Poornima Jaykumar Dharamdasani
Boston, MA | (857)544-0900 |jaykumardharamdasa.p@northeastern.edu | LinkedIn | Github | Portfolio

EDUCATION

NORTHEASTERN UNIVERSITY Boston, MA
Master of Science in Artificial Intelligence: GPA: 3.86/4 Aug. 2023 – Present
Relevant Coursework: Computer Vision, Deep Learning, MLOps, Machine Learning

RAMAIAH INSTITUTE OF TECHNOLOGY Bengaluru, India
B.E. in Electronics and Communication Engineering : GPA: 9.03/10 Aug. 2016 – Aug. 2020

TECHNICAL SKILLS

Languages: Python, C++, CUDA | **Software Tools and Frameworks:** ROS, ROS2, Docker, Git, MLflow, WandB ,MlFlow
Libraries: OpenCV, PyTorch, Keras, TensorFlow, TensorFlow Lite, Nvidia TensorRT, Numpy, Pandas, scikit-learn

WORK EXPERIENCE

Danfoss Power Solutions Boston, USA
Computer Vision Intern May 2024 – Dec 2024

- Synchronized stereo cameras and 3D LiDAR using **software-based sync in ROS1/ROS2**, **achieving <10ms sync error** at 30 FPS for cameras and 10 FPS for LiDAR.
- Fused 3D LiDAR and stereo camera data using **targetless auto-calibration**, achieving a **5-pixel average error** up to 15m, reducing manual efforts and **saving $6,000 annually.**
- Developed and tested a **3D person detection pipeline on Jetson Orin**, integrating YOLOv8-seg with heuristic-based clustering and outlier filtering, **achieving 95% accuracy within 25m** across diverse conditions, validated against 3D LiDAR ground truth.
- Spearheaded the adoption of **WandB** for MLOps, creating a centralized experimentation framework with features like **data/code versioning and tracking**, now used across the company for all models.

ARTPARK (AI & Robotics Technology Park), **IISc** (Indian Institute of Science) Bengaluru, India
Computer Vision & Robotics Engineer Apr 2021 – Jul 2023

- Improved robot localization accuracy by **60% through sensor fusion** of CCTV cameras and onboard LiDAR using computer vision techniques and particle filtering, resulting in a **paper publication** **and a patent** filing.
- Led and **mentored a team of 4 interns** for deep learning-based robot pose estimation and camera-lidar-based autonomous navigation in dynamic settings. Conducted effective pilot trials at the JRD Library and **published** in **ICRA workshop, 2023**.
- Developed a **C++ plugin** to modularize legacy AMCL code, contributing to the **ROS2 open-source repository**.

Robert Bosch Center for Cyber-Physical Systems(RBCCPS) Bengaluru, India
Computer Vision Intern Mar 2020 – Apr 2021

- Implemented deep learning-based **unmarked Indian road segmentation** in PyTorch, optimized for runtime using Nvidia **TensorRT**. Achieved **87% accuracy** with real-time performance on Nvidia Jetson Nano.
- Developed a **self-supervised monocular depth** estimation pipeline in PyTorch tailored to the **Indian Driving Dataset**, alongside a compliance detection and **human pose estimation and tracking system** (DeepSORT). Successfully demonstrated the **proof of concept to Larsen & Toubro construction** clients, leading to further business engagement.

RELEVANT ACADEMIC PROJECTS

Deep Learning Architectures from Scratch: Transformers for Vision and Text May 2024-Jul 2024
Image Captioning: Designed in **TensorFlow** with Inception V3 as a feature extractor, trained on **Flickr 8k**, and achieved a BLEU-1 score of 0.43. **Text Generation**: Implemented a **NanoGPT** in **PyTorch**, trained on Tiny Shakespeare dataset, achieving a perplexity of 3.84 and generating coherent Shakespeare-like text.

GAN from Scratch for Image Generation Mar 2024-May 2024
Developed a **DC-GAN** from scratch in **PyTorch** to generate and reconstruct images from the 60,000-image CIFAR-10 dataset, achieving an **Inception Score (IS) of 5.5** and FID of 58.4, demonstrating effective image generation and reconstruction capabilities.