

Sudarshan S Harithas

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🌐 <https://sudarshan-s-harithas.github.io/>

🌐 Google Scholar

Education

2023 – Present

📖 **Brown University**

PhD in Computer Science

Grade: A

Research Interests: Generative models for sequential data, deep learning.

2021 – 2023

📖 **International Institute of Information Technology, Hyderabad, India, (IIIT-H)**

M.S by Research in Computer Science and Engineering

GPA: 10/10

Coursework: Mobile Robotics, Statistical Methods in AI, Topics in Applied Optimization, Robotics Planning and Navigation and Topics in Deep Learning.

2016 – 2020

📖 **B.M.S College of Engineering**

B.E in Electronics and Communication Engineering.

GPA: 9.19/10

Research Publications

Conference Publications

1. ***MotionGlot: A Multi-Embodied Motion Generation Model*** (2024). **Sudarshan S Harithas**, Srinath Sridhar. Under Review at ICRA 2025.
2. ***FinderNet: A Data Augmentation Free Canonicalization aided Loop Detection and Closure technique for Point clouds in 6-DOF separation***(2024). **Sudarshan S Harithas***, Gurkirat Singh*, Aneesh Chavan, Sarthak Sharma, Suraj Patni, Chetan Arora, K. Madhava Krishna. *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*. **paper Video**
3. ***CCO-VOXEL: Chance Constrained Optimization over Uncertain Voxel-Grid Representation for Safe Trajectory Planning*** (2022). **Sudarshan S Harithas**, Rishabh Dev Yadav, Deepak Singh, Arun Kumar Singh, K Madhava Krishna. In *IEEE International Conference on Robotics and Automation, ICRA* (2022). **paper, Video, Code**
4. ***UrbanFly: Uncertainty-Aware Planning for Navigation Amongst High-Rises with Monocular Visual-Inertial SLAM maps*** (2023). **Sudarshan S Harithas**, Ayyappa Thatavarthy, Gurkirat Singh, Arun Kumar Singh, K Madhava Krishna. Accepted at the American Control Conference (ACC2023). **paper, Video, Code**.
5. ***RP-VIO: Robust Plane-based Visual-Inertial Odometry for Dynamic environments***. Karnik Ram, Chaitanya Kharyal, **Sudarshan S Harithas**, K Madhava Krishna. In *IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS* 2021. **paper, Video, Code, Data**

Preprints

- (a) ***ARDOP: A Versatile Humanoid Robotic Research Platform***(2021) **Sudarshan S Harithas**, Harish V Mekali. **PrePrint, Project Page**

Work Experience

(a) **Interactive 3D Vision & Learning Lab**

August 2023- Present

Graduate Research Assistant

Advisor: Prof. Srinath Sridhar

- Developed a multi-embodied motion generation model that can generate motion for diverse morphologies such as quadrupeds and human embodiments. The work is under-review at ICRA 2025.

(b) **Robotics Research Center: IIIT Hyderabad**

August 2021- July 2023

Graduate Research Assistant

Advisor: Prof. K Madhava Krishna

- Developed *FinderNet* a robust *6DOF* loop detection and closure system. Accepted at *WACV2024*.
- Developed real-time uncertainty-aware motion planning for quadrotors *ICRA 22* and *ACC23*.

(c) **Summer Geometry Initiative: MIT**

July-August 2022

Research Fellow

Organizer: Prof. Justin Solomon

- Implemented DeltaConv, an anisotropic convolution for point clouds. Advisor: Prof. Klaus Hildebrandt, TU Delft
- Developed a fast surface triangulation algorithm for NeuralODF. Advisor: Prof. Srinath Sridhar, Brown University

Sep 2020 – July 2021

Research Intern

- Worked on the *plane based Visual Inertial Odometry* (VIO) estimation in highly dynamic environments. (IROS 21)
- Implemented online mapping and motion planning algorithms for autonomous quadrotor navigation.

Skills

Programming Languages	■ Proficient: Python, C++/C Familiar: MATLAB, HTML.
Tools and Libraries	■ PyTorch, Jax, LieTroch , ROS, PyPose, TensorFlow, MAVROS, PX4, Ceres Solver, G2o, Unreal Engine 4 (UE4), AirSim, Eigen, gptoolbox.
Real Robots Built/ Used	■ ARDOP (humanoid robot), Quadrotors, Husky UGV.

Awards, Grants and Service

August 2021-July 2023	■ Research Fellowship covered tuition fees and living expenses, IIIT-H
May 2022	■ Top of Class: with a GPA of 10.00/10.00 during my Masters at IIIT Hyderabad.
March 2022	■ RAS travel Grant Awarded with a travel grant by IEEE RAS for ICRA 2022.
2020	■ BMSCE Best Project Award , for the <i>ARDOP</i> robot.
2018	■ BMSCE Startup week , award received for our startup proposal.
Voluntary Service	■ ICRA, IROS , CVPR reviewer
Teaching	■ Robotics instructor for RRC Summer School delivered two lectures on SLAM. <i>Lecture material: Slides Code</i>

References

Prof. Srinath Sridhar

Brown University

PhD advisor

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Prof. K Madhava Krishna

Lab head at RRC, IIIT Hyderabad

Master's thesis advisor and course instructor

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