



EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2028	B.TECH	IIT Kharagpur	9.14 / 10
2024	Board of Intermediate Education	Tirumala Junior College	98.7%
2022	Board of Secondary Education	Tirumala Proactive (EM) High School	95%

INTERNSHIPS

Software Development Intern | Asandevnest, Remote Jun 2025 - Sep 2025

- Automated bulk Email (SMTP) and WhatsApp (Selenium, PyWhatKit) outreach via Streamlit dashboard with **500+ messages/hour**
- Engineered event-driven **N8N + Apify** workflows for Instagram lead scraping and multi-channel marketing automation at scale

PROJECTS

Multi-Agent IPL Auction Simulation | Research Project | LangChain , Auction Dec 2025
under Prof. Pawan Goyal, IIT Kharagpur

- Built 5-node **LangGraph** pipeline with 10 **DeepSeek-V3.1** franchise agents simulating IPL 2026 mini-auction over **370+** players
- Implemented greedy sequential bidding with structured reasoning prompts and **Pydantic** outputs; **36.4%** real-auction overlap
- Designed **AI Reasoner** generating per-player purchase rationales to suppress hallucination across subsequent agent bids

MATNETS: Matrix-Neuron Neural Networks | Personal Project | JAX, Neural Network Design Mar 2026 - Present

- Developed a JAX library redefining the neuron as an **$n \times n$ matrix**, replacing scalar weighted sums with **matrix-product** ops
- Designed novel **determinant-gated** and **determinant-scaled** activation families operating on matrix geometry, not scalars
- Built matrix-native determinant-weighted pooling and embedding layers; lifted test accuracy from **98.2% to 98.9%** on MNIST
- Architected matrix-valued **LSTM/GRU** gates and **Frobenius-scored Attention** across all layer families with compiled unrolling
- Matched standard **CNN** accuracy at **$\sim 0.33x$ parameters**; shipped as a pip-installable **PyPI** package with JAX and Flax support

NERVI: Intel NPU LLM Inference Ecosystem | Personal Project | Go, Python, OpenVINO, LLM Serving Jun 2026

- Built LLM inference platform on Intel NPU, hardware Ollama ignores, achieving **13.1 tok/s** on **DeepSeek-R1-1.5B** with **no GPU**
- Owned the **full AI stack** solo: **QLoRA** fine-tuning, **INT4 quantization**, OpenVINO conversion, NPU compilation, live inference
- Fine-tuned 4 LLMs on synthetic data for NERVI's tool-call protocol; published **5 NPU-ready INT4 checkpoints** to HuggingFace
- Published npuserver to **PyPI**: **OpenAI-compatible** server with **NPU SRAM lifecycle** (available, downloaded, compiled, active)
- Built **subprocess-isolated** extension system (stdio IPC, tool/menu modes) with Go CLI achieving **sub-35ms startup**

Electric Charge Distribution | Personal Project | Numpy, Pandas Jul 2025

- Constrained gradient descent over **10,000 Fibonacci-lattice** points; neutrality enforced via **mean-centred gradient projection**
- Multi-stage LR schedule + **L2 regularization** achieving **$\sim 97\%$** similarity accuracy against exact Legendre series solution
- Precomputed distance matrix to eliminate **quadratic recomputation** cost and deployed interactive Plotly 3D live demo

ENIGMA: Custom File Encryption | Personal Project | Python, C++17, Streamlit, Cryptography Jul 2025 - Dec 2025

- Custom **C++17** password hashing with pybind11 Python bindings, GIL release, and **parallel encryption** at **50 MB/s** on 4 threads
- Published **cross-platform** wheels to PyPI (Windows/macOS/Linux, Py 3.10-3.14) with **cibuildwheel** CI/CD; sub-100ms at cost-10

COMPETITION/CONFERENCE

KDSH Hackathon | Finalist Jan 2026

- Shortlisted top 15 across 1000+ teams; secured **Rank 8** in finals with **0.77** accuracy on **RAG** pipeline over **100K+** word novels
- Decomposed backstories into **atomic claims** via CoT prompting; spaCy dependency parsing for pronoun resolution and filtering
- Iterative falsification loop** with LLM negation retrieval and reranking; ablations show **1.56x** accuracy and **2.5x F1** improvement

SKILLS AND EXPERTISE

- Languages:** C/C++, Python, Go, JavaScript, Typescript, HTML/CSS, OCaml
- Frameworks & Libraries:** JAX, PyTorch, TensorFlow, NumPy, Pandas, Matplotlib, LangGraph, React
- Tools & Technologies:** Git, Linux, REST APIs, N8N, Streamlit, AWS, LaTeX
- Areas of Interest:** Machine Learning, Deep Learning, Reinforcement Learning, Multi-Agent Systems, Small Language Models, Large Language Models, Neural Network Architecture Design, Convolutional Neural Networks

COURSEWORK INFORMATION

Major : Algorithms - I* | Programming and Data Structures* | Systems Programming Laboratory | Programming Paradigms for Computing | Switching Circuits and Logic Design* | Software Engineering*
Mathematics : Probability and Statistics | Linear Algebra, Numerical and Complex Analysis * includes Laboratory Component

AWARDS AND ACHIEVEMENTS

- Achieved Codeforces **Specialist** rating with a peak of **1688** through consistent performance across different rounds
- Secured **Global Rank 206** in Educational Codeforces Round 191 among thousands of participants worldwide
- Secured **State Rank 240** in AP EAPCET 2024 (Engineering) among 2,00,000+ candidates; placed in the **top 0.12%** statewide