

NILAY GIRGAONKAR

Work Authorization: United States Citizen

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Education

University of California, San Diego

September 2026 - Present

Master of Science in Computer Science

Birla Institute of Technology and Science, Pilani

October 2021 - July 2025

Bachelor of Engineering in Electronics and Communication

Technical Skills

Languages: Python, C++, C, MATLAB

Perception & 3D Vision: OpenCV, Open3D, COLMAP, PyTorch, 3D Gaussian Splatting, Neural Radiance Fields

OS & Tools: Linux, ROS, Git, Docker

Research Experience

Indian Institute of Science

June 2025 - April 2026

Project Associate

- Designed and processed a dataset for evaluating "sparsity" in novel view synthesis methods under varying camera configurations.
- Conducted empirical evaluation of various novel view synthesis methods across indoor scenes.
- Investigated factors affecting reconstruction quality under sparse settings.

Indian Institute of Science

January 2025 - June 2025

Undergraduate Thesis

- Enhanced sparse-input novel view synthesis of static scenes using 3D Gaussian Splatting, developing and evaluating methods to improve visual fidelity and model performance.
- Co-authored a conference paper accepted to SIGGRAPH Asia 2025.

Publications

- Gurutva Patle, **Nilay Girgaonkar**, Nagabhushan Somraj, and Rajiv Soundararajan. *AD-GS: Alternating Denoification for Sparse-Input 3D Gaussian Splatting*. ACM SIGGRAPH Asia 2025. [Paper](#) | [Project Page](#)

Professional Experience

Vimaan Robotics

April 2026 - June 2026

Geometric Vision Intern

- Developed an SVM-based LiDAR frame quality classifier, improving classification precision from **0.40 to 0.64**, leading to more reliable LiDAR-visual SLAM fusion.
- Designed a Depth Anything 3 pipeline for point cloud hole-filling, improving multi-view contour aggregation accuracy by **10%**.
- Contributed to the software production releases for two flagship products, resolving customer-reported field issues.

T-Works

June 2024 - July 2024

Embedded Systems Intern

- Designed and implemented a furrow-line detection algorithm for an agricultural rover.
- Deployed a YOLO-based furrow detection pipeline on a Raspberry Pi 5.

Selected Projects

3D Mapping with Monocular Image Feed & Lidar Data

- Developed a pipeline for synchronized reading of multi-sensor data from the MIT Kimera-Multi dataset.
- Implemented filtered-IMU odometry & visual odometry pipeline to generate ground-truth trajectories.
- Worked on incremental Lidar map generation and point cloud voxelization.

Controller for Underwater Rover

- Performed system identification of a BlueROV2 rover, contributed to the design of a robust time-delay controller, conducted extensive pool tests & scripting support for rover control.
- Implemented a YOLOv5 based visual servoing algorithm for simple line-of-sight control.