

Sakchyam Thapa

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Technical Stack

- **AI & Machine Learning:** Python (OOP), Data Preprocessing, Feature Engineering, Model Evaluation, Regression Models
- **Computer Vision:** OpenCV, Real-time Video Processing, HSV Color Segmentation
- **Web Scraping & Automation:** Playwright (Async), Concurrency (asyncio, Semaphore), Change Detection
- **Vector Databases & RAG:** Pinecone, Transformer-based Embeddings, Similarity Search
- **Mathematics:** Linear Algebra, Probability
- **Python Libraries & Frameworks:** Scikit-Learn, Pandas, NumPy, SciPy, Matplotlib, Seaborn, FastAPI, Flask
- **Programming Languages:** Python, Java (Basics), .NET
- **DevOps & Deployment:** Git, GitLab, AWS (EC2 instance deployment)
- **Web Development:** HTML, CSS, JavaScript, FastAPI, Flask, SQL, .NET Blazor, .NET Web API, ASP.NET Core, Identity Framework, EF Core

Education

London Metropolitan University
BSc. (Hons) Computing

2022 – 2025

Experience

Junior .NET Developer, Intelisoft Nepal

Baneshwor, Kathmandu

- VAT Reconciliation Project for United Nations
- SMS Template System using SMS and Email OTP Verification
- Nepal Police Digital Daily System

Projects

- **Bike Rental Web Application:** Developed an AI-powered web application to predict bike rental demand based on weather conditions. Applied regression models on temperature, humidity, and environmental data to support demand forecasting and resource optimization.
- **House Rental Prediction:** Built a machine learning model to estimate house rental prices using location, size, and amenities. Performed data preprocessing, feature engineering, and regression-based prediction.
- **Car Price Prediction:** Developed a supervised learning model to predict used car prices based on brand, model, year, mileage, and condition using regression techniques.
- **SonicPoints (Task Management System with Rewards):** Designed a Kanban-based task management system with a KPI-driven reward mechanism, allowing users to earn and redeem points based on task completion.
- **Student Management System (Role-Based Backend):** Developed a backend using **FastAPI**, **SQLAlchemy**, **PostgreSQL**, and **JWT authentication**. Implemented role-based access control (Admin, Teacher, Student) with complete CRUD operations for users, courses, assignments, and grading.

- **Laptop Inventory & Billing System (OOP + FastAPI):** Built an inventory management backend using **FastAPI**, **Python OOP**, and **PostgreSQL**. Implemented CRUD operations, buy/sell workflows with stock updates, PDF bill generation, and admin dashboards.
- **Task Management API:** Developed a RESTful backend using **FastAPI**, **SQLite**, **SQLAlchemy**, and **JWT**. Implemented authentication, project/task CRUD operations, task assignments, and status tracking.
- **Online Bookstore API:** Created an e-commerce backend using **FastAPI**, **SQLAlchemy**, **PostgreSQL**, and **JWT authentication**. Implemented book inventory management, cart handling, order placement, and automatic stock updates.
- **RAG-Based AI Chatbot (FastAPI + Streamlit):** Developed a Retrieval-Augmented Generation chatbot using **FastAPI**, **Streamlit**, **Pinecone**, and transformer-based embeddings. Implemented document chunking, vector similarity search, and LLM-based response generation.
- **Web Scraping & Change Detection System:** Built an automated web scraping system using **Flask**, **Playwright (async)**, and **SQL Server**. Implemented concurrent scraping, product change detection, pagination, filtering, and real-time status monitoring.
- **Flame Detection & Alert System (Computer Vision):** Developed a real-time flame detection system using **OpenCV** and HSV color segmentation. Implemented contour-based detection, noise reduction, debounce logic, and audio alerts using **Pygame**.
- **AI-Enhanced Parking System:** Integrated IoT, cloud computing, and object detection to identify parking availability and update real-time dashboards.
- **E-Commerce Platform (Java JEE):** Developed a full-stack e-commerce platform using Java JEE with product management, user authentication, and secure payment gateway integration.

Certifications

- **Basic Foundation in Python** – Udemy (Sep 2024)
- **Supervised Machine Learning** – DeepLearning.AI, Coursera (May 2025)
- **AWS Academy Graduate – Basic Foundations** – Amazon Web Services (Nov 2023)