TILAK PARAJULI

Kathmandu, Nepal | ✉ tilak.parajuli.58@gmail.com | in LinkedIn | ⦿ GitHub | ⦿ Website

AI and **machine learning** enthusiast with practical experience in **data analysis**, **information retrieval**, **automation**, and applied research. Skilled in **Python** and **ML frameworks**, with projects in **OCR**, **NLP**, and **statistical modeling**. Interested in exploring **generative AI** and **agentic systems**. **Dedicated** and **effective** both independently and as part of a team.

RESEARCH INTERESTS

Machine Learning, **Generative AI**, **Information Retrieval**, **AI Agents and Agentic AI**, **Data Mining**, **Cybersecurity**,

EDUCATION

Bhaktapur Multiple Campus, Tribhuvan University   Dudhpati, Bhaktapur
Bachelor of Science in Computer Science and Information Technology — 78/100   *Dec. 2019 – Oct. 2024*
Major/Elective Courses: Data Structures and Algorithms | Geographical Information System | Probability and Statistics | Multimedia Computing | Computer Graphics | Data Mining | Artificial Intelligence | Information Retrieval

WORK EXPERIENCE

AI/ML Intern   May 2024 – Present
Fusemachines Nepal, Internship   *Kathmandu, Nepal*

- Developed a **time-series model evaluation notebook** with metrics (**MAE, RMSE, MAPE, SMAPE**) and **visualizations**; refined and deployed based on peer review.
- Implemented **real-time gaze detection** in Fuse Proctor front-end using **MediaPipe FaceMesh** and **React**; enabled **directional gaze tracking** and **in-browser calibration**.
- Created **academic notebooks and prototypes** on **Agentic AI** concepts, including **agent loops, memory management**, and **prompt strategies**; supported integration planning.
- Explored **vision-language models** (**CLIP, BLIP, PaliGemma 2**) and collaborated on frontend improvements for **liveness detection** and **multi-person monitoring**.

RPA Developer   February 2024 – May 2024
Quickfox Consulting, Full Time   *Kathmandu, Nepal*

- Developed and deployed **RPA bots** using the **RPA Framework** to automate repetitive tasks across desktop and web environments.
- Automated **data entry**, **form submissions**, **web scraping**, **emailing**, and **Excel file merging**, significantly improving **efficiency**, **accuracy**, and **productivity**.
- Led a complex **data cleaning** project on legacy medical databases, leveraging **large language models (LLMs)** to standardize and validate noisy data.
- Collaborated with cross-functional teams to identify **automation opportunities** and ensured **bot reliability** through comprehensive testing and validation.

AI Research Intern   June 2024 – September 2024
NAAMII, Hybrid   *Kathmandu, Nepal*

- Contributed to a **radiation oncology** project by performing **clinical and radiomics data analysis**.
- Conducted **data preprocessing**, **normality testing**, **statistical tests** including **permutation tests**, **ROC AUC**, and **correlation analysis** on independent and dependent samples.
- Developed **statistical models** and **machine learning algorithms** under supervision of Dr. Taman Upadhaya.
- Applied **Statistical Analysis**, **Machine Learning**, **NLP**, and **Deep Learning** techniques in research activities.
- Demonstrated strong **commitment to innovation** and advancing AI research methodologies.

ML Intern   April 2023 – October 2023
Treeleaf Technologies, Hybrid   *Lalitpur, Nepal*

- Labeled data for an OCR system and ensured high-quality annotations for supervised learning tasks.
- Performed **Exploratory Data Analysis (EDA)**, **feature engineering**, and **data pre-processing** to support model development.
- Analyzed and visualized data distributions, patterns, and feature relevance to improve downstream ML performance.

Leadership & Activities

Student Union Member   March 2023 – Present
Bhaktapur Multiple Campus, Tribhuvan University   *Bhaktapur, Nepal*
- Elected with one of the **highest vote counts** in the **TU FSU 2023** election, representing students as a union member.
- Organized **campus-wide events**, advocated for **student welfare**, and served as a **liaison between students and faculty/administration**.

Technical Skills

Language: Python, C, C++, Bash
Libraries: Numpy, Pandas, TensorFlow, NLTK, OpenCV
ML Frameworks: Scikit-Learn, PyTorch, Streamlit, Hugging Face, Langchain, LangGraph
Web Frameworks: FastApi, Django, RESTFul API
Database / Data Warehouse: MySQL, PostgreSQL, MongoDB
Development Tools: Docker, Git, Github, MLflow

Projects

Travya - AI-Powered Travel Companion   Jan. 2025
Python, FastAPI, React, TypeScript, PostgreSQL, Redis, Docker
- Developed **AI-powered travel planning platform** using **multi-agent architecture** with specialized agents for research, planning, and booking operations.
- Implemented **real-time AI chat system** with **streaming responses** and **conversation context management** using FastAPI and React.
- Built **RAG (Retrieval-Augmented Generation) system** with **vector database** integration for intelligent travel recommendations.
- Integrated **external APIs** including Google Maps, Amadeus, Stripe, and weather services for comprehensive travel data.
- Designed **microservices architecture** with PostgreSQL, Redis caching, and Docker containerization.
- Implemented **JWT-based authentication** and **secure API endpoints** with comprehensive error handling.

Text Summarization with LSA and T5 Transformers   Feb. 2024 – Apr. 2024
Python, Transformers (T5), NLP, Machine Learning
- Implemented **dual-approach text summarization** using **Latent Semantic Analysis (LSA)** and **T5 transformers** for extractive and abstractive summarization.
- Engineered **TF-IDF threshold-based feature extraction** for preview summaries in navigation bar.
- Evaluated performance using **ROUGE metrics**, demonstrating effectiveness across both summarization pipelines.

- Developed **preprocessing pipeline** for text cleaning, tokenization, and feature engineering.

Music Recommendation System using SVD   Jan. 2024
Python, Pandas, Scikit-learn, Seaborn, Matplotlib, Machine Learning
- Developed personalized **music recommendation system** using **Singular Value Decomposition (SVD)** for **matrix factorization**.
- Implemented **collaborative filtering algorithms** to analyze user-item interactions and identify latent preference factors.
- Conducted **data preprocessing** and **feature engineering** on large-scale music datasets.
- Created **data visualizations** using Seaborn and Matplotlib to analyze model performance and user behavior.

Licenses and Certificates

- **AI Fellow (2025)** – **Fusemachines AI Fellowship (Microdegree™)** Program Details *Selected through a **highly competitive, prestigious full scholarship** program; an intensive 6-month curriculum covering Machine Learning, Deep Learning, NLP, Computer Vision, and MLOps, taught by global AI experts. **Current Fellow.***
- **AI Agents and Agentic AI with Python & Generative AI** Certificate   *Issued by: Vanderbilt University, Jul. 2025*
- **Level II Python Certification** Certificate   *Issued by: Robocorp, Feb. 2025*
- **Programming in Python** Certificate   *Issued by: Meta, Jan. 2024, Credential ID: 45GQSH2LGDZY*
- **Elements of AI** Certificate   *Issued by: University of Helsinki and Reaktor, Mar. 2022*

REFERENCES

Taman Upadhaya, M.S., Ph.D. — *Researcher, Cedars-Sinai & NAAMII; Expert in Data Science, Computer Vision, and Medical Image Processing*

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