ADITYA KUMAR MISHRA

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EDUCATION

Siddaganga Institute of Technology   Tumkur, Karnataka
Bachelor of Engineering in Computer Science (CGPA: 8.63/10)   *Dec 2021 – Jul 2025*

TECHNICAL SKILLS

Languages: C++, Python, Java, SQL,
Web/API Development: Flask, FastAPI, Express.js, React.js, Next.js
Databases: MySQL, SQLite, Firebase, MongoDB

PROJECTS

NSL-KDD Intrusion Detection System | *Python, Scikit-learn, XGBoost, Kaggle*   Github
- Problem: Detecting malicious network traffic is critical, but traditional IDS models often fail to generalize well on imbalanced datasets like KDD'99.
- Solution: Developed a machine learning-based intrusion detection system using the NSL-KDD dataset. Implemented a stacking ensemble with Random Forest, Gradient Boosting, and XGBoost as base learners, and Logistic Regression as a meta-learner.
- Uniqueness/Impact: Achieved 79.3% accuracy and balanced detection across normal and attack traffic classes by leveraging ensemble learning and robust preprocessing techniques.

PDF AI Chat Reader | *LangChain, FastAPI, Gemini API, Pinecone, Docker*   Github
- Problem: Static PDFs limit users from extracting contextual answers from large documents.
- Solution: Developed a conversational RAG-based document reader using LangChain and Gemini-1.5-flash models with vector embeddings stored in Pinecone.
- Uniqueness/Impact: Improved response accuracy to 92%, reduced hallucinations by 30% through prompt tuning.

Intelligent Coconut Farming System | *React.js, Flask, ML models, MQTT, Jetson Nano*   Github
- Problem: Traditional coconut farming lacks tools for yield forecasting, disease detection, and precision crop planning.
- Solution: Built a distributed IoT-based precision farming system using real-time sensor data over MQTT with edge analytics.
- Uniqueness/Impact: Integrated YOLOv11 for coconut counting, MobileNetV2 for disease detection, and XGBoost for crop recommendation, all deployed on Jetson Nano for offline decision-making. Improved yield estimation by 40%.

Real-Time Code Editor | *Next.js 14*   Github
- Problem: Developers lack lightweight, privacy-preserving, browser-native environments for front-end prototyping.
- Solution: Built a real-time code editor supporting HTML, CSS, and JS with live preview and screen-size simulation.
- Uniqueness/Impact: Enabled users to download their code as main.html and re-upload it later to resume editing. No login or server-side storage — ensuring complete code privacy.

SE-Inventory | *Next.js, Prisma, TailwindCSS, MongoDB*   Github
- Problem: Team Soaring Eagle faced difficulties managing UAV parts like motors, batteries, and ESCs across multiple builds.
- Solution: Built a full-stack inventory system with real-time tracking, and secure access using NextAuth and JWT.
- Uniqueness/Impact: Custom-built for UAV teams with Radix UI for responsive design; improved tracking accuracy .

API Tester Web App | *React.js, Express.js, CSS, Axios*   Github
- Problem: Developers often rely on heavyweight tools for basic API testing, which are not browser-native or beginner-friendly.
- Solution: Created a lightweight browser-based API testing interface with real-time request/response rendering and support for all HTTP methods.
- Uniqueness/Impact: Engineered a proxy to securely handle CORS issues and performed UI optimization for large payloads; enabled fast debugging directly from browser.

Achievements

- Solved 900+ DSA problems (C++, Python, Java) on platforms like GeeksforGeeks, Leetcode.

- Ranked 167$^{\text{th}}$ out of 12000+ in Codeforces Round 1016.

- Secured 11$^{\text{th}}$ rank nationally in SAE competition among 150+ teams.

- Qualified for Boeing Aeromodelling final round at Techfest, IIT Bombay.

Personal Skills

- Strong analytical thinking, problem-solving, and system design skills.

- Teamwork, time management, and adaptability to new frameworks.

- Fluent in English, Hindi.

Activities

Team Soaring Eagles | *Technical Lead*

Quest | *Volunteer*