

Ayush Raj

My portfolio Website
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Education

Vellore Institute of Technology

Sep. 2022 – jul 2026

Bachelor of Science in Computer Science
Specialization in AI & Robotics

Chennai, Tamil Nadu

Himalayan Public School

Intermediate – PCM & CS | 86%

Apr 2020 - May 2021

Patna, Bihar

St Karen's High School

Matriculation | 94%

Apr 2018 - May-2019

Patna, Bihar

Experience

IBM Skills Network – Generative AI Industrial Training

May 2025 – July 2025

AI/ML Trainee – IBM Mentored Program

Chennai, Tamil Nadu

- Completed a 8-week, mentor-led program on Generative AI, working with IBM Watson APIs and Google Gemini Flash models.
- Built a caption generator web application integrating text + image inputs, configurable with mood preferences (3 parameter levels). Achieved ~80% accuracy on datasets such as automotive and factory data by fine-tuning generative models for image and video captioning tasks, improving contextual relevance of generated outputs.
- Implemented Watson Assistant API (handling ~4,000 tokens per response) and Gemini API (processing ~2,000 tokens per prompt) to generate contextual captions in real time.
- Achieved 100% project score (80/80) and an overall program score of 159/160 (99%), ranking in the top percentile of participants.

Projects

AI-Powered Sign Language Conversion System | Python, ESP32, MQTT

January 2024- Ongoing

- Won 1st and 3rd prizes** at national hackathons; recognized for innovation in accessibility technology.
- Built a CNN-based ASL recognition model with 78% overall accuracy and 100% on selected gestures.
- Presented at IAIC 2025** (55+ MNCs), demonstrating real-time ASL-to-speech conversion.
- Designed a **3D-printed robotic hand** powered by servo motors and integrated with an AI pipeline
- Patent filed** for the system (under review).

Interactive Learning Platform (Startup Project) | React, Node.js, Express.js, Supabase, Cloudflare

August 2025 – Ongoing

- Developing an EduTech platform for college students with interactive course content, progress tracking, and multiple learning paths.
- Implemented 200+ practice questions with interactive, step-by-step solutions to enhance student engagement.
- Built features for real-time progress tracking and personalized learning dashboards.
- Deployed using Supabase (Postgres backend + authentication), Node.js/Express.js server, React frontend, and Cloudflare CDN for scalability and performance.

AWS-Based Fraud Detection System | Ec2, AWS SageMaker, Lambda, Python, XGBoost

April 2024

- Trained and deployed an XGBoost model on AWS SageMaker using the Kaggle Credit Card Fraud Detection dataset (284,000+ transactions), achieving 81% recall and a 79% F1-score.
 - Built a serverless API using AWS Lambda to connect the backend model to a user interface for real-time fraud analysis.
- Engineered an automated notification system to send real-time SMS and email alerts for transactions flagged as high-risk. Technical Skills

Technical skills

Languages: Python, Java, C++, C | Web: HTML, CSS, JavaScript Databases: SQL (Oracle, MySQL), MongoDB, Supabase, MERN | ML/AI: TensorFlow, PyTorch, TFLite, Jupyter Notebooks | Hardware & IoT: Arduino, ESP32, MQT | Core Tools: Git, VS Code, Postman, Arduino IDE

Extracurricular Activities

VIT Chennai

Volunteer & Technical Team Member, National Service Scheme (NSS)

Aug 2023 - Present

- As a core member of 'Project Prakrit', co-organized various community events including public health camps and STEM education drives for underprivileged children.

Certifications & Professional Development

- Generative AI Professional Certificate – IBM Skills Network (2025) | Oracle Data Science Professional – Oracle University (2025) | Network Support & Security – Cisco Networking Academy (2023)