Ashim Dahal.

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Employment History

2023 – Pres **Research Assistant,** University of Southern Mississippi, MS, USA.
• Led 3 research projects in Computer Vision using Vision Transformers, Kolmogorov Arnold Representations and Stable Diffusion, achieving 84% mIoU, 90% accuracy and strong fidelity on novel datasets
• 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 robotics curriculum adopted by 4 high schools, reaching 900+ students.

Education

2023 – 2027 **B.Sc. in Computer and Information Science, University of Southern Mississippi**
Involvements : *Research, Google Developers Student Club, The Nations Student Association, Nepalese Student Association*.

Research Publications

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," *arXiv e-prints*, Nov. 2024. **URL**.

Conference Proceedings

1. **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.
2. **A. Dahal**, "Would you own a robot?" In *Proceedings of the Ninth National Conference on Science and Technology by NAST*, Lalitpur, Nepal, 2022. **URL**.

Preprint Articles

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 (**8 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

- 2024-Pres — **Head of Artificial Intelligence**, Google Developer Students Club at USM.
- 2022-2023 — **Founder and President**, Together We Learn.

Awards and Achievements

- 2024 — **$500 checkpoint**, Awarded by school of business to develop XR application.
- **Computing Research Association Undergraduate Researcher Award**, Nominee from USM.
- **$200 Eagles Write Best Visual Analysis**, Placed 1 out of all students who took course ENG 101 (est: 710+), 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**

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, FastAPI, MatplotLib, Scikit-Learn, Pandas
- Tools — Git, Linux, NVIM, High Performance Clusters (HPC), LaTeX

References

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