Sanjay Prabhakar

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Education

Northeastern University **GPA-3.87** **Sept. 2022 – Dec. 2024**
Master of Science in Artificial Intelligence (Khoury College of Computer Sciences) *Boston, Massachusetts*
Related Courses: Large Language Models, Robotic Science Systems, Foundations of Artificial Intelligence, Computer Vision, Machine Learning

BMS Institute of Technology **GPA-3.3** **Aug. 2018 – Jun. 2022**
Bachelor of Engineering in Computer Science *Bangalore, India*
Related Courses: Artificial Intelligence & ML, Advanced Engineering Mathematics, Data Structures, Algorithm Analysis, Computer Graphics

Technical Knowledge

Languages: Python, Java, C++, C, SQL
Databases: MySQL
Skills: Computer Vision, Stereo Vision, Visual-Inertial Odometry, 3D Reconstruction, Real-Time Perception, CNN, Machine Learning, Deep Learning
Libraries: PyTorch, Keras, TensorFlow, Scikit-Learn, DepthAI, OpenCV
Certifications: OpenCV for Python, Modern Computer Vision (PyTorch, TensorFlow, Keras), Nvidia Deep Learning (DLI)

Experience

Agot AI **August 2023 – December 2023**
Computer Vision Engineer Intern *Pittsburgh, Pennsylvania*

- Designed and developed a food waste management product using a novel ML algorithm for data forecasting and vision data, achieving a 50% reduction in food waste.
- Created an action recognition pipeline using generative and discriminative learning models for restaurant behavior analysis.

Agot AI **May 2023 – August 2023**
Computer Vision Engineer Intern *Pittsburgh, Pennsylvania*

- Optimized segmentation models using Nvidia TAO & Deepstream, improving IOU by 20% and deployed on Nvidia Xavier & Orin.
- Integrated visual language models such as GPT-4V and LLaVa into computer vision pipelines, enabling multimodal understanding and improving complex scene interpretation accuracy by 30%.
- Trained transformer-UNet based segmentation and detection models on AWS Sagemaker,PyTorch and deployed on Kubernetes cluster using Argo CD and Docker for automated deployment.

Green Robot Machinery (Grobomac) **June 2021 – December 2021**
Computer Vision Engineer Intern *Bangalore, Karnataka*

- Developed and deployed real-time depth estimation and object tracking for autonomous cotton-harvesting robots using Python, C++, OpenVino, and DepthAI.
- Evaluated edge devices like Nvidia Jetson series & OAK-D for cost and performance.
- Improved FPS by 40% using a neural model, reducing compute resources by 50%.

Projects

3D Reconstruction and Visual-Inertial Odometry | *Python, PyTorch, OpenCV* **March 2024**

- Implemented a visual-inertial odometry system to estimate the 3D trajectory of a monocular camera in an unknown environment.
- Utilized a 3D reconstruction algorithm to generate a dense, semantic 3D representation of the environment.
- Integrated the system into a real-time perception pipeline for autonomous navigation applications.

Latent Diffusion Based Image Enhancer | *Python, OpenCV, PyTorch* **June 2023**

- Integrated a latent image diffusion model for superior image quality.
- Designed for optimizing, refining, and latent upscaling images captured on smartphones.