Aayush Neupane

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EDUCATION

Pulchowk Campus, IOE, Tribhuvan University (4% acceptance rate) Pulchowk, Lalitpur
Bachelors, Computer Engineering - Full Scholarship - (Entrance Rank 56/16000) Sept 2019 - April 2023
Percentage: **79.23%**

Vishwa Aadarsha Higher Secondary School Itahari, Nepal
Physics, Chemistry, Math, Computer Science July 2016 - July 2018
GPA: **3.71/4 (Batch topper from among 300 students)**

WORK EXPERIENCE

Smart Data Solutions | Machine Learning Engineer Eagan, MN (Remote) | Jan 2024 - Present
- Worked on information extraction from healthcare-related documents, including insurance claims and medical records. Performed data collection, cleaning and model training for information extraction
- Worked on Developing an intelligent medical record processing system to extract important information from medical records. Leveraged state-of-the-art models like LayoutLM and Large Language Models

Naamche | Machine Learning Engineer Kathmandu, Nepal | May 2023 - Dec 2023
- Primarily worked on creating chatbots using Large Language Models (LLMs) for real-esatate in Florida and also university extension centers in United States.
- Tasks involved collecting, cleaning and indexing data in vector database for implementing RAG based framework, used tools like Scrapy, Metabase, AWS sagemaker
- Created chatbots that can give recommendations, suggestions based on exisiting data, also implemented guardrails for these chatbots. Developed API using FastAPI framework

Sandbox Inc | Computer Vision Engineer Pokhara, Nepal (Remote) | Feb 2023 - May 2023
- Developed optimized game bot for playing MOBA games, primarily using OpenCV
- Worked on Django to create APIs for bot platform. Optimized Bot's code to improve latency

Wiseyak Inc | Machine Learning Internship Kathmandu, Nepal | Jan 2023 - April 2023
- Worked on NLP, Learned about RNNs and Transformer based models. Specifically learned about attention mechanism used by Transformers. Used RASA framework for chatbot development

LOCUS 2023 | Technical Co-ordinator Lalitpur, Nepal | Mar 2022 - Mar 2023 (Part time)
- Managed software events and maintained software systems at LOCUS, including LOCUS's website and its online certification system. LOCUS is a student committee in charge of conducting many tech events
- Initiated, developed, and successfully launched the online certification system currently in use at LOCUS.
- Managed Azure account/ virtual servers used by LOCUS for deploying products, enhancing deployment efficiency and system stability.
- Lead/Instructed a 10-day-long extensive fellowship program **(Link)** to teach 120+ students, mostly sophomores and juniors about software development practices.

SKILLS

Programming Languages:	Python, Javascript, C/C++, Java
Machine Learning:	Pytorch, Tensorflow, numpy, pandas, scikit-learn, OpenCV
Server Side Development:	FastAPI, Django, Flask, Nodejs/Express
Tools / Platforms:	Git, Github, Docker, Linux Adminstration, AWS, GCP, Azure
Databases:	PostgreSQL, MongoDB, MySQL
Frontend:	Reactjs, Nextjs

PUBLICATIONS

- **Aayush Neupane**, Aayush Lamichhane, Anikit Poudel, Dr. Aman Shakya. *"Structured Information Extraction from Nepali Scanned Documents using Layout Transformer and LLMs."* **Proceedings of CHiPSAL, COLING 2025**, Abu Dhabi, UAE, January 19-24, 2025.

Honors & Awards

- **High School Topper, VAHSS** - 1st rank holder among 200+ students, Graduating class of 2018

- **Achievement** - Nation wide rank 56 in Engineering entrance exam taken by Tribhuwan University

Projects

Receipt Scanner | Video Link   *Pytorch, FastAPI*
- Initially started as academic final year project funded by document AI company **Docsumo**
- Developed a user-friendly software solution using a Transformer-based architecture with the pretrained LayoutLM model for annotating and training custom models for key information extraction from unstructured text arbitrary keys.
- Implemented CI/CD pipelines with GitHub Actions and Docker for containerization and deployment.
- We ended up launching this product as SaaS **(Product Link)**. Our project also got funded by **Microsoft for Startups**.

Real time text similarity matching | Link   *Pytorch, Annoy, BERT*
- Research and Development project funded by **Laboratory for ICT Research and Development (LICT)**, Pulchowk Campus. Our team was selected among many teams to work on this project.
- Implemented real-time text similarity matching by generating sentence embeddings.
- Used various algorithms, including TF-IDF, Average Word Embeddings, Smooth Inverse Frequency (SIF), and BERT for generating sentence embeddings.
- Used Annoy as vector database to perform an approximate nearest neighbor search on vectors.

Anubadak : A simple interpreter | Link   *C++*
- Developed an interpreter for a 'B'-like language as an academic project, demonstrating core concepts of Object-Oriented Programming and "Theory of Computation."
- Implemented key compiler design principles such as lexical analysis, semantic analysis, and Abstract Syntax Tree (AST) construction.

Sorting Visualizer | Link   *C++, OpenMP*
- Developed a Sorting Visualizer using C++ with real-time visual demonstrations of various sorting algorithms, including Bubble Sort, Quick Sort, Merge Sort, and more.
- Utilized SDL2 and GLEW libraries for rendering, enabling cross-platform support on Windows and Linux with CMake integration.

Online Certification System | Link   *Django, OpenCV*
- Developed and managed an online certification system for LOCUS using Django Framework, OpenCV, and Azure VM (Docker), enabling bulk certificate generation, and automated email distribution.
- Streamlined certificate management and deployment processes, enhancing scalability and efficiency through containerized deployment on Azure.

Unix Like Shell | Link   *C, Linux*
- Implemented a simple UNIX-like shell in C, utilizing various system calls through the C API.
- Developed basic shell functionalities such as command execution.

Certifications

- Qubit by Qubit Introduction to Quantum Computing - **IBM Quantum by Codingschool**

- GAJABAAR Infosecurity Mentorship Program - **GAJABAAR**

- Neural Networks and Deep Learning - **deeplearning.ai on Coursera**

- Improving Deep Neural Networks: Hyperparameter Tuning, Regularization, and Optimization - **deeplearning.ai on Coursera**

- Structuring Machine Learning Projects - **deeplearning.ai on Coursera**

- Sequence Models - **deeplearning.ai on Coursera deeplearning.ai on Coursera**

- Participant in Third Nepal Winter School in AI - **NAAMI**

- AWS Academy Cloud Foundation - **AWS Academy**