# ADITYA TOMAR

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## Education

| **Thapar Institute of Engineering and Technology** | **8.41** |
|---|---|
| *Bachelor of Engineering in Computer Engineering* | *2021-2025* |

| **Delhi Public School Rajnagar** | **97.0%** |
|---|---|
| *All India Senior School Certificate Examination, CBSE* | *2021* |

| **Delhi Public School Rajnagar** | **99.4%** |
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| *All India Secondary School Examination, CBSE* | *2019* |

## Experience

**LG Electronics India Private Limited** — June 2024 – August 2024
*Data Scientist & ML Intern* — *Noida, Uttar Pradesh*

- Conducted a study to find the optimal script to **scrape data** using different techniques (**Beautiful Soup & Selenium**) for **5** products categories(TV, Refrigerator, Monitor, AC & Washing Machine) across **4** e-commerce website(LG, Samsung, Flipkart, & Amazon) , reducing time taken by script from **12 mins to 3 mins**.
- Developed a **custom tokenizer**, implementing tokenization, vocabulary mapping, & sequence generation which resulted in a 20% increase in sequence generation accuracy and a **30%** reduction in inference time through optimized tensor operations and model architecture.
- Trained a **custom T5 model** using gradient accumulation & mixed precision training. Achieved a **40%** improvement in training efficiency & reduced model training time by **25%** on a dataset of **25,75,000 sequences**. Utilized techniques such as **GradScaler** & **AutoCAST** to optimize memory usage & computational performance.

## Projects

**Banking Management System** | *MySQL, Oracle Live [ PL/SQL ]* — **March 2023**

- Composed a comprehensive **database manager** for handling account and transaction details of customers and employees, improving data integrity and streamlining user queries across over **1,000,000 records** and **50+ tables**.
- Created and implemented **PL/SQL** procedures and constraints, reducing data redundancy by **40%** and improving query execution time by **25%**. Optimized the database structure by restructuring it to **BCNF** which improved data retrieval speed by **40%** and reduced storage costs by **25%**.
- Automated the insertion, updation, & deletion of records related to account management, transaction processing, & loan handling. This resulted in a **30%** reduction in manual data entry errors & a **40%** improvement in processing speed.

**Network Intrusion Detection** | *Google Collab [ Pandas, Numpy, Optuna, Scikit-learn ]* — **September 2023**

- Designed a pipeline using Python libraries to preprocess data, select features, and perform hyperparameter optimization across **12 models**, processing over **10,000 data points**.
- Conducted extensive experiments, achieving high test scores for models: KNN 94.6, Logistic Regression 93.2, Decision Tree 90.4, Random Forest 95.8, Gradient Boosting 94.0, XGBoost 94.8, LightGBM 94.3, AdaBoost 93.8, CatBoost 94.5, Naive Bayes 88.7, SVM 94.1, and Voting Classifier **95.9**, optimizing hyperparameters over **30 trials** for each model.

**Image Resolution Enhancement** | *Google Collab [ Numpy, PIL, Tensorflow ]* — **October 2023**

- Implemented a pipeline using TensorFlow to enhance **medical images**, successfully processing images from **704x480** to super-resolved outputs **2816x1920** in under **3 seconds** per image.
- Applied **ESRGAN** to improve image resolution by a factor of **4**, achieving a **PSNR score of 37.06** on **DIV2k dataset**, resulting in significantly clearer and more detailed images.

## Skills

**Programming Languages**: C, C++, Python & PL/SQL.
**Development & Framework**: Git and GitHub.
**ML & Data Science**: Pandas, Matplotlib, Seaborn, Numpy, Optuna, Sklearn, PIL, Pytorch, Tensorflow & Transformers.
**Soft Skills**: Communication, Problem-solving, Critical Thinking, Attention to Detail, Collaboration & Adaptability.

## Coursework

- Data Structures
- Object Oriented Programming
- Design & Analysis of Algorithms
- Machine Learning
- Artificial Intelligence
- Software Engineering
- Database Management Systems
- Data Science & its Applications
- Financial & Derivative Markets

## Leadership

**Entrepreneurship Development Cell** | *EDC TIET*

- ∗ Worked with a team of over 150+ students, coordinated and effectively communicated to hold events successfully.
- ∗ Helped organizing one of the main annual events held at campus i.e. E-summit by arranging sponsors.