

EDUCATION

Indian Institute of Technology Delhi

B.Tech and M.Tech in Computer Science & Engineering, GPA: 9.0/10

Delhi, India

2022 – Present

Modern Delhi Public School

CBSE Class X – 98.6 CBSE Class XII – 96.4%

Faridabad, India

2022

SCHOLASTIC ACHIEVEMENTS

- **JEE Advanced 2022:** Secured All India Rank 196 among 160,000+ candidates, placing in the top 0.1% nationally.
- **JEE Mains 2022:** Achieved All India Rank 811 out of over 1,000,000 candidates, securing a top position nationwide.
- **KVPY Scholar:** Awarded the prestigious national KVPY fellowship, with AIR-162 (SA, 2021) and AIR-148 (SX, 2022).
- **NTSE Scholarship:** Recipient of the National Talent Search Examination scholarship, qualifying both stages in 2021.
- **Semester Merit Prize:** Honored with institute's merit award for securing a GPA in the top 7% in Semester I and V.
- **Department Rank:** Ranked 9th in the department of Computer Science and Engineering at IIT Delhi in 3rd year.
- **SURA Award :** Received the Summer Undergraduate Research Award for research in adversarial machine learning.

INTERNSHIPS

Research Project (SURA), IIT Delhi

Adversarial Defense in NIDS

Delhi, India

May 2024 – Sept 2024

- Worked on adversarial defenses for deep learning-based Network Intrusion Detection Systems like Kitsune.
- Used ART (Adversarial Robustness Toolbox) to implement CV attacks and test transferability.
- Explored adversarial training and randomized smoothing for robust defense.

PROJECTS

- **Gang Scheduler in Linux Kernel:** Implemented a custom scheduler for tightly-coupled multithreaded processes, introducing new system calls for gang registration, exit, and listing. Designed a gang governor thread to coordinate synchronized execution across CPU cores via IPIs.
- **Sparse Matrix Multiplication:** Built a high-performance block-sparse multiplication pipeline in CUDA & OpenMP, achieving up to 1000× speedup. Designed Block-CSR matrix transformations and exploited CUDA streams for parallel high-throughput multiplication.
- **Stock Trading Website & Strategies:** Created a Flask-based stock trading simulator pulling real-time data from 100+ NSE stocks. Implemented and tested regression, technical indicators, and pair trading strategies in C++ with optimized PnL management.
- **AI Game Agent:** Developed a Monte Carlo Tree Search-based AI agent for the game Havannah. Integrated dynamic rollout allocation, phase-aware strategies, and optimized heuristics for efficient win detection and gameplay.
- **Petrichor – Mental Health Game:** Designed and built a narrative RPG game in Pygame to represent recovery from depression. Combined pixel-art graphics (via DALL-E & SDXL2) with a Visual Novel style story and RPG mechanics for engaging gameplay.

SKILLS

Languages: C/C++, CUDA, OCaml, Prolog, SQL, RISC-V/Assembly, VHDL, Java, JavaScript

Tools: PyTorch, TensorFlow, Flask, Docker, Git, Hugging Face, Ollama, WireShark, Bash, Lex/Yacc, Logisim

EXTRA-CURRICULAR ACTIVITIES

- **Hackathons & Competitions:**
 - **Tower Data Challenge:** Second Runner-up — solved a modified Blackjack simulation using Random Forest models.
 - **Major Hackathons:** Champion at Tredence Hackfest, Winner at Speranza Hackathon, Runner-up at CodeCrusaders.
 - **Data Science Contest:** Runner-up at F1NALYZE Datathon by forecasting Formula 1 race outcomes.
- **Industry Exposure:** Selected among top 20 IIT students for Tower Limestone Office visit (Gurgaon) and among top 90 nationwide for Optiver's Mumbai workshops on trading & market-making.
- **Positions of Responsibility:** Served as Research & Development Executive at Blockchain Society, IIT Delhi (2023–24).