Nilay Girgaonkar

Work Authorization: US Citizen

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Education

BITS Pilani **June 2025**
Bachelor of Engineering in Electronics and Communication *Hyderabad, India*

Research Experience

Indian Institute of Science **June 2025 - Present**
Project Assistant *Bangalore, India*

- Conducting an empirical study of novel view synthesis methods such as **NeRFs** and **3DGS** under the supervision of Dr. Rajiv Soundararajan and Dr. Aayush Bansal.

Indian Institute of Science **January 2025 - June 2025**
Undergraduate Thesis *Bangalore, India*

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

Professional Experience

India Meteorological Department **May 2023 - July 2023**
Student Intern *Pune, India*

- Developed a GUI tool for climatic analysis of weather parameters sensitive for growth and development of crops.
- Wrote scripts to handle interactive data cleaning, perform statistical data analysis, and present graphical output.

T-Works **June 2024 – July 2024**
Embedded Systems Intern *Hyderabad, India*

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

Projects

Controller for Underwater Rover **January 2024 - May 2024**

- Performed **system identification** of the 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**.

Embedded ML for Forest Fire Detection **August 2024 - December 2024**

- Implemented an audio neural network to detect the presence of forest fires in audio clips based on a research paper, with 91% test accuracy | **Code**.
- Assisted in deploying the model to Raspberry Pi and STM32 microcontroller (post-quantization)

Q-learning Variants for Fuel-Optimized Traversal **October 2024**

- Re-formulated the classic cliff-walking problem as a fuel optimization problem.
- Implemented from scratch and compared Q-Learning, Double Q-Learning, Triple Q-Learning, and Quadruple Q-Learning to assess their performance in terms of convergence and stability | **Code**.

Technical Skills

Programming & OS: Python, C, MATLAB, Linux
Libraries & Frameworks: PyTorch, Numpy, Pandas, Scikit-Image, Matplotlib, Open3D
Hardware: Jetson Nano, Raspberry Pi 4, Arduino Uno