Aditya Hegde

408-396-6553 | aditya.hegde@sjsu.edu | linkedin.com/in/aditya-hegde712 | github.com/AdityaHegde712

Education

San Jose State University — San Jose, CA
Master's Degree in Artificial Intelligence — *Aug. 2025 – Present*

Woxsen University — Telangana, India
Bachelor of Technology in Computer Science Engineering — *Sep. 2021 – May 2025*

Experience

Data Scientist Intern — Mar 2024 – July 2024
SUHORA Technologies Pvt. Ltd. — *Uttar Pradesh, India*

- Increased ship detection rate from 16% to 93%+ across 500+ SAR and Optical satellite images by building a custom data pipeline for preprocessing and feature enhancement.
- Delivered client-ready ship detection models, achieving over 95% accuracy and near elimination of manual analysis, by developing a Deep Learning based object detection pipeline.
- Reduced analysis runtime of of 100km^2 SAR images by over 66% (6 $\rightarrow$ sub 2 minutes) without loss of accuracy and enabled faster client deliveries using GPU optimization and multiprocessing.

Research Assistant — Aug 2023 – Feb 2024
Woxsen University — *Telangana, India*

- Improved frame interpolation efficiency by 28.5% over a ResNet18 baseline by integrating an EfficientNetB0 backbone, achieving 30 $\rightarrow$ 120 fps upscaling with sharper detail preservation.
- Explored federated learning frameworks (Flower, PySyft, OpenFL, TFF) by simulating demographic splits of a credit card fraud dataset across parallel edge devices, benchmarking decentralized vs centralized training performance.
- Developed 20k+ lines of quality code across multiple research project codebases, ensuring readability and adhering to the best coding practices.

Projects

Marine Debris Detection Framework | *Python, Pytorch, YOLO, Rasterio, Git* — Dec 2024 – April 2025

- Built a rule-based system using spectral index analysis (FDI, NDWI, NDVI) and automated thresholding to identify marine debris in Sentinel-2 imagery.
- Integrated deep learning (YOLO) with custom post-processing into a multi-resolution geospatial pipeline, generating GeoJSON detections for GIS-based monitoring.
- Deployed a POC web app intended for NGOs and researchers to upload satellite images, run inference, and visualize results interactively, improving accessibility of large-scale environmental monitoring.
- Currently working on a research paper draft to be published.

Seg2Box | *Python, Pytorch, OpenCV, Git* — Oct 2024 – Nov 2024

- Built a processing pipeline to convert segmentation maps into bounding boxes using an Intersection-over-Minimum function, improving annotation efficiency and quality.
- Validated on 1,000+ wildfire images (CEMS dataset), where YOLOv5 and DETR trained on our annotations outperformed Roboflow's converter by +8% and +3% mAP-50.
- Significantly reduces re-annotation effort while maintaining speeds and performance comparable to Roboflow.

Technical Skills

Languages: Python, Java, C/C++, Arduino
Frameworks: Pytorch, Tensorflow, Keras, Scikit-Learn, OpenCV NLTK, LangChain
Developer Tools: Git, Google Cloud Platform, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse, Roboflow, HuggingFace
Libraries: Pandas, NumPy, Matplotlib, Seaborn, BeautifulSoup