Rohan Pudasaini

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SUMMARY

AI/ML Backend Engineer with **2+ years** of professional experience specializing in **Python, FastAPI, and MLOps principles**. Proven ability to integrate complex **AI/ML models (RASA, Whisper)** and external agent APIs via high-efficiency protocols like **gRPC and WebSockets**. Adept at designing and deploying scalable, containerized backend services using **PostgreSQL** and **Docker** for production environments.

EXPERIENCE

ML Engineer
Kathmandu

Vanilla Transtechnor
July, 2025 – November, 2025

- Led the ML team, overseeing the development and deployment of machine learning models.
- Engineered and configured the infrastructure for model deployment, ensuring scalability and reliability.
- Developed a chatbot application, utilizing RASA for intent recognition and Whisper for accurate audio transcription from user inputs.
- Used the Factory pattern to dynamically select and integrate a fallback LLM API (Amazon Bedrock/Other LLMs) when RASA classification confidence was below threshold.
- Utilized WS to ensure a stateful connection between the client and server for real-time communication.
- Implemented gRPC to separate and ensure efficient communication between various services.

Python Developer
Kathmandu

Vanilla Transtechnor
May, 2024 – July, 2025

- Designed and developed RESTful APIs using Python, FastAPI, and SQLAlchemy.
- Worked with relational database like PostgreSQL to build scalable backend solutions.
- Containerized applications using Docker for efficient deployment.
- Initiated and led Python knowledge transfer sessions within the team to enhance collaboration and skill development.
- Conducted on-call discussions with clients to gather accurate requirements and ensure the delivery of tailored solutions.

Python Intern
Kathmandu

Vanilla Transtechnor
Jan, 2024 – May, 2024

- Worked closely with a senior developer to gain hands-on experience in building RESTful APIs using FastAPI, PostgreSQL, SQLAlchemy, and Alembic.
- Contributed to the development of a Library Management System and a Device Management System, implementing Role-Based Access Control (RBAC) and authorization mechanisms to ensure secure and scalable solutions.
- This experience strengthened my understanding of backend development, database management, and API design principles.

Freelance Python Developer
Remote

People Per Hour
May, 2022 – Present

- Developed bespoke GUI and command-line applications using tKinter and PySimpleGUI.
- Automated web tasks such as bulk login/registration and data scraping using Selenium, BS4, and Requests.
- Performed advanced mail merges and template-based document editing using docx2pdf.
- Utilized Tesseract and Pytesseract for OCR tasks and implemented bulk messaging for Instagram users.
- Integrated APIs to fetch and analyze stock data for FTSE 250 companies based on user requirements.
- Extracted and plotted geographical coordinates from CSV data using Folium and OpenStreetMap, saving outputs as offline HTML.
- Assisted in managing and maintaining client networks, along with handling various day-to-day activities to meet client needs.

EDUCATION

St-Lawrence College
Kathmandu

Bachelors in Computer Science and Information Technology
May, 2019 – May, 2024

PROJECTS

AI Chatbot Backend (RASA, LLM Fallback, WS, JWT)
- Engineered a high-performance chatbot backend utilizing WebSockets for secure, real-time user interaction and implemented robust JWT authentication to protect API endpoints.
- Designed a multi-layered AI agent integration, routing initial requests through RASA for intent recognition, and seamlessly integrating Amazon Bedrock/LLM as a resilient fallback for complex queries.
- Managed foundational infrastructure and implemented a simple CI/CD pipeline and environment setup, streamlining the deployment process and environment consistency.

Machine Learning Project with Classification model
- Developed a machine learning classification model for large-scale data, creating a generalized blueprint for model selection, feature engineering, and hyperparameter tuning to optimize performance.
- Integrated the model with a FastAPI backend to serve predictions via RESTful APIs, and built a simple frontend interface to display results, enabling end-to-end interaction with the deployed model.

Merchantrade Money App API   Play Store
- Contributed to API development by implementing RESTful endpoints, writing integration tests, and optimizing database queries for improved performance and scalability.

Device Management System   GitHub Repo
- Created a robust device management system API crafted using FastAPI for handling endpoints, SQLAlchemy as the ORM, and PostgreSQL for the backend database.

Library management system, FastAPI   GitHub Repo
- Created a simple library management system's API created using FastAPI for the endpoint, SQLAlchemy for ORM and PostgreSQL for the backend database.

Simple FastAPI app with RBAC   GitHub Repo
- Created a simple Fast API app with role-based access control.

E-Commerce Website in Django   GitHub Repo
- Created a simple Django website with a recommendation system for the final year project of 8th semester.

CERTIFICATIONS

CS50P	*2025*
Machine Learning Specialisation	*2025*
Unsupervised Learning, Recommenders, Reinforcement Learning	*2025*
Advanced Learning Algorithms	*2025*
Linear Algebra for Machine Learning and Data Science	*2025*
Certification of Participation - ThreatCon	*2023*
NDG Linux Unhatched (CISCO)	*2021*
Wordpress Basic	*2020*
Certification of Participation at National Arduino Campaign - Youth's Tech	*2018*

ACHIEVEMENTS

- **45+ rooms completed in TryHackme**: Completed over 45+ hands-on hacking rooms on TryHackMe, including Mr. Robot, Blue, and OhSINT, gaining real-world experience in penetration testing and OSINT techniques.

- **10+ badges in TryHackme**: Earned 10+ cybersecurity badges recognizing proficiency in Metasploit, Linux, web exploitation, hash cracking, and consistent learning streaks.

SKILLS

Languages: Nepali, English

Programming & Tools: Python (FastAPI), Machine Learning, RASA, Whisper, SQLAlchemy, PostgreSQL, Docker, Git/Github, Linux & CyberSecurity, Python GUI, Web and Workflow Automation, Networking & penetration testing, Web socket, gRPC