

Aryan Patel

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EDUCATION

Jabalpur Engineering College

Bachelor of Technology – Artificial Intelligence and Data Science

Standing: Second Year (Sophomore)

Jabalpur, MP

Aug 2025 – Jun 2029

Stemfield International School

Higher Secondary Education – PCM + Computer Science (CS)

Jabalpur, MP

Apr 2011 – Mar 2025

TECHNICAL SKILLS

Programming Languages: Python, C, C++, Java, Go, JavaScript, TypeScript, R

Backend Engineering: FastAPI, REST APIs, WebSockets, WebRTC, SQLAlchemy

Databases & Caching: SQL, PostgreSQL, MySQL, MongoDB, Redis

Machine Learning & Data Science: PyTorch, TensorFlow, XGBoost, Scikit-learn, NumPy, Pandas

Cloud & DevOps: AWS, Docker, Kubernetes, GitHub Actions

Systems & Tools: Linux, Bash, Git, GitHub

PROJECTS

NeuralFabric: Machine Learning Framework from Scratch | *Python, NumPy*



- Built a modular machine learning framework from first principles using Python and NumPy, implementing tensor operations, reverse-mode automatic differentiation, and foundational regression models.
- Developed numerical-gradient tests with Pytest to validate autograd correctness, enforced static typing with MyPy, and structured the project for open-source distribution with modern Python packaging and GitHub Actions.

DoorDarshan: Real-Time Video Conferencing Platform | *FastAPI, WebSocket, WebRTC*



- Engineered a real-time video conferencing platform using FastAPI, WebSockets, and browser-native WebRTC for live audio/video communication, screen sharing, and peer signaling.
- Implemented JWT-authenticated meeting rooms, participant management, in-meeting chat, and meeting scheduling with PostgreSQL persistence using SQLAlchemy and Alembic.

Kryptika: Blockchain in Pure Python | *ECDSA, P2P, HTTP*



- Implemented a blockchain from scratch in pure Python, covering SHA-256 hashing, Proof of Work, ECDSA-signed transactions, transaction validation, and longest-chain consensus.
- Engineered P2P networking, persistent mempool and blockchain storage with SQLite, thread-safe HTTP communication, and a browser-based dashboard with a visual chain explorer.

Timeless: Decoder-Only Transformer Language Model | *PyTorch, Transformers*



- Built a decoder-only Transformer language model from scratch in PyTorch, implementing tokenization, causal self-attention, multi-head attention, residual connections, and normalization.
- Developed an end-to-end LLM workflow covering pretraining on unlabeled text, model checkpointing, text-classification fine-tuning, and instruction tuning for downstream tasks.

AdityaL1-MAG: Solar Magnetic Field Analysis | *Python, Signal Processing*



- Developed a data-analysis pipeline for ISRO's Aditya-L1 MAG observations, including data ingestion, filtering, and visualization of spacecraft magnetic-field measurements.
- Performed magnetic-field characterization and exploratory analysis to identify patterns and variations in the observed environment.

CERTIFICATIONS

Machine Learning Specialization | *DeepLearning.AI, Stanford University*

Jul 2026

- Completed coursework covering supervised learning, neural networks, model optimization, and regularization.

Python for Data Science (Elite + Silver, Top 2% Topper) | *NPTEL, IIT Madras*

Oct 2026

- Earned the Elite + Silver certification with an 85% score, ranking among the top 2% of candidates nationwide in NPTEL's Python for Data Science course offered by IIT Madras.

AWARDS & HONOURS

Finalist, RAGNAROK Hackathon | *Google Developer Groups (GDG)*

Jan 2026

- Selected as a finalist in a competitive hackathon for technical problem-solving and rapid project development.