Aditya Bora

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Education

Thapar Institute of Engineering and Technology **September 2022 – Present**
B.E. in Computer Engineering with a current CGPA of 7.35 *Patiala, Punjab*

Tagore International School **April 2021 – May 2022**
All India Senior School Certificate Examination (CBSE) (94.4%) *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, on ANN and CNN architectures and fine-tuned hyperparameters 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.

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**

- Designed and trained a CRNN model for real-time snore detection, using spectrogram and MFCC features to capture spatial-temporal patterns, achieving high accuracy in distinguishing snoring from essential sounds such as speech.
- 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 3000+ 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.

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.

Manuscripts Under Review

[C] Detectability of Subtle S-Box Modifications in the PRESENT Cipher using Machine Learning Classifiers

Unnati, **Aditya Bora**, Girish Mishra
Submitted to Proceedings of ICMC 2026 (Under Review) **[ICMC 2026]**