YASH SHAH

AI/ML and Full Stack Engineer | *Space Data Science* | *Hardware Systems*
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PROFESSIONAL SUMMARY

Final-year Computer Science engineer building AI systems end to end, from data to deployed products and hardware. As an **AI/ML Research Intern at the Indian Space Research Organisation (ISRO)**, built marsquake models that became **two papers accepted by Springer Nature journals**. **National Winner of Smart India Hackathon 2025**, **5th at TetraTHON 2026**, the Indo-French AI Innovation Sprint, and co-applicant on **three design patents** filed with the Indian Patent Office, one accepted for registration.

EDUCATION

GLS University, Faculty of Engineering and Technology, Ahmedabad — Jun 2023 - May 2027
Bachelor of Technology, Computer Science and Engineering — *SGPA: 8.70/10 (Semester 6)*

RESEARCH PUBLICATIONS

Frequency-Family Classification of Marsquakes from Spectrograms with a Hybrid Convolutional and Fourier Neural Operator
Yash Shah, Anvi Panchal, Madhuri Chopade. *Education and Information Technologies*, Springer Nature (Q1, Web of Science and Scopus, Impact Factor 7.2). Accepted for publication, DOI awaited

- To our knowledge, **the first supervised model to classify marsquakes into all six Marsquake Service event types** using NASA InSight data, with **99.50% frequency-family accuracy** and **79.60% six-type accuracy** on the held-out test set, and **40 of 41 six-type errors still in the correct frequency family**.

Marsquake Detection from Raw InSight Waveforms with a Hybrid Convolutional and Fourier Neural Operator
Anvi Panchal, **Yash Shah**, Madhuri Chopade. *Cureus Journal of AI-Augmented Research*, Springer Nature. Accepted for publication, DOI awaited

- A hybrid model that detects marsquakes directly from raw seismometer waveforms, with **95.20% ROC-AUC** on the held-out test set and **83.88% ROC-AUC** on 751 external MarsQuakeNet clips.

Causal and Counterfactual Reasoning for Conflict-Aware Multimodal Sentiment Analysis
Yash Shah, Anvi Panchal, Madhuri Chopade. *Under process*

EXPERIENCE

Indian Space Research Organisation (ISRO) | Certificate — May 2026 - Aug 2026
AI/ML Research Intern — *On-site, Ahmedabad*

- Built deep learning models for **planetary seismology** on data from **NASA InSight** (Mars), **Chandrayaan-3 ILSA** (Moon) and the **Apollo** missions (Moon), running **130+ GPU experiments** on Kaggle.
- Designed a **hybrid convolutional and Fourier neural operator (FNO) model** that detects marsquakes in raw waveforms and classifies them by frequency family from spectrograms, work that became **two accepted papers**.
- Engineered **Chandrayaan-3 ILSA preprocessing pipelines** for four classes of lunar seismic events (rover movement, APXS, ChaSTE and natural events), checked against published event catalogues.

The Line Tech Solutions Ltd, United Kingdom | Certificate — Jun 2025 - Jul 2025
AI & Backend Engineering Intern — *Remote*

- Implemented **Django APIs and AI agents** that automate order handling in the Nishan Order Management System.
- Integrated **Tally Prime Gold** data via REST APIs, built live financial dashboards, and automated workflows with **n8n**.

Burhani Managed IT Services, Dubai, UAE — Nov 2024 - Dec 2024
Dynamics 365 CRM Functional Consultant Intern — *Remote*

- Delivered an **HR leave and attendance system in Dynamics 365** and Power Apps, with automatic payroll deductions.
- Added **geolocation check-in**, live hours tracking, a timesheet and task tracker, and a customer portal feasibility study.

Lalit Rakesh & Associates | Certificate — Jul 2024 - Aug 2024
Microsoft Power Apps Intern — *Remote*

- Developed a role-based **task management system** on Power Apps, Dataverse, SharePoint and Power Automate.
- Designed **leave-time task delegation** that hands over the full conversation history, plus a central task status view.

Hindustan Platinum Pvt. Ltd. | Certificate — May 2024 - Jun 2024
Software Development Intern — *Remote*

- Built a **Flask system** to monitor networked weighing machines in real time using ping, **sockets** and multithreading.
- Set up **email alerts** for machines offline for over an hour, and deployed the system on the company's internal server.

INTELLECTUAL PROPERTY

Three **design patents filed with the Indian Patent Office** (Oct 2026) for the **Portable Sediment Grain Size Analysis Device** (Coast Scan), **Compact Soil Moisture Monitoring Device** and **Portable Soil Moisture Meter** (accepted for registration).

PROJECTS

Coast Scan | National Winner, Smart India Hackathon 2025 | Lab Report — Sep 2025 - Dec 2025

- Built a **low-cost handheld black-chamber device** (Raspberry Pi camera and environmental sensors) that photographs beach sand and shows grain size distribution and sediment type on a live dashboard.

- Developed an **image processing pipeline** (thresholding, contour detection, morphological operations) that separates and measures sand grains, and tested **CNN models** for grain pattern recognition.
- Reached **98% agreement with laboratory sieve analysis on D50 grain size** (median grain diameter) and cut analysis from **days of lab work to an automatic report in seconds**. Incubated at **GLS LEAF**.

Tech: *Python, OpenCV, NumPy, CNNs, Matplotlib, Raspberry Pi, IoT sensors, Django, AWS*

EduBridge AI | 5th Place, **TetraTHON 2026**, Indo-French AI Innovation Sprint | Project Page Jul 2026 - Aug 2026

- Developed a real-time system that turns a **live English lecture into an adapted explanation in the student's own language**, at each student's level.
- Streamed lecture audio over **WebSockets** into a pipeline that transcribes speech, **detects technical terms locally** and infers the subject.
- Ensured reliability with **automatic provider failover**, **155 unit tests and 20 end-to-end Playwright tests**.

Tech: *React 19, TypeScript, Node.js, Fastify, WebSockets, LLMs (Groq, Cerebras), Sarvam AI, Playwright, AWS Lightsail, Caddy*

Urja Setu | Top 50, SSIP Vikas Saptah Hackathon 2025 | Project Page Sep 2025 - Oct 2025

- Fine-tuned a **YOLOv8s object detection model** on a custom dataset for Gujarat's power utility (GUVNL) to detect **seven classes** (electric poles, transformers, insulators, street lights, meters, wiring, vegetation overgrowth).
- Ran detection in a **background thread** for instant uploads, with a **rule engine** that sets the issue type and crew action.
- Built a **headless Django REST Framework backend** with role-based access, serving a **Flutter** citizen app and a **React** technician and admin dashboard with analytics and PDF reports.

Tech: *Python, Ultralytics YOLOv8, PyTorch, Django REST Framework, SQLite, Flutter, React, JavaScript, OpenStreetMap*

BiteKaro | Capstone Project, scored 99/100 | Project Page Jul 2025 - Apr 2026

- Built an **AI-powered self-ordering cafe kiosk** with cart, **Razorpay** payments and loyalty points, and an admin dashboard with sales analytics and **live order updates over Socket.io**.
- Trained a **hybrid recommender** combining Apriori rules, **SVD collaborative filtering** and time-of-day popularity.

Tech: *Python, FastAPI, scikit-learn, SciPy, pandas, Matplotlib, Node.js, Express, Socket.io, PostgreSQL, Tailwind CSS, Razorpay*

ACHIEVEMENTS

National Winner, Smart India Hackathon 2025 (Hardware Edition) | Certificate Dec 2025
Won **INR 1.5 lakh** as the **only Gujarat team among the national winners**, selected from **68,766 teams**, and featured in Ahmedabad Mirror.

5th Place, TetraTHON 2026, Indo-French AI Innovation Sprint, out of **44 finalist teams** | Certificate Aug 2026

Top 50 Finalist, SSIP Vikas Saptah Hackathon 2025, out of **4,000+ teams** statewide | Certificate Oct 2025

National Finalist, HackHound 3.0, SRM IST, Delhi NCR, Certificate of Achievement | Certificate Feb 2025

Selected, Singapore India Hackathon 2026, AICTE and Ministry of Education, event ongoing Oct 2026

TECHNICAL SKILLS

Programming Languages	Python, Java, C, C++, JavaScript, TypeScript, SQL, Bash scripting
Deep Learning	PyTorch, TensorFlow, Keras, CNNs, Fourier Neural Operators
Machine Learning	scikit-learn, Computer Vision, NLP, Ultralytics YOLOv8, OpenCV, recommender systems
LLMs and APIs	Large Language Models, Gemini API, Groq API, LangChain, AI agents, prompt engineering
Backend	Django, Django REST Framework, FastAPI, Flask, Node.js, Express, Fastify, Celery, Kafka
Frontend	React, Tailwind CSS, HTML, CSS, WebSockets
Databases	PostgreSQL (pgvector), MySQL, SQLite, MongoDB, Redis, Elasticsearch
Cloud and DevOps	AWS, DigitalOcean, Docker, GitHub Actions, Caddy, Linux, Kaggle
Automation and Low-Code	n8n, Power Apps, Power Automate, Dataverse, SharePoint, Dynamics 365
Scientific Computing	NumPy, pandas, SciPy, Matplotlib, ObsPy, SeisBench
Hardware and IoT	Raspberry Pi, ESP32, sensor integration
Spoken Languages	English, Hindi, Gujarati, German (currently learning)

CERTIFICATIONS

Oracle Cloud Infrastructure 2025 Certified AI Foundations Associate, Oracle | Certificate Nov 2025
Django Advanced Mastery: Kafka, Celery, Redis, Elasticsearch & Beyond, Codekeen | Certificate Feb 2026
Agile Scrum Master, Simplilearn | Certificate Jul 2026
IDE Bootcamp Edition 3, Phase 1, MoE's Innovation Cell and AICTE | Certificate Apr 2026
Pitched Coast Scan to the jury at this five-day residential bootcamp at GITAM Bengaluru. Coast Scan is incubated at GLS LEAF.

LEADERSHIP AND ACTIVITIES

- **Co-founder, Ink and Imagination** club, and organiser of **ECHO**, the department's first literary event, for **300+ students**.
- **Coordinator, CyberShadez**, a national-level technical event of the B.Tech CSE department, GLS University.
- **Techno Games Champions**, GLS Youth Festival 2026, **1st in Treasure Hunt** (404: Treasure Not Found), **2nd in Binary Battle**.
- **IEEE Student Member.**