SANDIP KATEL

Computer Engineering Student

+977-9863481927   babusandipkatel@gmail.com   github.com/sandipkatel   linkedin.com/in/sandipkatel

Professional Summary

Final-year computer engineering student with demonstrated expertise in computer vision, IoT systems, and embedded solutions. Proven track record developing intelligent detection systems, integrating sensor networks with machine learning algorithms. Strong foundation in object detection frameworks, wireless communication protocols, and microcontroller programming, with award-winning projects spanning AI applications and environmental monitoring systems.

Significant Projects

Wildfire Detection & Alert System
Tech: Arduino Uno R3, ESP8266, IR Sensor Module

- Implemented an automated wildfire detection system using Arduino Uno R3 with IR Sensor Module
- Integrated ESP8266 for real-time wireless networking and remote notifications
- Repurposed old mobile phones as monitoring stations to minimize e-waste while solving real-world environmental challenge

Unified InfoSec QnA Assistant
Nepal Hacks Winner – NAAMII & SecurityPal
Tech: LLaMA 3.2, RAG Architecture, Python

- Developed AI assistant for cybersecurity teams to retrieve answers from internal policies
- Implemented RAG architecture using LLaMA 3.2 for context-aware responses

Personalized Bedtime Story Generator
Gen AI Hackathon Winner
Tech: LLaMA 3.1, Fine-tuning, Voice Synthesis

- Created generative AI system for custom children's bedtime stories
- Fine-tuned LLaMA 3.1 with moral stories dataset for age-appropriate responses

Handwritten Mathematical Problem Solver
Tech: TrOCR, SymPy, LaTeX, Computer Vision

- Developed AI tool to digitize and solve handwritten mathematical problems
- Integrated TrOCR transformer-based OCR model for text recognition
- Utilized SymPy for symbolic solving with step-by-step solutions

Nirogya Health Monitor
Tech: Random Forest, Python, React, FastAPI

- Built comprehensive health monitoring platform
- Developed symptom-based disease prediction using Random Forest

Additional Projects

CanSat Development
Tech: Arduino Nano, ESP32, Wireless Com.

- Designed and developed a CanSat system using Arduino Nano microcontroller with multiple sensor modules for atmospheric data collection
- Implemented ESP32-based wireless communication system for real-time telemetry data transmission to ground station

Credit Card Fraud Detection:

- Developed a Bayesian Network model using probabilistic inference for accurate fraud detection

Education

Bachelor of Computer Engineering
Pulchowk Campus, IOE, TU   *2022 – Present*
Aggregate: 82.63%

+2 of Computer Science
Kathmandu Model College   *2019 – 2021*
GPA: 3.64

Technical Skills

- **Programming Languages:** Python, JavaScript, TypeScript, C, C++, Shell
- **ML/AI Frameworks:** PyTorch, Scikit-learn, YOLO, Hugging Face, LLaMa, RAG, OpenCV
- **Web Technologies:** React, Next.js, HTML/CSS, FastAPI, RESTful API
- **Databases:** PostgreSQL, MongoDB, MySQL, SQLite
- **Tools & Platforms:** Git, Docker, Jupyter, LaTeX

Leadership & Research Engagement

- **Technical Leadership:** Proven ability to guide and inspire a team of co-workers in different projects
- **Research & Case Studies:** Conducted extensive research projects and case studies in AI/ML/Computer Vision
- **Open Source:** Active contributor to open source projects focusing on AI/ML tools