Aditya Dev Singh

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EDUCATION

Indian Institute of Technology Madras   Chennai, TN
BS in Data Science and Application   *May 2022 – Present*
- **Coursework:** Python, Java, Modern Application Development, System Commands, Machine Learning Practice, Modern Application Development 2

Devi Ahilya University   Indore, MP
Bachelor's in Commerce, Major in Computer Application   *Aug. 2018 – Sept. 2021*

EXPERIENCE

Software Research Intern   Sep. 2025 – Present
Deep Algorithms Solutions   *Hyderabad, Telangana, India (Remote)*
- Conducting advanced research in deep learning algorithms and software optimization techniques
- Developing and implementing machine learning models for real-world applications using Python
- Analyzing complex datasets to extract insights and improve algorithm performance

Full Stack Intern   Dec. 2024 – Sep. 2025
Indian Institute of Technology, Mandi   *Himanchal Pradesh (On-site)*
- Focused on deep learning and full-stack software development for organizational projects
- Gained hands-on experience in cutting-edge technologies and modern web development practices
- Applied skills in Python and Full-Stack Development to deliver robust web solutions

PROJECTS

HOMA - UAV Management System | *FastAPI, React, TypeScript, Mapbox GL JS, WebRTC* Sep. 2025 – Present
- Developed a full-stack UAV Management System for fire detection and suppression, coordinating multiple drones
- Built with FastAPI and React/TypeScript for live telemetry, interactive mission planning, and autonomous flight
- Integrated real-time data streaming via WebRTC and WebSocket for video feeds and live drone position updates

DenseSight - Real-time AI Video Streaming | *Flask, WebSocket, FFmpeg, HLS, DeepStream* Aug. 2025 – Sep. 2025
- Developed a comprehensive live video streaming solution with AI-powered object detection overlay for up to 4 camera feeds
- Engineered a WebSocket Server to receive real-time metadata from a DeepStream pipeline via UDP Multicast
- Implemented video delivery using FFmpeg to HLS streaming for low-latency playback in React frontend

Location Tracker Web App | *Flask, Next.js, React, Leaflet, SQLite*   July 2025 – Aug. 2025
- Developed a secure, full-stack Location Tracking Web Application with Flask and Next.js/React
- Enabled user registration, automatic location detection, and interactive coordinate selection on Esri satellite map
- Implemented unique, shareable URLs for coordinate sets using SQLite for data persistence

Crowd Management Dashboard | *Next.js 15, TypeScript, Tailwind CSS, Leaflet, Socket.IO* June 2025 – July 2025
- Created a real-time Crowd Monitoring Dashboard utilizing Next.js 15 and Zustand for state management
- Integrated Leaflet for geospatial visualization and Socket.IO for live data updates on crowd density
- Provided interactive charts and graphs using Chart.js for comprehensive crowd analytics

SightPlus - Geospatial Image Annotation Viewer | *Flask, HTML/JS, Canvas, PIL*   May 2025 – June 2025
- Built a Geospatial Image Annotation Viewer using Flask and pure HTML/JS to display computer vision results
- Features included dynamic scaling, bounding box overlays, and confidence scores
- Visualization of geospatial metadata (GPS coordinates) for multiple image patches

Industrial Time Series Forecasting | *PyTorch, Flask, SocketIO, NumPy, Scikit-learn*   Mar. 2025 – April 2025
- Engineered a Predictive Maintenance application using Flask/SocketIO and PyTorch to forecast industrial sensor data
- Implemented a custom FTMixer2 deep learning model for multi-horizon prediction (up to 4 weeks)
- Designed a real-time system with background streaming threads for data updates and metrics visualization

Technical Skills

Languages: Python, Java, C/C++, JavaScript, TypeScript, SQL, PHP, HTML/CSS
Frameworks: React, Next.js, Flask, FastAPI, Django, Node.js, Material-UI, Tailwind CSS, Bootstrap
Developer Tools: Git, Docker, TravisCI, AWS, Google Cloud Platform, WebSocket, WebRTC
ML/Deep Learning: PyTorch, TensorFlow, Scikit-learn, Pandas, NumPy, Matplotlib, Joblib
Video/Streaming: FFmpeg, HLS Streaming, DeepStream, WebRTC, WebSocket Server
Database/Geo: PostgreSQL (PostGIS), SQLite, MongoDB, Redis, Leaflet, Mapbox GL JS