

Ridham Patel

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SUMMARY

Software Engineer specializing in machine learning with a strong foundation in designing, building, and deploying end-to-end AI systems. Proficient in Python and its ML ecosystem (PyTorch, LangChain) with hands-on experience in MLOps, cloud infrastructure, and backend development. Passionate about transforming prototypes into robust, production-grade applications.

SKILLS SUMMARY

AI & Machine Learning	Python, PyTorch, Scikit-learn, LangChain, Pandas, NumPy, OpenCV
MLOps & Deployment	Docker, Kubernetes, Git, MLflow, GitHub Actions, Postman, Celery, RabbitMQ, Redis
Cloud & Infrastructure	AWS (EC2, S3, Lambda, SQS, SNS, Bedrock), Vercel, Twilio
Languages	Python, C++, SQL, JavaScript, TypeScript, HTML, CSS
Backend Frameworks	Django, FastAPI, Flask, Node.js, Express
Databases	PostgreSQL, MySQL, MongoDB, Vector Databases

EXPERIENCE

Associate Software Engineer August 2025 - Present
OpenXcell Technolabs Ahmedabad

- Engineered and deployed a high-availability LLM security application, architecting scalable backend services using FastAPI for secure, high-throughput model inference.
- Developed and optimized end-to-end RAG pipelines using Langchain and PineCone DB to detect and mitigate AI-specific security risks like prompt injection and data leakage.
- Managed system scalability and responsiveness by implementing a robust asynchronous architecture using Celery, RabbitMQ, and Redis for long-running AI analysis jobs.
- Integrated open-source tools like Nvidia Garak, ProtectAI Rebuff, LLMGuard to build a robust security layer for vulnerability detection and prompt defense.

AI/ML Intern June 2025 - July 2025
IEEE EMBS Pune Chapter Remote

- Engineered a deep learning pipeline for Schizophrenia diagnosis from EEG data, handling the process from data ingestion to model validation.
- Benchmarked deep learning architectures (ResNet50, EfficientNetB2, DenseNet121) to optimize the trade-off between predictive accuracy and computational cost.
- Improved model robustness and achieved 96% accuracy by implementing an ensemble stacking method.

Software Development Intern Aug 2024 - Nov 2024
Institute for Plasma Research Gandhinagar

- Developed a full-stack data collection and assessment platform, creating a structured dataset for future analysis and predictive modeling of student performance.
- Engineered a resilient backend using Node.js and TypeScript to manage data ingestion, user authentication, and real-time processing of assessment data.

PROJECTS

Face-Swap-Based Deepfake Detection Platform | SIH'24 Finalist - [Link](#) Sept 2024 - Dec 2024

- Implemented a deepfake detection system by integrating a Python-based ML model with a scalable web application for the National Technical Research Organization (NTRO).
- Developed and evaluated models utilizing EfficientNet, InceptionNetV3, Attention Models, and Transformer-based architectures for face manipulation detection.
- Implemented preprocessing pipelines including face extraction, alignment, and temporal frame analysis.

Student Dropout Analysis Platform | SIH'23 Finalist - [Link](#) Sept 2023 - Dec 2023

- Developed a predictive analytics platform using classification models such as Logistic Regression to identify at-risk students, serving insights to educational stakeholders via an interactive dashboard.
- Architected a scalable backend service in Node.js to handle data processing and deliver real-time predictions from the pre-trained model.

Customer Grievance Portal for One Nation One Challan | SSIP'23 Winner - [Link](#) July 2023 - Sep 2023

- Architected and delivered a full-stack data collection portal to streamline citizen grievance submissions for the One Nation One Challan Policy.

M. M. Patel Students Research Project Cell - KSV Website | [Link](#) Sept 2024 - Nov 2024

- Engineered a university research portal, implementing rigorous unit and integration testing with Jest and Mocha to ensure system reliability and data integrity.

- Built a full-stack modular Project Management System using Next.js and Django enabling end-to-end workflow from planning → execution → billing within a unified interface.
- Developed role-based dashboards (Admin, Project Manager, Team Member, Finance) with task boards, timesheets, and integrated billing workflows.
- Implemented analytics dashboards visualizing KPIs such as project progress, utilization, revenue, cost, and profit using PostgreSQL-backed data.

PUBLICATIONS

FED-DETR: A privacy-preserving framework For intelligent traffic enforcement Through helmet detection | Research Paper (Under Review)

- Developed and benchmarked a real-time computer vision model for concurrent Helmet Detection using Federated Learning and DETR.
- Authored a research paper detailing the system architecture, model performance, and potential for real-world application.

Automated Waste Segregation Dustbin for Educational Institutions | Patent (Pending)

- Designed and prototyped an IoT-enabled smart dustbin that integrates a lightweight computer vision model for real-time, automated waste classification.
- Filed for a patent covering the novel system design that combines embedded hardware and efficient ML model inference for edge computing.

EDUCATION

LDRP Institute of Technology and Research

June 2022 - July 2026

Bachelor of Engineering - Information Technology; CGPA: 7.70

Gandhinagar

Relevant Coursework: Artificial Intelligence, Machine Learning, Natural Language Processing, Data Structures & Algorithms, Database Management Systems, Operating Systems

ACHIEVEMENTS

- **National Level Hackathon Finalist (4x):** Smart India Hackathon (SIH) 2023 & 2024; Odoo National Hackathon March & November 2025.
- **State Level Hackathon Winner:** SSIP 2023, organized by the Government of Gujarat's Student Startup and Innovation Policy Cell.
- Received letters of acknowledgment from the Chairman of SVKM President of KSV for achievements in SIH and for developing the M. M. Patel Research Project Cell website.
- **State Level Event Organiser:** Volunteered as Student Event Organiser in Emerging Research Trends of Engineering 2025 sponsored by GUJCOST.

CERTIFICATIONS

- **AWS Certified Cloud Practitioner (CLF-C02)** | Validate Exp: May 2028
- **NPTEL: Database Management System** | Validate

VOLUNTEER EXPERIENCE

Student Event Organiser

July 2025

ERTE 2025

- Assisted in the planning, coordination, and execution of a state-level event, Emerging Research Trends of Engineering 2025, sponsored by GUJCOST

Webmaster, Executive Committee

Dec 2023 – Dec 2024

IEEE Student Branch - LDRP-ITR

- Managed the branch's digital presence and website, supporting the organization of several research-oriented workshops and seminars for the student community.

Graphic Design Committee Member

Feb 2024

Xenesis Tech Fest, LDRP-ITR

- Designed and produced promotional materials (posters, banners, social media graphics) for the university's flagship technology festival.