Ashim Dahal.

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Employment History

2023 – Pres **Research Assistant,** University of Southern Mississippi, MS, USA.
• Spearheaded Computer Vision projects on Vision Transformers, Video Question Answering and Dynamic Gaussian Splatting leading to 4+ publications
• Optimized ML models on 6-gpu multinode HPC cluster, reducing training time by 65%
• Helped 3 research groups to accomplish their research on Brain Computer Interface and Cybersecurity with AI resulting in 3 publications

2022 – 2023 **Machine Learning Researcher,** Data Research Council for Students, Kathmandu, Nepal.
• Designed and delivered 5 bootcamps on python and Machine Learning to 350+ students with 92% positive feedback rate (full list)
• Developed 6 Computer Vision tools and endpoints used in 4 hackathons resulting in best local project in NASA Space Apps 2022 (link)

Education

2023 – 2027 **B.Sc. in Computer Science, University of Southern Mississippi**
CGPA: 3.92; Keystone Honors Scholar with Academic Excellence Scholarship

Selected Publications

Full list (11+ articles): Google Scholar

Journal Articles

1. **A. Dahal**, S. Akbar Murad, and N. Rahimi, "Heuristical comparison of vision transformers against convolutional neural networks for semantic segmentation on remote sensing imagery," *IEEE Sensors Journal*, vol. 25, no. 10, pp. 17 364–17 373, 2025. **URL** (**Impact Factor: 4.5**).

Conference Proceedings

1. **A. Dahal**, S. A. Murad, and N. Rahimi, "Embedding shift dissection on clip: Effects of augmentations on vlm's representation learning," in *Proceedings of the **Computer Vision and Pattern Recognition (CVPR)** Conference Workshops*, Jun. 2025, pp. 4814–4818. **URL**.
2. **A. Dahal**, P. Bajgai, and N. Rahimi, "Analysis of zero day attack detection using mlp and xai," in *Security and Management and Wireless Networks*, Springer Nature Switzerland, 2025, pp. 57–67, ISBN: 978-3-031-86637-1. **URL**.

Notable Experience

Awards and Achievements

2025 **$5,500 Summer Research Grant**, Drapeau Center for Undergraduate Research
2024 **$500 checkpoint**, Awarded by school of business to develop XR application
$200 Eagles Write Award, Best Visual Analysis School of Humanities, USM
2023-2024 **President's List X** 2, Awarded for Excellent Performance in Academics

Community Offices

2025-Pres **Lead Organizer**, Google Developers Group (GDG) On Campus
Research Liaison, School of CSCE Student Ambassadors, USM
2024-2025 **Head of Artificial Intelligence**, Google Developer Students Club at USM

Notable Experience (continued)

Invited Talks

- 2025 What is an Image?, USM, Hattiesburg, MS, USA. **URL**
- 2023 Using AI in journalism, Federation of Nepali Journalist, Kaski, Nepal. **URL**
- Future of AI, Fishtail Academy, Pokhara, Nepal. **URL**

Creative Projects

- Thislexic An Extended Reality (XR) app that helps dyslexic patients to practice writing using llama cpp
- Torchy A PyTorch wrapper that adds functional utilities from tensorflow's pipeline to nn.Module (**15 and 5 forks**)
- Jelly A chat-bot that replies to and from Romanized Nepali designed to help mental health patients; a first of its kind (**9 stars and 7 forks**)

Skills

- Languages Python, C++, C#, SQL
- ML PyTorch, Cuda, Hugging Face, Accelerate, FastAPI, MatplotLib, Scikit-Learn, Pandas
- CompVis Vision Transformers, Vision Language Models, Dynamic Gaussian Splatting, Multimodal Systems, Stable Diffusion, Neural Radiance Fields, Video Question Answering, Convolutional Kolmogorov Arnold Networks, Image Segmentation
- Tools Linux, Git, NVIM, High Performance Computing Clusters (HPCC), LaTeX