

Aditya Bora

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Education

Thapar Institute of Engineering and Technology

B.E. in Computer Engineering with a current CGPA of 7.35

September 2022 – Present

Patiala, Punjab

Tagore International School

All India Senior School Certificate Examination (CBSE) (94.4%)

April 2021 – May 2022

New Delhi

Experience

DRDO, SAG | Deep Learning, Cryptanalysis, Python, TensorFlow, NumPy

June 2025 – July 2025

Research Intern

New Delhi

- Conducted foundational research in deep learning under the guidance of a senior 'F' Scientist, focusing on ANN and CNN architectures to establish a performance benchmark for a novel statistical distinguisher.
- Engineered a data pipeline in Python and TensorFlow, which involved implementing the 31-round PRESENT cipher, ensuring its 100% accuracy through test vector validation, and producing a three-class dataset of 300,000+ samples.
- Currently authoring a research paper for publication that contributes a novel, ML-based cryptanalysis, detailing how tuned ANN, CNN models and fine-tuned hyperparameters can detect patterns with subtle S-Box modifications.

Newgen Software | Java, Spring Boot, REST APIs

June 2024 – July 2024

Backend Developer Intern

New Delhi

- Gained hands-on experience in microservices development using Spring Boot under the guidance of experienced developers, as a part of the 'Software Engineer Enablement Program.'
- Developed and deployed a RESTful Spring Boot application as a PoC, implementing HTTP request handling, data retrieval endpoints, and a custom validation framework to ensure data integrity and efficient data management.

Projects

AI-driven Adaptive Noise Cancellation system | Python, TensorFlow, NumPy, CRNN, Librosa

Ongoing

- Developing and training CRNN for a real-time sound event detection task, designed to differentiate snoring sounds from other essential sounds like speech or alarm.
- Engineering a deep learning-based audio framework on Raspberry Pi 4 that leverages a neural network classifier with DSP techniques and beamforming for intelligent noise suppression, targeting 50-60% noise reduction with 200 ms system latency through full-stack optimization.

Multi-threading based ETL System [🔗] | Python, TensorFlow, NumPy, Matplotlib

February 2025

- Optimized MongoDB data ingestion by 15% against bulk methods by engineering a multithreaded ETL pipeline, validating the architecture with comparative benchmarking and Matplotlib visualization.
- Reinforced the pipeline with autonomous error handling for duplicate records, ensuring 100% data integrity and uninterrupted workflow execution.

Position of Responsibility

Lead Guitarist, SUR TIET

September 2023 – Present

- Led the college band in several inter-college competitions across India, winning competitions like 'Battle of Bands' against 15+ participating teams.
- Drove student engagement and boosted the society's visibility across college by performing at key campus events, most notably the 'Mudranite', a cultural event with 1000+ attendees.

Executive Member, Echoes TIET

November 2022 – January 2024

- Coordinated operational logistics and media coverage for 'Cascade', the society's flagship event having 150+ attendees.
- Led the media coverage team in covering high-profile university functions, including the annual convocation and exclusive alumni interviews.
- Applied and strengthened leadership, teamwork, and problem-solving skills in high-pressure environments.

Technical Skills

Languages: Python, C++, JavaScript

Frameworks & libraries: TensorFlow, Keras, NumPy, Pandas, Matplotlib, Spring Boot, React, Node.js

Databases & Web Technologies: SQL, MongoDB, REST APIs, HTML/CSS

Developer Tools: Git, GitHub, Postman, VS Code

Core Knowledge: Data Structures & Algorithms, Machine Learning, Deep Learning, NLP, Object-Oriented Programming

Co-curricular Highlights

- Led coordination of auditions and event logistics for the cultural fest 'Izhaar' as the Year Representative of the Mudra Society, collaborating with a 50+ member team.
- Earned a coveted position in TIET's most prestigious and long standing technical society.