

# SOFIA FATIMA

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## PROFESSIONAL SUMMARY

Backend Developer and AI Engineering student with a strong focus on building production-ready machine learning models and scalable data pipelines. Hands-on experience architecting custom PyTorch neural networks—recently reducing predictive error by 51% in a geosteering application—and deploying generative AI workflows using the Gemini API. Skilled in bridging complex ML logic with robust Node.js and PostgreSQL backends to ship reliable, high-performance software.

## EDUCATION

**Vidya Jyothi Institute of Technology (VJIT)**  
*Bachelor of Technology in Computer Science (AI & ML)*

Hyderabad, India  
Aug 2023 – May 2027

Current CGPA: 8.59/10.0

**Core Competencies:** Data Structures & Algorithms (DSA), Machine Learning Systems, Database Management Systems (DBMS), Advanced Object-Oriented Design (OOD)

## TECHNICAL PROJECTS & ARCHITECTURES

### Subsurface Geosteering AI (rogii-geology-prediction)

May 2026 – Present

*Tech Stack: PyTorch (1D-CNN), Python, Sequential Data Optimization, Scikit-Learn*

- Architected a custom end-to-end **1D-Convolutional Neural Network (1D-CNN)** to automate structural interpretation during horizontal drilling, dropping vertical prediction error (**RMSE**) by **51%** (from 29.4ft to 14.25ft).
- Implemented memory-downcasting pipelines to maximize processing efficiency by **50%** and engineered automated signal restoration frameworks using dynamic linear interpolation for real-time sensor gap mitigation.

### Provia: Sovereign Skill Verification Engine (provia-platform)

Sep 2025 – Nov 2025

*Tech Stack: React.js, Headless JSON API, GitHub REST API, Firebase, GitHub Actions, Three.js*

- Designed a headless portfolio verification engine that mitigates credential inflation by running live repository tracking audits and structural documentation integrity checks directly through the GitHub API.
- Engineered a high-performance custom data delivery flow via an optimized headless endpoint layout alongside a dual-theme UI engine running real-time 3D particle processing in Three.js.
- Constructed structural CI/CD validation patterns in GitHub Actions that isolated environment handoffs and successfully lowered production build failures by **40%**.

### Nano-Mirror AI: Neuro-Minimalist ARC Solver (nano-mirror-ai)

May 2026

*Tech Stack: PyTorch, Neural Architecture Optimization, Custom Convolutional Kernels*

- Pioneered a specialized ultra-lightweight reasoning architecture exploiting weight grafting and sparse convolutional layers to complete discrete configuration adjustments under strict sub-1000 parameter limits.
- Attained a definitive **100% structural validation accuracy** on target ARC-AGI spatial baseline parameters by entirely bypassing conventional high-parameter black-box modeling inefficiencies.

### Nova: Ambient Spatial Audio Instrument (nova-instrument)

May 2026

*Tech Stack: Computer Vision, Spatial Audio Processing, Node.js, Frontend Engine UI*

- Formulated a touchless input platform combining custom camera-driven computer vision coordinate tracking arrays with real-time positional spatial audio generation pipelines.
- Optimized low-latency stream analysis structures to match real-time hand coordinates directly against dynamic environmental lighting engines, bypassing webcam visual backgrounds completely.

### Vidyut: Automated AI Learning Matrix (vidyut)

Apr 2026

*Tech Stack: Flutter, Gemini API, Advanced Prompt Engineering, Firebase Backend*

- Created a cross-platform educational workspace utilizing dynamic prompt-chaining engines to digest arbitrary raw concepts into highly structured, contextually complete learning paths.
- Configured isolated context-window states and real-time structured schema bindings through the Gemini LLM interface to guarantee zero context-drift across state handoffs.

## ACHIEVEMENTS & EXTRACURRICULARS

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- **Competitive Programming:** Ranked top 15% globally on LeetCode (1684 rating), actively solving 250+ algorithmic challenges in Python and SQL.
- **Hackathons:** Experienced in rapid prototyping and full-stack development through active participation in multiple national-level 24-hour tech hackathons.
- **Technical Research:** Authored a comprehensive research paper detailing the architectural framework of an automated 'Smart Car Parking System'.
- **Leadership:** Directed team communications and public affairs initiatives as the Head of Public Relations for Street Cause.

## TECHNICAL SKILLS

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**AI & Core Engineering:** PyTorch, Computer Vision (OpenCV), Sequential Feature Engineering, Weight Grafting, Custom 1D-CNNs, Deep Learning, Scikit-Learn, Pandas

**Software Systems & Architectures:** Node.js, React Native, React.js, Flutter, SQL (PostgreSQL, Indexing, ACID Compliance), Firebase, Snowflake Architecture, RESTful APIs

**Infrastructure & Verification:** Git/GitHub Version Control, CI/CD pipelines (GitHub Actions), Docker, Cloud Computing Architecture, Linux Toolchains, Automation Engines

## PROFESSIONAL CERTIFICATIONS

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**Microsoft & LinkedIn Learning:** Career Essentials in Generative AI, Career Essentials in Software Development, Foundations of Coding Front-End, Create Machine Learning Models in Microsoft Azure

**Google Cloud & Security Tools:** Introduction to Generative AI, Foundations of Cybersecurity, Crash Course on Python

**Cisco Networking Academy:** Partner: PCAP – Programming Essentials in Python, Partner: CLA – Programming Essentials in C, Python Essentials 2, Industrial Networking Essentials, Data Analytics Essentials, Networking Basics

**Enterprise Platforms & Foundations:** Meta React Native Professional Specialization (In Progress), Intro to Snowflake for Devs, Data Scientists, Data Engineers, IBM Introduction to AI, IBM Introduction to DevOps