

Sudharshan Suresh

PERSONAL	www.cs.cmu.edu/~sudhars1 / suddhu@cmu.edu / LinkedIn / Scholar	
EDUCATION	Robotics Institute, Carnegie Mellon University Ph.D. in Robotics Advisor: Prof. Michael Kaess <i>Interests: Localization and mapping; Tactile perception; Computer vision</i>	2019 - present
	Robotics Institute, Carnegie Mellon University M.S. in Robotics GPA: 4.09, Advisor: Prof. Michael Kaess Thesis: Localization and Active Exploration in Indoor Underwater Environments	2017 - 2019
	National Institute of Technology, Tiruchirappalli, India B.Tech (Hons) in Instrumentation and Control Engineering GPA: 9.45/10	2013 - 2017
EXPERIENCE	Part-time researcher, Meta AI Pittsburgh (FAIR) AI research intern, Meta AI Pittsburgh (FAIR) Graduate Research Assistant, Carnegie Mellon University Undergraduate Research Scholar, Carnegie Mellon University Undergraduate Research Scholar, Indian Institute of Science:	2022 - present Summer 2022 2017 - present Summer 2016 Summer 2015
PUBLICATIONS		
PEER-REVIEWED PUBLICATIONS	<p>[1] S. Suresh, Z. Si, S. Anderson, M. Kaess, and M. Mukadam, "MidasTouch: Monte-Carlo inference over distributions across sliding touch," In <i>Proc. Conf. on Robot Learning, CoRL</i>, Auckland, New Zealand, Dec 2022, Oral, 6.5% Acceptance Rate paper / website / code / presentation</p> <p>[2] S. Suresh, Z. Si, J. Mangelson, W. Yuan, and M. Kaess, "ShapeMap 3-D: Efficient shape mapping through dense touch and vision," In <i>Proc. IEEE Intl. Conf. on Robotics and Automation (ICRA)</i>, May 2022. paper / website / code / presentation</p> <p>[3] 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 <i>Proc. IEEE Intl. Conf. on Robotics and Automation (ICRA)</i>, Xi'an, China, May 2021, Best paper award in service robotics finalist paper / website / presentation</p> <p>[4] 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 <i>Proc. IEEE/RSJ Intl. Conf. on Intelligent Robots and Systems (IROS)</i>, Oct. 2020. paper</p> <p>[5] S. Suresh, P Sodhi, J. G. Mangelson, D. Wettergreen, and M. Kaess, "Active SLAM using 3D submap saliency for underwater volumetric exploration," In <i>Proc. IEEE Intl. Conf. on Robotics and Automation (ICRA)</i>, Paris, France, pp. 3132-3138, May 2020. paper / presentation</p>	
JOURNAL PUBLICATIONS	<p>[6] S. Suresh, E. Westman, and M. Kaess, "Through-water stereo SLAM with refraction correction for AUV localization," <i>IEEE Robotics and Automation Letters (RA-L)</i>, vol. 4, no. 2, pp. 2377-3766, presented at ICRA 2019, Apr. 2019. paper / presentation</p> <p>[7] R. K. Sarvadevabhatla, S. Suresh, and R. Venkatesh Babu, "Object category understanding via eye fixations on freehand sketches," <i>IEEE Transactions on Image Processing</i>, vol. 26, no. 5, pp. 2508-2518, May 2017. paper / website</p>	

WORKSHOPS/OTHER PUBLICATIONS

- [8] [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 2020: Closing the Perception-Action Loop with Vision and Tactile Sensing*, May 2020. [paper / presentation](#)
- [9] 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*, Phoenix, Arizona, Mar. 2018. [paper / presentation](#)
- [10] [S. Suresh](#), N. Chodosh, M. Abello, "DeepGeo: Photo Localization with Deep Neural Network," *arXiv preprint arXiv:1810.03077*, 2018. [paper / code](#)
- [11] E. Fang, [S. Suresh](#) and W. Whittaker, "Camera-only kinematics for small lunar rovers," In *Annual Meeting of the Lunar Exploration Analysis Group*, Columbia, Maryland, Vol. 1960, Nov 2016. [poster / paper / video](#)

SERVICE

Reviewer: IROS '20-'22 | ICRA '21-'22 | RA-L | T-RO
Organizing committee: [Debates on the Future of Robotics Research](#), ICRA '20-'21
Admissions committee: CMU RI Summer Scholars program (2018-2020)
Mentorship: CMU AI undergraduate mentorship program (2019), NIT Trichy Jiteshraj Scholarship (2018)

AWARDS AND HONORS

Best paper award in service robotics finalist, ICRA 2021 [2]
[Hima and Jive Fellowship](#) in Computer Science for International Students, 2020
RECAL Alumni Award and Sri. Avinash Memorial Award, 2017 (*gold-medalist in undergraduate major*)
[OPJEMS Scholar](#), 2017 (*100 undergraduates across India*)
[Cargill Global Scholar](#), 2015 - 2017 (*10 undergraduate sophomores across India*)

TEACHING

Teaching Assistant, [16-833](#): Robot Localization and Mapping Fall 2019, Spring 2020

SELECT COURSEWORK

Graduate: Convex optimization (10-725), kinematics, dynamics and control (16-711), geometry-based methods in vision (16-822), planning and decision-making in robotics (16-782), robot localization and mapping (16-833), introduction to machine learning (10-701), computer vision (16-720), mathematical fundamentals for robotics (16-811)
Undergraduate: Data structures and algorithms, computer networks, neural networks and fuzzy logic, image processing, basics of programming, control systems, robotics, signals and systems, circuit theory, embedded systems, linear integrated circuits, sensors and transducers, material science, numerical methods