ADITYA RAJAN

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EDUCATION

University of Illinois at Urbana-Champaign Expected May 2026
Bachelor of Science in Statistics & Computer Science GPA: 3.93/4.00 (Dean's List Fall 2024)

Relevant Coursework
Data Structures, Computer Architecture, System Programming, Artificial Intelligence, Probability & Statistics

TECHNICAL SKILLS

Programming Languages: C++, C, Python, Rust, Java
Frameworks/Tools: Git, Docker, VSCode, Android Studio
Libraries: TensorFlow, Scikit-learn, PyTorch, OpenCV, NumPy, Pygame, Clap, Tokio

EXPERIENCE

Madhya Pradesh State Electronics Development Corporation Bhopal, M.P. India
Machine Learning Intern May 2024 – June 2024

- Analyzed family registration data to integrate registration processes with the state government's Single Citizen Database (*Samagra ID*) for 24+ million registered citizens
- Implemented video-based KYC for the ongoing *Samagra* e-KYC project using machine learning in Python
- Automated state and national ID linking for state citizens, improving data processing efficiency

Madhya Pradesh State Knowledge Management Centre for Climate Change Bhopal, M.P. India
Data Science Intern June 2022 –July 2022

- Analyzed climate data and its impact on different sectors across the state (agriculture, public health etc.)
- Conducted EDA of regional climate trends using Python, increasing trend prediction accuracy by 40%.

PROJECTS

CRISPR-Cas9 Off-Target Prediction Tool (Python – Scikit-learn, Pandas, NumPy etc.) January 2025

- Engineered a **data analysis pipeline** to process 340,000+ gRNA sequences, optimizing feature extraction for GC content, edit distance, etc.
- Achieved 98% accuracy and 0.96+ ROC-AUC scores by developing predictive ML models (**Logistic Regression, XGBoost, Transformer**).
- Implemented sequence-to-numeric transformations (one-hot encoding) natively to retain critical sequence information

Network Port Scanning CLI Tool (Rust – Clap, Tokio) May 2024 – June 2024

- Developed a high-performance, nmap-like CLI tool to scan network ports (TCP, HTTP, etc.), enhancing diagnostic efficiency.
- Leveraged **multithreading** & **asynchronous coding**, achieving 30% faster scan times compared to traditional methods
- Integrated robust logging and error-handling mechanisms, ensuring seamless UX and improved fault tolerance

A* Search Algorithm Visualiser (Python – Math, Pygame) Aug 2023 – Sept 2023

- Developed an interactive visualization tool for A* Search Pathfinding Algorithm in Python
- Implemented **A* Graph Traversal** to find the Single-Source Shortest Path (SSSP) in a user-generated maze-like graph, with sub-second search times on average
- Recorded mouse events & built responsive UI elements with the Pygame library

COVID-19 Facemask Detection Tool (Python – NumPy, OpenCV, Scikit-learn) April 2023 – June 2023

- Developed a ML-based facemask detection tool, achieving accuracies of ~96% using **Support Vector Machines**
- Optimised data preprocessing with **Principal Component Analysis** (PCA), reducing data dimensionality by 80%
- Utilised OpenCV to handle computer vision, real-time webcam input and supplementary data collection