Bijay Kumar Yadav

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Professional Summary

Aspiring Software Developer and Machine Learning Engineer with strong foundations in data structures, backend systems, and statistical analysis. Experienced in building scalable applications, REST APIs, and real-time systems using Python, FastAPI, and WebSocket. Proven ability to optimize performance and develop ML models with measurable improvements. Strong analytical thinker with problem-solving mindset and collaborative approach.

Technical Skills

Programming: Python, Java (OOP), C
Web Development: HTML, CSS, JavaScript
Machine Learning: Scikit-learn, TensorFlow, Pandas, NumPy, Matplotlib
Data Analysis: SQL (Joins, Aggregations), Excel (Pivot Tables, VLOOKUP)
Backend & Systems: FastAPI, REST API Development, WebSocket, Scalable Systems
Tools: Git, GitHub, Docker, PyCharm, Power BI
Core CS: Data Structures & Algorithms, DBMS, System Design

Projects

CloseSpace — Full-Stack Private Messaging Platform

- Engineered a real-time messaging system using FastAPI, PostgreSQL, and WebSocket, reducing latency by **40%** and supporting **100+ concurrent users**.
- Secured communication using AES-256 encryption and JWT authentication, improving data protection and session reliability.
- Optimized frontend performance using Vanilla JavaScript, reducing UI load time by **30%** and improving responsiveness.

Microplastic Detection using Deep Learning

- Developed a deep learning model achieving **85%+ accuracy** using TensorFlow (InceptionV3) for image classification.
- Applied transfer learning and feature engineering, reducing training time by **30%** and improving model efficiency.
- Designed an end-to-end data pipeline, reducing inference time by **25%** for real-time predictions.

AI Face Forensic System (Deepfake Detection)

- Designed a machine learning system to detect AI-generated images and deepfakes, improving detection accuracy by **20%**.
- Built a multi-stage classification pipeline, reducing false positives by **15%** and improving model reliability.

Obstacle Detection System for Blind People (IoT)

- Developed a wearable navigation system using ESP8266 and ultrasonic sensors with obstacle detection accuracy up to **95%**.
- Improved user safety by implementing real-time alert mechanisms, reducing collision risk in close-range environments.

Personal AI & ML Portfolio Website

- Built a responsive portfolio website using HTML, CSS, and JavaScript, improving project visibility and engagement.
- Deployed using GitHub Pages and Cloudflare, achieving **¡1.5s load time** and secure HTTPS routing.

Education

Kalinga Institute of Industrial Technology — *Expected June 2027*
B.Tech in Computer Science & Engineering — CGPA: 8.01

Bhutan Devi Ma.Vi - Class XII : 3.38/4 — *2023*
Bhutan Devi Ma.Vi - Class X : 3.76/4 — *2021*

Certifications

Foundations of Project Management — Coursera (Agile, Planning)
DevOps with AWS — LinkedIn Learning (CI/CD, Cloud Automation)
Learning Docker — LinkedIn Learning (Containerization)

Key Achievements

- Reduced system latency by up to **40%** in real-time applications.
- Built multiple production-level ML and full-stack projects solving real-world problems.
- Developed scalable systems integrating backend APIs, databases, and real-time communication.

Core Competencies

Backend Development, REST API Development, Scalable Systems, Machine Learning, Deep Learning, Data Pipeline, Feature Engineering, Model Optimization, WebSocket, SQL, Cloud Deployment