Aditi Agrawal

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Education

University of California, Davis, USA Sept 2024 – March 2026
Master's in Computer Science | **CGPA: 3.91/4.0**

MIT-WPU, Pune, India Sept 2020 – June 2024
Bachelor of Technology in Computer Science and Engineering| **CGPA: 9.21 / 10.0**

IIT-Madras, Madras, India Sept 2021 – Dec 2024
BS in Data Science and its Application | **CGPA: 8.08 / 10.0**

Experience

Full Stack & AI Developer Intern, Butterflo, USA Jan 2026 – Present
- Designed an automated image classification pipeline using **Vertex AI and Gemini Vision Pro** for large-scale datasets.
- Optimized LLM prompt pipelines and token usage, **reducing inference latency and API costs** while maintaining accuracy.
- Managed production **ML deployment (MLOps)** on **GCP**, including dataset versioning and real-time model endpoints.

Research Assistant, Speech Neuroengineering & Cybernetics Lab April 2025 – Present
- Led a demographic sensitivity analysis on 147 sEMG features in collaboration with **Meta's Neurotechnology program**.
- Built Mixed-Effects Models and PLS to quantify demographic effects on sEMG signals, validated using FDR correction and effect size analysis, identifying time-domain features as demographic-agnostic.
- Identified that Wavelet Packet Transform and frequency-domain features are highly sensitive to sex and subcutaneous fat.

Data Analytics Intern, fAIshion Inc., USA June 2025 – Aug 2025
- Built a conversational **multimodal** recommendation engine using LangChain and OpenAI's CLIP for semantic search.
- Developed automated **ETL pipelines** to process unstructured fashion API data and store vector embeddings in **Amazon S3**.
- Implemented collaborative filtering and co-occurrence models to generate personalized product recommendations.
- Developed analytics dashboards for **trend analysis and cross-functional decision-making** with product teams.

Software Engineering Intern, Globemind Pvt Ltd, Pune, India Jan 2023 – Dec 2023
- Architected a **Full Stack** Hotel Management System to automate bookings, room assignments, and payment workflows.
- Developed responsive front-end interfaces and **RESTful APIs** to handle real-time guest check-ins and payment processing.
- Managed the full SDLC for a private client, from requirement gathering to deployment and post-launch maintenance.

Projects

Intelligent Multi-Account Calendar Assistant | Github | Demo
- Architected a Stateful Agentic Workflow using **LangGraph and Google Gemini** that autonomously routes user requests through specialized nodes for intent parsing, historical querying, and conflict resolution.
- Implemented a **Multi-Account Reasoning Engine** to manage cross-calendar availability, utilizing a custom "Resolver" node to calculate inverse availability and identify optimal scheduling gaps.
- Engineered an automated Intelligence Pipeline that transforms unstructured natural language into validated JSON objects for the **Google Calendar API**, enabling precise task synchronization and automated daily briefings.

Marathi Dialect Detection System
- Classified regional Marathi dialects (500+ samples) in 4 types using audio data augmentation to ensure model robustness.
- Extracted MFCC/spectral features to train Gradient Boosting models, achieving a 0.95 F1-score in dialect categorization.
- Deployed the model via FastAPI to provide real-time dialect prediction, enhancing accessibility for low-resource languages.

Publications

Threat Detection in Social Media Networks Using ML-Based Network Analysis| Link May 2025
- Developed an ANN-based intrusion detection model for social media network traffic using the UNSW-NB15 dataset.
- Performed data preprocessing, class imbalance handling, and model evaluation using recall, F1-score, and ROC-AUC.

Food Waste Management with Community Collaboration | DOI May 2023
- Developed with MySQL and Apache; frontend implemented using HTML and JavaScript.
- Research focused on scalable, community-driven food waste management solutions.

Technical Skills

Programming Languages: Python, SQL, Go, JavaScript, HTML, CSS
Machine Learning & AI: TensorFlow, PyTorch, Scikit-learn, LangChain, Ollama, LangFuse, LangGraph, Prompt Engineering
Tools & DevOps: Next.js, React, Node.js, Docker, GitHub, GitHub Actions, MATLAB, JIRA, Power BI, Tableau, Git, Postman
Cloud Platforms: Vercel, AWS, GCP (BigQuery, Vertex AI, Cloud Run)