NABARAJ SUBEDI

Pokhara-24,Kaski,Gandaki,Nepal
Phone No: +977 9866007834, **E-mail:** subedinabaraj46@gmail.com
Website: nabarajsubedi.com.np
Github: subedinab , **LinkedIn :** Nabaraj Subedi | LinkedIn

PROFESSIONAL SUMMARY

I am a dynamic and result-oriented graduate in Electronics, Communication, and Information Engineering with strong research and analytical skills. As a fast learner and open-minded team player, I am passionate about a career in research and academia, aiming to make significant contributions through academic research.

Interests: Machine Learning | Computer Vision| Natural Language Processing | Multimodal Learning| Data Science | Arduino Programming

EDUCATION

Western Region Campus, Institute of Engineering, TU, Nepal   2024
B.E in Electronics, Communication and Information Engineering
Final Grade: First Division   Percentage: 76.91%
Thesis Title:
Image Captioning in Nepali Language

SOS Hermann Gmeiner School Gandaki Nepal.   2019
National Examination Board (NEB), Science
Final Grade: Distinction   GPA: 3.69/4.0

SKILLS AND COMPETENCES

Language: Python, Nodejs, C, C++, Java   **Architecture:** Transformers, LLM ,Convolutional Neural Networks, Recurrent Neural Networks, Generative Adversarial Networks(GANs) | **Libraries:** TensorFlow, PyTorch, Keras, Numpy, Pandas,Hugging Face, LangChain | **Tools:** Google Collaboratory, Jupyter Notebook, Anaconda, Git, Visual Studio Code, etc. | **Personal Strengths:** Excellent communication, interpersonal relationship skills, Leadership and Team Player, Time and Project Management.

PUBLICATIONS

- Subedi, N., Paudel, N., Chhetri, M., Acharya, S. & Lamichhane, N. (2024). Nepali Image Captioning: Generating Coherent Paragraph-Length Descriptions Using Transformer. Journal of Soft Computing Paradigm, 6(1), 70-84. doi:10.36548/jscp.2024.1.006 **LINK**
- Subedi, N., Paudel, N., Chhetri, M., Acharya, S. & Lamichhane, N. (2024). Drowsiness and Crash Detection Mobile Application for Vehicle's Safety. Journal of IoT in Social, Mobile, Analytics, and Cloud, 6(1), 54-66. doi:10.36548/jismac.2024.1.005 **LINK**

PROJECTS

Nepali Image Captioning | [LINK](#)   2023-2024
- Created Nepali Paragraph Captioning Dataset
- Developed an image captioning model using ResNet50, ResNet152,InceptionV3 for feature extraction and LSTM and Transformer architecture for Nepali caption generation.
- Preprocessed captions, created a vocabulary, and implemented a progressive generator for batch-wise training.

Crash and Drowsiness Detection System | [LINK](#)   2023
- Integrated Arduino, GPS, GSM , Accelerometer and Bluetooth module to detect collision and inform rescue center along with location data.
- Implemented a false notification prevention technique with the help of mobile app connected to crash system.
- Implemented facial detection system to detect the drowsiness condition of driver.

Cultural Heritage Image Classification | [LINK](#)   2024
- Conducted Image Classification using the ResNet9 model on a cultural heritage dataset with 2.5k images of 6 heritage sites in Nepal.
- Explored dataset properties, prepared datasets and data loaders, and applied data preprocessing techniques, including data augmentation.

Finetuning | [LINK](#)   2024
- Fine-tuned the state-of-the-art GIT model on a custom 798 cultural heritage image captioning dataset.
- Fine-tuned the Llama-2-7b model using QLora technique and TRL's SFT Trainer on Google Colab, employing PEFT adapters for efficient training on an instruction-based dataset for chatbot applications for custom dataset.

Transformer Summarizer | [LINK](#)   2024
- Use built-in functions to preprocess data
- Implement Dot Product Attention, Causal Attention
- Build the transformer model and perform evaluation on summarized article.

Ecommerce Site | [LINK](#)   2022-2023
- Developed a backend using Nodejs and MySql and frontend using React
- Implemented Authentication, Payment and Order processing feature.

CONFERENCE/WORKSHOP ATTENDED

- Gandaki University International Conference-2024(GUIC-2024)   2024

INDUSTRIAL EXPERIENCE

Junior Machine Learning Engineer.   Apr. 2024 – Present
Palm Mind Technology, Nepal.
- Developing Generative AI chatbot using Retrieval-Augmented Generation (RAG) techniques.
- Works related to finetuning LLM, embedding, multimodal bot like medical bot.

Machine Learning Intern.   Nov. 2023 – Jan.2024
Prodigy InfoTech, India.
- Worked on several Image Classification projects using Convolutional Neural Networks (CNNs)
- Applied Machine Learning algorithms like support vector machine, K-mean, Logistic regression.

VOLUNTEERING & LEADERSHIP EXPERIENCE

Member of Innovative Computer Engineering Students' Society   Oct. 2020 – Mar. 2024
- Coordinated "Code with Coffee" sessions, fostering collaborative coding environments.

- Organized interactive sessions with technology leaders to facilitate knowledge exchange.
- Contributed to the publication of an icon book and reviewed articles, while also fundraising for Tech Parva initiatives.
- Mentored individuals in Data Analysis, Visualization, and Node.js, fostering skill development.

COURSES AND CERTIFICATIONS

Machine Learning Specialization | CERTIFICATE
DeepLearning.ai Coursera
- Build ML models with NumPy and Scikit-learn and train supervised and unsupervised models.
- Built recommender systems, deep reinforcement learning model and trained a neural network with TensorFlow to perform multi-class classification.

Deep Learning Specialization | CERTIFICATE
DeepLearning.ai Coursera
- Learnt about CNN, RNN, LSTM, Transformers, and optimization strategies like Dropout and Batch Normalization.
- Applied deep learning to diverse applications—speech recognition, music synthesis, chatbots, and more—demonstrating proficiency in Python, TensorFlow, and real-world AI challenges.

Natural Language Specialization | CERTIFICATE
DeepLearning.ai Coursera
- Gained proficiency in both classical machine learning and state-of-the-art deep learning techniques for NLP applications.
- Developed skills to design applications for question-answering, sentiment analysis, language translation, text summarization, and chatbot creation.

Machine Learning Engineering for Production (MLOPs) | CERTIFICATE
DeepLearning.ai Coursera
- Designed ML Production system end-to-end and Built data pipelines.
- Established a model baseline, address concept drift, and applied best practices and progressive delivery techniques to monitor production system.

Generative Adversarial Networks (GANs) | CERTIFICATE
DeepLearning.ai Coursera
- Built basic GANs using PyTorch and advanced DCGANs using convolutional layers and used GAN for data augmentation and privacy preservation.
- Compared generative models, use FID method to assess GAN fidelity and diversity, learned to detect bias in GAN.

DeepLearning.AI TensorFlow Developer | CERTIFICATE
DeepLearning.ai Coursera
- Handled real-world image data and explore strategies to prevent overfitting, including augmentation and dropout.
- Applied CNN, RNN, GRU, and LSTM as while training them using text repositories.