
[paper](#) / [website](#) / [code](#)
- 2023 P.2 H. Qi, B. Yi, S. Suresh, M. Lambeta, Y. Ma, R. Calandra, and J. Malik. **General In-Hand Object Rotation with Vision and Touch.**
In Proc. Conf. on Robot Learning (CoRL), Atlanta, USA, Nov 2023
[paper](#) / [website](#)
- 2022 P.3 S. Suresh, Z. Si, S. Anderson, M. Kaess, and M. Mukadam. **MidasTouch: Monte-Carlo inference over distributions across sliding touch.**
In Proc. Conf. on Robot Learning (CoRL), Auckland, New Zealand, Dec 2022
Oral, 6.5% Acceptance Rate
[paper](#) / [website](#) / [code](#) / [presentation](#)
- P.4 S. Suresh, Z. Si, J. Mangelson, W. Yuan, and M. Kaess. **ShapeMap 3-D: Efficient shape mapping through dense touch and vision.**
In Proc. IEEE Intl. Conf. on Robotics and Automation (ICRA), May 2022
[paper](#) / [website](#) / [code](#) / [presentation](#)
- 2021 P.5 S. Suresh, M. Bauza, K.-T. Yu, J. Mangelson, A. Rodriguez, and M. Kaess. **Tactile SLAM: Real-time inference of shape and pose from planar pushing.**
In Proc. IEEE Intl. Conf. on Robotics and Automation (ICRA), Xi'an, China, May 2021
Best paper award in service robotics finalist
[paper](#) / [website](#) / [presentation](#)
- 2020 P.6 M. Hsiao, J.G. Mangelson, S. Suresh, C. Debrunner, and M. Kaess. **ARAS: ambiguity-aware robust active SLAM based on multi-hypothesis state and map estimations.**
In Proc. IEEE/RSJ Intl. Conf. on Intelligent Robots and Systems (IROS), Oct. 2020
[paper](#)
- P.7 S. Suresh, P. Sodhi, J. G. Mangelson, D. Wettergreen, and M. Kaess. **Active SLAM using 3D submap saliency for underwater volumetric exploration.**
In Proc. IEEE Intl. Conf. on Robotics and Automation (ICRA), Paris, France, pp. 3132–3138, May 2020
[paper](#) / [presentation](#)
- 2019 P.8 S. Suresh, E. Westman, and M. Kaess. **Through-water stereo SLAM with refraction correction for AUV localization.**
IEEE Robotics and Automation Letters (RA-L), presented at ICRA 2019, Apr. 2019
[paper](#) / [presentation](#)
- 2017 P.9 R. K. Sarvadevabhatla, S. Suresh, and R. Venkatesh Babu. **Object category understanding via eye fixations on freehand sketches.**
IEEE Transactions on Image Processing, vol. 26, no. 5, pp. 2508–2518, May 2017
[paper](#) / [website](#)

Workshops, pre-prints, and technical blogs

- 2025 M.1 J. Czarnowski, K. Doherty, T. Laidlow, S. Shivakumar, E. Storm, [S. Suresh](#), and A. Rodriguez. **Making Atlas See the World.**
Boston Dynamics Blog, May 2025
[website](#)
- M.2 [S. Suresh](#). **Perception amidst interaction: vision and touch enable useful manipulation.**
In Robotics: Science and Systems (RSS) Pioneers Workshop, June 2025
[paper](#)
- 2020 M.3 [S. Suresh](#), J. G. Mangelson, and M. Kaess. **Incremental shape and pose estimation from planar pushing using contact implicit surfaces.**
In ICRA 2020 Workshop - ViTac, May 2020
[paper](#) / [presentation](#)
- 2018 M.4 J. Hsiung, A. Tallaksen, L. Papincak, [S. Suresh](#), H. Jones, W. Whittaker, and M. Kaess. **Localized imaging and mapping for underwater fuel storage basins.**
In Proceedings of the Symposium on Waste Management, Mar. 2018
[paper](#) / [presentation](#)
- M.5 [S. Suresh](#), N. Chodosh, M. Abello. **DeepGeo: Photo Localization with Deep Neural Network.**
arXiv preprint arXiv:1810.03077, 2018
[paper](#) / [code](#)
- 2016 M.6 E. Fang, [S. Suresh](#), and W. Whittaker. **Camera-only kinematics for small lunar rovers.**
In Annual Meeting of the Lunar Exploration Analysis Group, Nov 2016
[poster](#) / [paper](#) / [video](#)

Press Coverage

- 2025 How Atlas perceives and performs in dynamics environments
[The Robot Report](#)
- 2024 Autonomous part-sequencing with Atlas
[IEEE](#), [TechCrunch](#), [Verge](#)
- 2024 NeuralFeels with neural fields
[CMU Robotics Press](#), [AI at Meta](#)
- 2023 General In-hand Object Rotation with Vision and Touch
[New Scientist \(UK\)](#), [TU Dresden News](#)

Invited Talks

- 2025 **RSS Dexterous Manipulation Workshop**, Making Atlas see the world: Vision foundation models for humanoid manipulation, June 2025 ([video](#))
RSS Pioneers Workshop, Perception amidst interaction: vision and touch enable useful manipulation, June 2025
- 2022 **FAIR embodied AI seminar**, Monte-Carlo inference over distributions across sliding touch, Aug. 2022

2021	RoboTouch lab, CMU, ShapeMap 3D: Efficient shape mapping through dense touch and vision, Oct. 2021 R-PAD lab, CMU, Towards shape perception via touch and vision for manipulators, Oct. 2021 Tartan SLAM series, Tactile SLAM: inferring object shape and pose through touch, Aug. 2021 (video)
2019	Field Robotics Center Seminar , Localization and active exploration in indoor underwater environments, July 2019

Mentorship

I've had the privilege of directly mentoring smart, talented folks in both industry and academia.

		Position	Next
2025	Carolina Higuera	Research Intern, Boston Dynamics	-
	Chuer Pan	Research Intern, Boston Dynamics	-
2023	Andrew Wong	Masters Researcher, CMU	Georgia Tech, PhD
2021	Thomas Snyder	Undergraduate Researcher, CMU	Intel

Service

Reviewing	Science Robotics, T-RO, RA-L, ICRA, IROS, and CoRL
Organizing	Debates on the Future of Robotics Research, ICRA 2021, 2022; CoRL 2023
Admissions	CMU MSCV 2023, CMU RI Summer Scholars program (2018 – 2020)
Volunteering	CMU AI undergraduate mentorship program (2019), NIT Trichy Jiteshraj Scholarship (2018)

Teaching

2019, 2020	Teaching Assistant, 16-833: Robot Localization and Mapping @ CMU
------------	--