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.* **paper** ,**video**, **project page**

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** , **project page**

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**, **project page**.

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** ,**project page**

Preprints

1. *ARDOP:A Versatile Humanoid Robotic Research Platform*(2021) **Sudarshan S Harithas**, Harish V Mekali. **paper** , **project page**

Work Experience

1. **Interactive 3D Vision & Learning Lab**   Graduate Research Assistant

   August 2023- Present   Advisor: Prof. Srinath Sridhar

   - My research is centered on developing generalist cross-embodied policies that enable robots to perform generative tasks across multiple embodiments.
   - Developed a multi-embodied motion generator for diverse morphologies such as quadruped robots and human embodiments. The work is under review at ICRA 2025.

2. **Robotics Research Center: IIIT Hyderabad** Graduate Research Assistant
   August 2021- July 2023 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* .

3. **Summer Geometry Initiative: MIT** Research Fellow
   July-August 2022 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

4. **Robotics Research Center: IIIT Hyderabad** Research Intern
   Sep 2020 – July 2021 Advisor: Prof. K Madhava Krishna

   - 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, TensorFlow, Jax, LieTroch, ROS, MAVROS, PX4, Ceres Solver, G2o, Unreal Engine 4 (UE4), AirSim, Eigen, gptoolbox.
Real Robots Built/ Used	🔖	ARDOP (humanoid robot), Quadrotors, Husky (UGV),spot robot (quadruped).

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 *ARDOP* robot.
2018	🔖	**BMSCE Startup week**, award received for our startup proposal.
Voluntary Service	🔖	reviewer for ICRA, IROS , CVPR
Teaching	🔖	**Robotics instructor for RRC Summer School** delivered two lectures on SLAM. *Lecture material:* **Slides Code**

References

Prof. Srinath Sridhar
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Prof. K Madhava Krishna
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Master's thesis advisor and course instructor
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