Arannav Saxena

B.Tech CSE (AIML) Student | Machine Learning Enthusiast
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Profile Summary

B.Tech CSE (AIML) student with practical experience in Python, TensorFlow, PyTorch, and Scikit-learn. Proficient in constructing machine learning models, convolutional neural networks (CNNs), and natural language processing (NLP) apps such as transformers and retrieval-augmented generation (RAG). Experienced in creating LangChain-based multi-agent systems, data pipelines, and audio classification tasks. Actively involved in Kaggle competitions and research-based AI projects, with a keen interest to implement AI solutions in various domains and a quick-learning attitude.

Education

B.Tech in Computer Science Engineering, Ajay Kumar Garg Engineering College, Ghaziabad *Expected Graduation: 2027*
CGPA: 7.85/10 (Up to 3rd Sem)

Senior Secondary (Class XII), Dewan Public School, Meerut *2023*
Percentage: 93%

Secondary (Class X), Dewan Public School, Meerut *2021*
Percentage: 96%

Skills

- **Programming Languages:** Python, C++, C
- **Machine Learning:** Supervised Learning, Feature Engineering, Linear and Logistic Regression, PyTorch, Tensorflow
- **Deep Learning:** Convolutional Neural Networks (CNNs), TensorFlow
- **Natural Language Processing:** LLMs, Transformers
- **Data Science Tools:** Pandas, Scikit-learn, NumPy
- **Development:** HTML, CSS, Flask
- **Audio Processing:** Librosa, Mel Spectrograms, Audio Classification
- **Platforms:** Jupyter Notebook, Google Colab, GitHub, Kaggle
- **RAG(Retrieval Augmented Generation):** LangChain, LangGraph, LLM ops, Prompt Engineering, Context based Engineering, Vector Database

Projects

Multi-Agent AI System (LangChain + LLM)
Developed a system based on LangChain with three agents — Classifier, Email, and JSON Agent — to scan and summarize various file types. Retrieved metadata such as sender, intent, and urgency and saved outputs in a structured SQLite database using LLM models for natural language purposes.

RAG Agent
I have made an RAG Agent and provided it knowledge of the stock market. I have used Langchain to make it. It uses Chroma DB to store the embedded data.

Drum Notation Generator
Created a Drum notation generator based on XGBoost and Librosa to transcribe percussion audio to drum pad notation. Trained on self-created drum loops and utilized Librosa for feature extraction from audio.

Hand Gesture PDF Controller
Created a gesture interface based on OpenCV and Mediapipe for PDF navigation. Provided features such as page turn, zoom, and word search through webcam input — aimed at accessibility and presentations.

Kaggle Podcast Prediction (Playground Series)
Completed a regression competition to forecast podcast ratings based on metadata. Built features and developed an XGBoost model, with competitive performance in the public leaderboard.

Courses & Certifications

Intro to Machine Learning, Kaggle
Understood model construction via Scikit-learn, pipelines, and validation techniques. Did hands-on exercises with real-world datasets.

Supervised Machine Learning, Coursera by Stanford University (Andrew Ng)
Covered linear/logistic regression, decision boundaries, and gradient descent with hands-on assignments using Python.

Feature Engineering Course, Kaggle
Learned sophisticated feature engineering methods like one-hot encoding, binning, interaction terms, target encoding, and mutual information analysis to enhance model accuracy and interpretability.

Pandas Course, Kaggle
Acquired hands-on experience with data wrangling with Pandas — including filtering, grouping, aggregation, reshaping, and missing values handling on actual datasets.

Audio Signal Processing for Machine Learning, YouTube by Valerio Velardo (The Sound of AI)
Learned about the basics of audio preprocessing, Mel spectrograms, and classification through online tutorials and implemented them in a CNN-based Raag Classifier.