Ashim Dahal.

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Employment History

2023 – Pres **Research Assistant,** University of Southern Mississippi, MS, USA.
• Led multiple projects on Computer Vision on Stable Diffusion, Vision Transformer, Visual Question Answering, Convolitional Kolmorogov Networks and so on.
• Optimized ML models on 6-gpu multinode HPC cluster, reducing training time by 65%

2022 – 2023 **Machine Learning Consultant,** Data Research Council for Students, Kathmandu, Nepal.
• Designed and delivered ML bootcamps to 200+ students with 92% positive feedback rate
• Developed 6 Computer Vision tools and endpoints used in 4 hackathons resulting in best local project (Number 1) position in NASA Space Apps 2022

2022 - 2022 **Research and Development Intern,** Robotics Association of Nepal, Lalitpur, Nepal.
• Developed 2D vision system achieving 94% object detection accuracy in robotic applications
• Created the robotics curriculum adopted by 4 high schools, reaching 900+ students

Education

2023 – 2027 **B.Sc. in Computer and Information Science, University of Southern Mississippi**
CGPA: 3.94**; Major GPA:** 4.0; Academic Excellence Full Tuition and Housing Award

Research Publications

Journal Articles

1. **A. Dahal**, S. A. Murad, and N. Rahimi, "Heuristical Comparison of Vision Transformers Against Convolutional Neural Networks for Semantic Segmentation on Remote Sensing Imagery," *IEEE Sensors Journal (In Press)*, 2025. **URL** (**Impact Factor: 4.3**).

Peer-Reviewed Conference Publications

1. **A. Dahal**, S. A. Murad, and N. Rahimi, "Embedding shift dissection on clip: Effects of augmentations on vlm's representation learning," in *Mechanistic Interpretability for Vision at **CVPR (Proceedings Track)***, 2025. **URL**.
2. **A. Dahal**, P. Bajgai, and N. Rahimi, "Analysis of zero day attack detection using mlp and xai," in *Proceedings of International Conference on Security and Management (Springer Nature) in press*, Las Vegas, USA, 2024. **URL**.
3. **A. Dahal**, "Would you own a robot?" In *Proceedings of the Ninth National Conference on Science and Technology by NAST*, Lalitpur, Nepal, 2022. **URL**.

Submitted Manuscripts

1. **A. Dahal**, S. A. Murad, and N. Rahimi, *Efficiency bottlenecks of convolutional kolmogorov-arnold networks: A comprehensive scrutiny with imagenet, alexnet, lenet and tabular classification*, *arXiv e-prints*, 2025. **URL**.
2. S. A. Murad, **A. Dahal**, and N. Rahimi, *Multi-lingual cyber threat detection in tweets/x using ml, dl, and llm: A comparative analysis*, *arXiv e-prints*, 2025. **URL**.

Preprints

1. **A. Dahal** and S. Kattel, "Predicting handwritten devanagari characters using modified-lenet model architecture," Preprint: 400+ reads, oct 2022. **URL**.
2. **A. Dahal**, "Do you "go big or go home" with neural networks?" Preprint: 200+ reads, 2022. **URL**.
3. **A. Dahal**, A. Khadka, B. Kharal, and A. Shah, "Effectiveness of native language for conversational bots," Preprint: 500+ reads, 2022. **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 usage of .train(), validate and other 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**)

Frida — A climate change super app that summarizes climate change news, predicts landslides based on weather data, hosts events and gives flood alerts based on current location of rivers

Miscellaneous Experience

Community Offices

2025-Pres — **Research Liaison**, School of CSCE Ambassadors, USM

2024-Pres — **Head of Artificial Intelligence**, Google Developer Students Club at USM

2022-2023 — **Founder and President**, Together We Learn

2021-2022 — **IT Head**, The English Society

Teaching in Bootcamps

2023 — 7 Days Pokhara Machine Learning Bootcamp –

7 Days Bootcamp on Pragati School –

DRCFS Chitwan Bootcamp –

14 Days Intermediate Python Bootcamp –

2022 — 30 Days Beginner Python Bootcamp –

Awards and Achievements

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

2022 — **Global Nominee**, NASA Space Apps Challenge **Project Site**

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**

Certification

2021 — **Generative Adversarial Networks Specialization**. Awarded by DeepLearning.AI

Deep Learning and Reinforcement Learning. Awarded by IBM

Sequence Models. Awarded by DeepLearning.AI

2020 — **Machine Learning**. Awarded by Stanford Online

Introduction to Data Science. Awarded by University of Michigan

Neural Networks and Deep Learning. Awarded by DeepLearning.AI

Skills

Languages — Python, C++, C#, SQL

Databases — MySQL, PostgreSQL, SQLite

ML — PyTorch, Open CV, Hugging Face, Accelerate, FastAPI, MatplotLib, Scikit-Learn, Pandas

Skills (continued)

Tools — Git, Linux, NVIM, High Performance Computing Clusters (HPCC), LaTeX

References

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