Abasar Paudyal

+977 9845460088 - plabasarar1@gmail.com - linkedin.com/in/abasar-paudyal - https://github.com/Abasar03

SUMMARY

Highly motivated Computer Engineering student at IOE, Thapathali Campus with a strong foundation in Machine Learning, Deep Learning, and Computer Vision. Possesses hands-on experience in designing and implementing advanced systems, including transformer models for NLP, multimodal language models, and 3D reconstruction pipelines. Seeking an AI/ML internship or entry-level role to apply skills in Python, PyTorch, and TensorFlow to contribute to innovative projects.

EDUCATION

Tribhuvan University - Institute of Engineering (IOE), Thapathali Campus
Bachelor of Engineering in Computer Engineering (2022 - 2026) *Aggregate: 83.72%*

TECHNICAL SKILLS

Programming Languages: C/C++, Python, Javascript, SQL, ASM
Databases: mongoDB, MySQL, PostgreSQL
Libraries and Tools: Pandas, Numpy, Django, FastAPI, Flask, PyTorch, TensorFlow, scikit-learn, OpenCV, React, Node.js, Git, Github, Blender, Unity

PROJECTS

Monocular SLAM and NeRF Fusion for 3D Reconstruction **[In Progress]**
Real-Time Neural Rendering and Localization *Python, OpenCV, SLAM, NeRF*

- Built a geometric SLAM pipeline generating optimized poses and sparse point clouds from monocular video.
- Integrated Depth Anything V2 to produce detailed depth maps, for accurate 3D reconstruction.
- Established a data pipeline that bridges SLAM and NeRF by providing optimized poses and dense depth maps for neural rendering.
- Training a real-time NeRF to synthesize photorealistic, dynamic 3D scenes from the SLAM and depth outputs.

Nepali Multimodal Large Language Model **github.com/Anil-Banjade/Nepali_Multi_Modal**
Nepali Text Generation *Python, Pytorch*

- Developed an encoder-decoder model that extracts text and image embeddings from pre-trained models.
- Trained a contrastive model for alignment of text and image embeddings.
- Implemented an autoregressive model for generation using the fused input and caption embeddings.
- Generates conceptual Nepali text based on the unimodal (text or image) or multimodal input (text and image) provided by the user.

Research Paper Intelligent System **github.com/Abasar03/Research_Paper_Intelligent_System**
Research Gap Identification System *Python, TensorFlow*

- Developed an NLP system that analyzes research paper titles and abstracts to automatically identify and generate potential research gaps.
- Implemented a custom encoder-decoder transformer fine-tuned for scientific text generation.
- Tuned hyperparameters using validation sets to improve performance, establishing a baseline for future work.
- Achieved a strong benchmark semantic similarity of 0.265 and a ROUGE-L score of 0.048.

Enhanced IOT Fire Prediction **github.com/Abasar03/Enhanced_IOT_Fire_Prediction**
IoT Fire Detection Pipeline *Python, scikit-learn*

- Developed an advanced predictive analytics framework for fire detection leveraging IoT sensor data.
- Implemented K-Means clustering, PCA dimensionality reduction, and ADASYN to enhance model performance.
- Utilized supervised learning models such as Logistic Regression, KNN, and Random Forest for accurate prediction.
- Achieved superior predictive accuracy, with the final Random Forest model attaining a peak F1-Score of 0.9757, showcasing high precision and recall.

CERTIFICATIONS AND TRAININGS

- Coursera: Machine Learning Specialization