Vaibhav Chaudhary

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Summary

AI / Machine Learning Engineer with hands-on experience in Computer Vision, cyber-physical AI systems, and applied machine learning. Skilled in building end-to-end ML pipelines, training and evaluating models, and applying AI techniques to real-world infrastructure and security problems using PyTorch, scikit-learn, and TensorFlow.

Technical Skills

Programming Languages:	Python, C/C++, JavaScript
Machine Learning:	Supervised Learning, Unsupervised Learning, Feature Engineering, Model Evaluation, Cross-Validation, Bias-Variance Tradeoff
Deep Learning:	Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs), Transformers, LSTM, Vision Transformers, Siamese / Contrastive Learning
Frameworks & Libraries:	PyTorch, TensorFlow, scikit-learn, OpenCV, NumPy, Pandas
Web Technologies:	React, Next.js, Tailwind CSS
Databases:	MongoDB, PostgreSQL
APIs & Tools:	REST APIs, Postman, Data Preprocessing, Model Deployment
Engineering Tools:	MATLAB, Simulink
DevOps & Systems:	Docker, Linux, Git, GitHub
Domain Knowledge:	Electrical Engineering, Smart Grids, Cybersecurity, IEEE Standards

Experience

UP Power Transmission Corporation Ltd. (UPPTCL) — Agra
Vocational Trainee — 400 kV Substation Jul 2025

- Worked around live 400 kV extra-high-voltage infrastructure, analyzing transformer, breaker, and protection relay operations in a high-risk environment.
- Studied safety protocols, fault handling, preventive maintenance, and transmission system reliability across multiple substations.

ScienceOverse — Remote
Frontend Developer Mar 2024 – Jun 2024

- Built production-grade interfaces for 100+ users using React, Next.js, and Tailwind CSS.
- Integrated authentication workflows and tested 15+ REST APIs using Postman, improving frontend-backend reliability.

Projects

SaafSaksham – AI-Powered Civic Cleanliness Verification Platform
GitHub: https://github.com/VaibhavChaudhary14/SaafSaksham Dec 2025

- Developed computer vision pipelines using CNNs (Convolutional Neural Networks) and Vision Transformers for garbage detection and cleanliness assessment.
- Applied Siamese and contrastive learning to verify before-after images, reducing fraudulent submissions.
- Integrated anomaly detection, confidence scoring, and rule-based validation to improve decision reliability.
- Designed a scalable verification-first SaaS architecture using MongoDB and REST APIs.

Smart Grid Cyberattack Detection and Mitigation using AI/ML Major Project

- Modeled power grid topology using Spatio-Temporal Graph Neural Networks (ST-GNNs).
- Detected False Data Injection (FDI), replay, and Denial-of-Service (DoS) attacks using Transformer-LSTM hybrids and ensemble classifiers.
- Designed a PPO-style reinforcement learning agent for adaptive voltage and frequency mitigation.
- Achieved 97–99% attack detection accuracy and 92% localization accuracy.

Education

B.Tech in Electrical Engineering 2022 – 2026
Rajkiya Engineering College, Banda

- Relevant Coursework: Electrical Systems, Control Systems, Power Systems, Signals and Systems, MATLAB-based Modeling and Simulation.

Leadership

Chairperson, IEEE Student Branch — REC Banda 2025 – Present
Led technical workshops, guest lectures, and student initiatives on emerging technologies, engaging 200+ students annually.