Aksh Agrawal

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Summary

Aspiring Data Scientist with strong foundations in Machine Learning, Deep Learning, Data Mining, and Statistical Analysis. Skilled in Python, SQL, and PyTorch with hands-on projects in data modeling, data visualization, and AI deployment using Flask. Experienced in data preprocessing, predictive modeling, and research in robotics automation.

Education

Vellore Institute of Technology, B. Tech. in Electronics and Communication Engineering — Aug 2023 – Jul 2027

- **GPA:** 8.7/10
- **Relevant Coursework:** Data Structures & Algorithms, Probability & Statistics, Machine Learning, DBMS

Technical Skills

Languages: Python, Java

Libraries & Frameworks: NumPy, Pandas, Matplotlib, Seaborn, scikit-learn, TensorFlow, PyTorch, Flask

Databases & Platforms: MySQL, Git, Jupyter Notebook, Google Colab

Data Science & AI: ML, Deep Learning & Neural Networks, LLMs, RAG

Experience

Research Intern, IIT Indore — May 2025 – Jun 2025

- Simulated UAV dynamics in MATLAB Simulink using Euler's angle–based control models.
- Enhanced path planning by tuning control parameters and extending to multi-drone coordination.
- Applied concepts from **control theory** and **algorithm development** to optimize UAV trajectories.
- **Technologies:** MATLAB, Simulink

Projects

Flood Segmentation using U-Net — Data-Set

- Implemented a U-Net model in PyTorch for aerial flood segmentation, achieving **IoU = 0.84** and **Dice = 0.87**, improving accuracy by ∼15% over baseline CNNs.
- Reduced preprocessing errors by 20% using augmentations (resizing, normalization, flipping), improving model generalization.
- **Technologies:** Python, PyTorch, Torchvision, NumPy, Matplotlib, Google Colab (GPU)

RAG-based AI Teaching Assistant — Sep 2025

- Designed a Retrieval-Augmented Generation chatbot, increasing document retrieval accuracy by 25% compared to baseline keyword search.
- Deployed via Flask, enabling students to query **100+ documents** with improved accuracy and real-time responses.
- **Technologies:** Python, LangChain, LLMs, Flask, MongoDB

Coders of Delhi – Data Analysis Project — Jul 2025

- Analyzed **50k+ records** using Pandas and SQL, uncovering **3** key business insights that improved decision-making efficiency.
- Automated preprocessing pipeline, reducing data cleaning time by 30% and improving dashboard accuracy.
- **Technologies:** Python, Pandas, NumPy, SQL, Matplotlib, Seaborn

Achievements & Leadership

Core Member, IEEE Computer Society VIT Chapter — Mar 2024 – Sep 2025

Participant, 3rd BU x Berkeley SkyDeck Program, Bangkok University — Mar 2025 | Certificate