

# Sai Haneesh Allu

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## Education

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The University of Texas at Dallas, <i>Ph.D. in Computer Science</i>	2022 – Present
Indian Institute of Technology (IIT) Delhi, <i>M.Tech in Control and Automation</i>	2018 – 2020
National Institute of Technology Warangal, <i>B.Tech in Electrical and Electronics Engineering</i>	2012 – 2016

## Skills

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**Research expertise:** Efficient path planning, robot exploration and navigation, SLAM, simulation and control of mobile robots, mobile manipulation

**Software development:** Python, ROS, PyTorch, OpenCV, OpTaS, CasADi, Gazebo, Java3D, C++ , MATLAB, Simulink, Git/Github, DroneKit-python

## Experience

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<b>Intelligent Robotics and Vision Lab (PI: Dr. Yu Xiang)</b> , <i>Graduate Research Assistant</i>	2022 – Present
<ul style="list-style-type: none"><li>Developed autonomous robot exploration algorithms for real-time semantic mapping Dallas, TX<ul style="list-style-type: none"><li>Optimized autonomous navigation in large unseen environments with custom exploration module</li><li>Devised 2-layer representation of object semantics and environment geometry for faster updates</li></ul></li><li>Developed trajectory optimization and benchmarking techniques for real-world robot manipulation<ul style="list-style-type: none"><li>Created reproducible, marker-free scenes for manipulation benchmarking</li><li>Formulated point-cloud trajectory optimization for fast joint grasp and motion planning</li></ul></li><li>Led numerous demos and presentations of lab-related research activities</li></ul>	
<b>VECROS Technologies</b> , <i>Co-Founder and CTO</i>	2020 – 2021
<ul style="list-style-type: none"><li>Developed a VIO based autonomous aerial navigation system with real-time edge processing Delhi, India</li><li>Led the team in developing beyond visual line of sight control system for quad-rotor systems</li><li>Raised \$200K during the seed funding round</li></ul>	
<b>Swarm Intelligence Lab (PI: Dr. Shubhendu Bhasin)</b> , <i>Graduate Student Researcher</i>	2019 – 2020
<ul style="list-style-type: none"><li>Established motion capture test bed and optimized camera coverage for calibration Delhi, India</li><li>Researched and implemented formation control algorithms, developing a target capture mechanism.</li></ul>	
<b>Sterlite Tech</b> , <i>Operations Engineer</i>	2016 – 2017
<ul style="list-style-type: none"><li>Analyzed fiber draw process and implemented grounding mechanism to dissipate static charges. MH, India</li><li>Collaborated in writing documentation for troubleshooting and analyzing machine breakdowns</li></ul>	
<b>Power Electronics Lab (PI: Dr. Porpandiselvi S)</b> , <i>Undergraduate Student Researcher</i>	2015 – 2016
<ul style="list-style-type: none"><li>Developed a high-frequency buck-boost LED driver, achieving 0.99 power factor Warangal, India</li></ul>	

## Publications

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1. **Sai Haneesh Allu**, Itay Kadosh, Tyler Summers, Yu Xiang. "Autonomous Exploration and Semantic Updating of Large-Scale Indoor Environments with Mobile Robots." *Under submission to ICRA 2025*.  
[Project Webpage](#) | [Code](#) | [arXiv](#) | [Video](#)
2. Yu Xiang, **Sai Haneesh Allu**, Rohith Peddi, Tyler Summers, Vibhav Gogate. "Grasping Trajectory Optimization with Point Clouds." *IEEE/RSJ IROS 2024*.  
[Project Webpage](#) | [Code](#) | [arXiv](#) | [Video](#)
3. Ninad Khargonkar\*, **Sai Haneesh Allu**\*, Yangxiao Lu, Jishnu Jaykumar P, Balakrishnan Prabhakaran, Yu Xiang. "SceneReplica: Benchmarking Real-World Robot Manipulation by Creating Replicable Scenes." *ICRA 2024*.  
[Project Webpage](#) | [Code](#) | [arXiv](#) | [Video](#)  
*\* denotes equal contribution*
4. **Sai Haneesh Allu**. "Formation Control of Quadcopters." *Master's Thesis, Indian Institute of Technology, Delhi, 2020*.  
[Code](#) | [Paper](#) | [Video](#)

## Other Experience

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### Professional Service:

- Reviewer for IROS 2024, ICRA 2025
- Organizing member - Workshop for Neural Representation Learning for Robot Manipulation at CoRL 2023

### Teaching Assistant:

- Computer Graphics, Programming Language Paradigms at UT-Dallas
- System Identification, Advance Control Lab at IIT Delhi

## Awards and Recognitions

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<i>Prof. A.K. Sinha Award</i> for achieving highest GPA (9.8/10) among 140 graduates	IIT Delhi, 2020
<i>Best Teaching Assistant Award</i> for outstanding teaching support and mentoring,	IIT Delhi, 2019
<i>Special Award</i> for exceptional performance and quick learning	Sterlite Tech, 2017