

Agrannya Singh

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agrannya

Agrannya-Singh

Education

• Vellore Institute of Technology

B.Tech in Computer Science and Engineering — CGPA 9.04/10

Vellore, Tamil Nadu

Aug 2023 - Jun 2027 (expected)

• Shivam Convent, Patna

High School (PCM) — CBSE — 94%

Patna, Bihar

Completed Apr 2025

Projects

• AI-Powered Space Weather Intelligence Dashboard

Next.js, TypeScript, Genkit, Docker

[Livelihood](#) — [GitHub](#)

- **Engineered** a full-stack dashboard to visualize NASA space weather datasets with over **50,000 records** in real-time.
- **Developed** a custom EDA engine in TypeScript that automates the generation of 5+ chart types, reducing manual analysis time by an estimated **95%**.
- **Integrated** Google's Gemini AI via Genkit to generate contextual, EDA-aware summaries, making complex scientific data accessible to a broader audience.

• Tune Trace

Next.js, FastAPI, Node.js, SQLAlchemy, scikit-learn

[Livelihood](#) — [GitHub](#)

- **Engineered** a swipe-based music discovery app that fetches YouTube music videos by mood/genre, delivering personalized recommendations and a smooth, mobile-friendly UI.
- **Designed** a complete REST API architecture with 3 core endpoints and zero downtime deployments, achieving **sub-200ms latency** on all database operations.
- **Developed** a sophisticated ML pipeline using Scikit-learn's TF-IDF vectorization to analyze song metadata for content-based filtering.
- **Architected** a scalable data persistence layer using SQL Alchemy ORM with multi-database support (Redis for caching, PostgreSQL for production).

• Othello Dojo

Next.js, Node.js, Tailwind CSS, Genkit, Python, MongoDB

[Livelihood](#) — [GitHub](#)

- **Led** a team of 5 to develop an autonomous Reversi agent with a Minimax algorithm and Alpha-Beta pruning, achieving a **95% win rate** against human testers.
- **Integrated** Google Gemini AI via the Genkit framework to provide real-time strategic explanations and end game analysis.
- **Combined** traditional algorithmic AI (Minimax) with generative AI (Gemini) to provide both competitive game-play and educational insights.
- **Implemented** the core Othello game logic with complete rule validation, move generation, piece flipping mechanics, and scoring systems.

• Cinema AI

Grado, FastAPI, SQLite, scikit-learn, OMDb API

[Hugging Face](#) — [GitHub](#)

- **Built** a full-stack movie recommendation system that leverages machine learning to provide personalized suggestions from a dataset of over **10,000 movies**.
- **Implemented** the entire back-end infrastructure using Fast API, designing 3 REST API endpoints for movie retrieval, recommendations, and search.
- **Integrated** the OMDb API for real-time movie data collection, implementing robust error handling and data validation for external API calls.
- **Developed** and optimized content-based recommendation algorithms using scikit-learn, delivering suggestions to the user in **under 500ms**.

Technical Skills

- **Languages:** TypeScript, Python, C++, C, Java, JavaScript, HTML/CSS, SQL, R
- **Frameworks:** Next.js, React, Node.js, FastAPI, Django, Flask
- **AI/ML Libraries:** scikit-learn, Pandas, NumPy, Matplotlib, TensorFlow, Keras, OpenCV, Transformers
- **Cloud & DevOps:** Docker, Kubernetes, AWS, GCP Vertex AI, IBM Watsonx, Jenkins, Render
- **Databases:** MongoDB Atlas, PostgreSQL, Redis, SQLite

Certifications

- [Artificial Intelligence Fundamentals](#)
- [Generative AI using IBM Watson X](#)
- [Machine Learning for Data Science Projects](#)
- [Cloud Computing Fundamentals](#)
- [Cybersecurity Fundamentals](#)
- [Introduction to Jenkins](#)

IBM Developers Network

IBM Developers Network

IBM SkillsBuild

IBM SkillsBuild

The Linux Foundation

The Linux Foundation