Firoj Paudel

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EDUCATION

Bachelor of Science in Computer Science and Information Technology　　　　　　　　**2022 - Present**
Madan Bhandari Memorial College　　　　　　　　　　　　　　　　　　　　　　　Kathmandu, Nepal
- Areas of Interest: Agents, Calculus, Statistics, AI and Machine Learning

PUBLICATIONS

Fragile Mastery: On Device Language Models　　　　　　　　　　　　　　　　　*16 March, 2025*
- Proposal of Generalized Edge Model (GEM) to optimize on-device language models for resource-constrained edge devices, balancing specialization and generalization across diverse domains.

Thinking About Thinking: Inverse Reasoning For Self-Aware Models　　　　　　　　*30 June, 2025*
- Introduction of SAGE-nano's Inverse Reasoning for improved model interpretability, enhancing reasoning accuracy and explanation quality.

EXPERIENCE

Co-Founder and CRO　　　　　　　　　　　　　　　　　　　　　　　**May 2025 - Present**
SAGEA　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　Kathmandu, Nepal
- Working on the development of advanced Text-to-Speech (TTS) models with multilingual capabilities, enhancing speech synthesis accuracy, naturalness, and fluidity across diverse languages and dialects to enable seamless cross-lingual communication
- Researching reasoning models, with a focus on developing concepts like Inverse Reasoning.

Research Scientist　　　　　　　　　　　　　　　　　　　　　　　**June 2025 - Present**
NeuraGuard　　　　　　　　　　　　　　　　　　　　　　　　　　　Kathmandu, Nepal
- Developed a multi-agent phishing website detection pipeline with **92% accuracy**, expanding to email filtering and exploring deep web monitoring for scalable security solutions.

Data Science and Machine Learning Fellow　　　　　　　　　　　　**April 2025 - July 2025**
Fellowship.ai　　　　　　　　　　　　　　　　　　　　　　　　　　San Francisco, CA
- Developed a **high-accuracy web agent** for **real estate** and **financial data extraction** using **Playwright**, **Chromium**, and **Pydantic Schemas**, achieving 87+% task automation accuracy.
- Transitioned from **SmolAgent MVP** to a **scalable production solution** for efficient local deployment.

SKILLS

- **Programming Languages:** *Python*, C++, C, JavaScript, *CUDA*.
- **Technologies:** *PyTorch*, *Transformers,* LangChain, Keras, Scikit-learn, Numpy, Matplotlib, Seaborn, Pandas, SQL,Git.
- **Languages:** Nepali, *English*, Hindi.

LEADERSHIP EXPERIENCE

General Manager @ MBM IdeaX 2024　　　　　　　　　　　　　　**June 2024 - Sep 2024**
- Organized a nationwide **hackathon** in Nepal. My major task was to organize the hackers and my organizing team.

NOTABLE PROJECTS

Brain Tumor Detection
- Created a CNN based project for brain tumor detection from medical MRI images

Fine-tuned Customer Support Chatbot
- Streamlit app using BART-base fine-tuned on Bitext customer support dataset, backed by SQLite3.

*Please visit my portfolio for more info: Portfolio