

# TILAK PARAJULI

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AI/ML engineer who designs and ships end-to-end systems that automate real workflows. Experience across LLM fine-tuning (LoRA/PEFT), multi-agent and RAG pipelines, embeddings and vector search, prompt engineering, and model evaluation, with services deployed on AWS using Docker and orchestration. Strong in system design and turning manual, repetitive processes into reliable automated ones.

## EXPERIENCE

### Data Scientist

Jan 2026 – Present

*Climate Clean Solutions & LowPropTax, Hybrid*

*California, USA / Kathmandu, Nepal*

- Architected a **multi-agent LLM pipeline** for property-tax appeals (RAG + API-driven comparable retrieval) that automates valuation and adjustment end-to-end.
- Designed valuation models over physical, neighborhood, and climate signals with automated QA, enforcing **>10% reduction thresholds** and PDF/Excel report generation.
- Built real-time data pipelines on an **AWS S3 + Parquet** lake (air-quality metrics: PM2.5, NO2, O3, CO2), with dimensional modeling for fast queries.
- Automated reporting via **Power BI** dashboards for time-series, anomaly detection, and geospatial insights.

### AI/ML Research Fellow

June 2025 – Sept 2025

*Fusemachines Nepal, Fellowship*

*Kathmandu, Nepal*

- Built an automated model-evaluation pipeline (**MAE, RMSE, MAPE, SMAPE**) with visual reports, deployed across forecasting models after peer review.
- Shipped real-time gaze detection in a proctoring product using **MediaPipe FaceMesh** + React, with directional tracking and in-browser calibration.
- Prototyped **agentic AI** workflows (agent loops, memory, prompt engineering); evaluated and fine-tuned vision-language models (CLIP, BLIP, PaliGemma 2).

### RPA Developer

Feb 2025 – May 2025

*Quickfox Consulting, Full Time*

*Kathmandu, Nepal*

- Built and deployed **RPA bots** automating data entry, form submission, web scraping, and Excel merging across desktop and web.
- Led an **LLM-powered** data-cleaning pipeline for legacy medical databases, standardizing and validating noisy records at scale.

### AI Research Intern

June 2024 – Sept 2024

*NAAMII, Hybrid*

*Kathmandu, Nepal*

- Analyzed clinical and radiomics data for a **radiation oncology** project under Dr. Taman Upadhaya (Cedars-Sinai).
- Applied permutation tests, **ROC AUC**, and correlation analysis, building statistical and ML models for biomarker signal discovery.

## PROJECTS

**RAG Pipeline for Job Data Retrieval** | Python, FastAPI, LlamaIndex, ChromaDB, Cohere, BM25, Docker

Jul 2025

- Designed an end-to-end **hybrid-retrieval** system (**BM25** + dense embeddings / vector search) with Cohere reranking, served via FastAPI and Dockerized.

**Travya: AI-Powered Travel Companion** | Python, FastAPI, React, PostgreSQL, Redis, Docker

2025

- Architected a **multi-agent** platform (research, planning, booking agents) on a microservices design with streaming AI and Google Maps, Amadeus, and Stripe integrations.

**Text Summarization with LSA and T5** | Python, Transformers (T5), NLP

2024

- Built a dual extractive/abstractive summarizer by **fine-tuning T5** alongside **LSA**, evaluated with **ROUGE** across classical and neural approaches.

## TECHNICAL SKILLS

**Languages:** Python, C, C++, Bash, SQL

**Cloud & MLOps:** AWS (S3, EC2, IAM), Docker, Airflow, MLflow, Git, CI/CD

**System Design & Automation:** Microservices, REST APIs, ETL pipelines, RPA, workflow orchestration

**LLMs & Agentic AI:** Fine-tuning (LoRA/PEFT), RAG, multi-agent systems, prompt engineering, LangChain, LangGraph, Hugging Face

**ML & Data:** PyTorch, TensorFlow, Scikit-learn, embeddings, vector search, Pandas, NumPy, Parquet

**Web & Databases:** FastAPI, Django, PostgreSQL, MySQL, MongoDB, Redis

## EDUCATION

**Bhaktapur Multiple Campus, Tribhuvan University**

Bhaktapur, Nepal

*B.Sc. in Computer Science and Information Technology (78/100)*

*Dec 2019 – Oct 2024*

- **Relevant coursework:** Data Structures & Algorithms, Artificial Intelligence, Information Retrieval, Data Mining, Probability & Statistics.

## HONORS & CERTIFICATIONS

- **Full Scholarship**, Sixth Annual Nepal AI School (ANAIIS 2025); competitive 11-day research program.
- **AI Fellow (2025)**, Fusemachines AI Fellowship (Microdegree); full-scholarship, 6-month ML/DL/NLP/CV/MLOps program.
- **AI Agents and Agentic AI with Python & Generative AI**, Vanderbilt University (2025).
- **Level II Python Certification**, Robocorp (2025).