Arses Prasai

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EDUCATION

Dartmouth College, Hanover, NH **June 2028**
Bachelor of Arts, Computer Science and Mathematics **GPA: 4.0/4.0**

- **Relevant Coursework**: Algorithms, Differential Equations, Linear Algebra, Discrete Math, Machine Learning (Graduate), Deep Learning Robustness & Generalization (Graduate), Computer Vision, Honors Probability, Theory of Computation
- **Honors/Awards**: **Rank#1** in Nepal (A-level Mathematics), Rufus Choate Scholar (**Top 5%** of class), Undergraduate Research Assistantship, Academic Citation for Meritorious Performance (**x4**),

RESEARCH & WORK EXPERIENCE

Research Assistant (Computer Vision), Dartmouth College, Hanover, NH **2025 - Present**

- Investigating **spectral bias** in diffusion models by analyzing cross-attention layers to quantify how frequency dependencies impact image generation
- Developing a **machine unlearning** framework using **Fast Fourier Transforms (FFT)** and **adjoint optimization** to dynamically erase concepts from model weights, directly addressing privacy benchmarks in generative AI.

Research Assistant(Engineering), Dartmouth College, Hanover, NH **Jan - Sept 2025**

- Architected an automated experimental loop using **AI agents** and **Microsoft Power Automate**, reducing manual intervention time by **100+ hours** per experiment cycle
- Implemented **Bayesian optimization** algorithms (using the **Ax** framework) to autonomously tune aerosol jet printing parameters, significantly improving the yield of 3D on-chip inductors
- Standardized lab workflows by developing technical SOPs for automated printing, ensuring reproducibility for complex multi-step experiments.

Project Assistant, Evergreen AI, Hanover, NH **June 2025 - Present**

- Worked on curation of a conversational dataset used to fine-tune a domain-specific language model
- Train AI chatbot for a student wellness platform, aligning content with behavioral health principles.

PROGRAMMING PROJECTS

- **LepisAI:** A full-stack agentic application conducting virtual clinical trials using AI agents to validate medical research hypotheses, reducing 12-month coding and design process to **30-mins**
- **Sodacan**: An AI-powered, terminal-first workbench that makes data ingestion and transformation 10x faster for consultants and forward-deployed engineers.
- **TaraTeer:** an end-to-end, real-time stock prediction platform for the Nepal Stock Exchange using an LSTM trained on **75k+** datapoints, RAG for contextual grounding, and a web-scraping API for live data ingestion.
- **VioLense :** Built a multistep AI pipeline trained on 1000+ videos to detect violence and bullying in public spaces
- **Barnacle Detector** - Fine-tuned 2 CNN-based models on multiple datasets (9000+ images), achieving ~**90%** accuracy in barnacle counting; implemented an OpenCV pipeline with comparable performance.
- **Amazon Sentiment Classifier** : Trained 6 models for binary and multi-class classification on 26K+ Amazon reviews; achieved top 5 rankings across 5 Kaggle competition categories

LEADERSHIP EXPERIENCES

House Council Co-Chair and Undergraduate Advisor, *Residential Life,* Hanover, NH **Sept 2024 - Present**

- Manage $5K budget for weekly programs serving 400+ residents, boosting engagement and inclusivity.
- Mentor and support 50+ students, fostering a safe and collaborative residential environment.

Vice President, *Dartmouth Nepali Student Association,* Hanover, NH **Sept 2024 - Present**

- Oversee $5,000+ budget to organize cultural festivals; engage 200+ attendees and to foster intercultural dialogue
- Build an inclusive community for Nepali students while sharing traditions with the broader Dartmouth community.

ADDITIONAL

Technical Skills: Python, Java, JavaScript, HTML/CSS, SQL, Git, Bash

Technologies/Frameworks: PyTorch, scikit-learn, Torchvision, LangChain

Interests: Soccer, Hiking, Travelling, Snowboarding