Ashim Dahal

Computer Vision & Multimodal Learning Researcher: 3D Gaussian Splatting, Video QA, Vision-Language Models, CLIP
codeashim@gmail.com | Google Scholar | Research Portfolio | LinkedIn | GitHub

Education

University of Southern Mississippi — Hattiesburg, MS
B.Sc. in Computer Science; CGPA: 3.92; ***Keystone Honors Scholar*** — *2023 – 2027*

Research Experience

Research Assistant — 2023 – Present
University of Southern Mississippi — *MS, USA*

- Designed and implemented experiments for CLIP, ViTs, and remote sensing models, leading to 3 peer-reviewed papers (CVPRW, IEEE T-CSS, IEEE Sensors J.)
- Funded under the **NASA EPSCoR** grant ($51,000, proposal drafted by myself) to study tiny vision-language models
- Received the DCUR Summer Research Grant for real-time multiview stereo (MVS) reconstruction with 3D Gaussian Splatting
- Optimized multi-GPU training on a 6-GPU cluster using PyTorch DDP and mixed precision, cutting wall-clock time by 65% and enabling denser ablations

Machine Learning Researcher — 2022 – 2023
Data Research Council for Students — *Kathmandu, Nepal*

- Taught 5 Python/ML bootcamps to 350+ students (**92%** satisfaction) covering topics including Neural Networks, CNNs, PyTorch, DDP, and FastAPI
- Built 6 computer-vision tools and FastAPI endpoints, including a Generative Adversarial Network for JunoCam images that earned **Best Local Project with Global Nomination at NASA Space Apps 2022**

Selected Publications

Ashim Dahal, S. A. Murad, N. Rahimi. Embedding Shift Dissection on CLIP: Effects of Augmentations on VLM's Representation Learning. **CVPR Workshops**, 2025.

S. A. Murad, **Ashim Dahal**, N. Rahimi. Multilingual Cyber Threat Detection in Tweets/X Using ML, DL, and LLM: A Comparative Analysis. **IEEE Transactions on Computational Social Systems**, 2025.

Ashim Dahal, S. A. Murad, N. Rahimi. Heuristical Comparison of Vision Transformers Against Convolutional Neural Networks for Semantic Segmentation on Remote Sensing Imagery. **IEEE Sensors Journal**, 2025.

Open-Source & Research Tools

Torchy | *PyTorch, Python* | *github*

- A PyTorch wrapper that adds functional utilities from TensorFlow's pipeline to nn.Module (15 stars and 5 forks)

Honors and Leadership

$5,500 Summer Research Grant – Drapeau Center for Undergraduate Research — 2025
$500 Hatchery Checkpoint – Funded to build XR application for dyslexia — 2024
$200 Eagles Write Award – Best Visual Analysis, School of Humanities, USM — 2024
Lead Organizer – Google Developers Group (GDG) On Campus at USM — 2025–Present
Research Liaison – School of CSCE Student Ambassadors — 2025–Present
Head of Artificial Intelligence – Google Developer Students Club (GDSC) at USM — 2024–2025

Technical Skills

Languages: Python, C++, C#, SQL
ML: PyTorch, Distributed Data Parallel (DDP), CUDA, Hugging Face, Accelerate, FastAPI, Scikit-Learn
Computer Vision: Vision Transformers, Dynamic Gaussian Splatting, Large Vision-Language Models, Multimodal Systems, Stable Diffusion, Neural Radiance Fields, Video Question Answering, Image Segmentation, Multiview Stereo Reconstruction, Photogrammetry
Tools: Linux, Git, NVIM, High Performance Computing Clusters (HPCC), LaTeX