Aashish Mukund

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Education

University of Colorado Boulder (Matriculating) — Boulder, CO
Master of Science in Computer Science (GPA- 3.97/4) — *Aug. 2023 – May 2025*
TA: CSCI 2400 (Fall 2023 and Spring 2025), CSCI 2700 (Spring 2024 and Fall 2024) **RA:** Earth Lab

R.V. College of Engineering — Bengaluru, India
Bachelors in Computer Science and Engineering (GPA- 8.91/10) — *Aug. 2016 – May 2020*

Experience

Image and Video Computing Group — CU Boulder, CO
Research Group Member (Advisor - Dr. Danna Gurari) — *Jan. 2024-Dec. 2024*
- Led novel efforts to identify how vision-language models reason during incorrect visual evidence on tasks like VQA.
- Benchmarked proprietary and non-proprietary models, showing performance gaps in handling question ambiguity.

Earth Lab, CIRES — CU Boulder, CO
Graduate Research Assistant — *June 2024-Aug. 2024*
- Designed and developed fuel status prediction models (MESMA) for SoCal regions, by leveraging Sentinel-2 satellite data. Curated a custom spectral library from Sentinel-2 pure-pixel data, currently being used by the lab.
- Set up a pipeline on AWS for pre-processing the Sentinel-2 data, aiding in building the custom spectral library.

Walmart Global Tech — Bengaluru, India
Software Engineer II | Software Engineer III — *Aug. 2020-Apr. 2023*
- Led the efforts in configuring and solutionizing Splunk forwarder (Fluentd) container across a large scale of virtual machines (5000+) in production, automating the process of failure point detection through log monitoring.
- By implementing proof-of-concept (PoC) tests, optimized container resource usage and improved governance.
- Led migration efforts from cloud to on-premise virtual machines, achieving $1.25M in cloud cost savings.
- Worked with Linux, Azure Cloud and IoT Edge, Docker, Kubernetes to streamline deployment and orchestration.

Indian Institute of Science (IISc RBCCPS) — Bengaluru, India
Research Intern (Advisor - Dr. Raghu Krishnapuram) — *Dec. 2019-June 2020*
- Generated RGB-D dataset by simulating turtlebot3 using ROS and Gazebo for 3D reconstruction.
- Leveraged the dataset to perform tasks like 3D reconstruction using Microsoft Kinect Fusion, 3D Segmentation of the point cloud using PointNet++ and, scene completion from an incomplete point cloud using ScanComplete.

Publications

Keerthan, **Mukund A.**, Nagaraj, Prakash, "U-shaped Transformers for 3D Lung Cancer Segmentation", International Conference on Knowledge Engineering and Communication Systems 2022, **IEEE** [link]

Keerthan, **Mukund A.**, Nagaraj, Prakash, "LeafViT: Vision Transformers based Leaf Disease Detection", International Conference on Computational Intelligence and Computer Vision 2022, **Springer** [link]

Projects

Attention Visualization as Evidence For VQA (Independent Study) — *Jul. 2024-Dec. 2024*
- Implemented a Grad-CAM based approach for visualizing attention in Visual Question Answering.
- Deployed backend on Hugging Face Spaces (Gradio app) and hosted frontend (HTML/CSS/JS) on GitHub Pages.

LoRA in Medical VQA on Pathology Images (NLP Final Project) — *Feb. 2024-Apr. 2024*
- Optimized BLIP for Visual Question Answering (VQA) while reducing computational overhead using LoRA.
- Model demonstrated 33.55% increase in accuracy on yes/no questions compared to the non-finetuned version.

Technical Skills

Languages: Python, C++, MATLAB, SQL, Java **AI/ML Frameworks**: PyTorch, TensorFlow, Keras, OpenCV
Web & Backend: Flask, Spring Boot, REST API **Cloud & DevOps**: Docker, Kubernetes, AWS, GCP, Ansible
Developer Tools: Git, Visual Studio, Postman, Jupyter Notebook