

# 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 2023

## Projects

### Tune Trace

[Livelihood](#) — [GitHub](#)

Next.js, FastAPI, Node.js, SQLite, SQL Alchemy, scikit-learn

- **Engineered** a swipe-based music discovery app that fetches and filters YouTube music videos by mood/genre, delivering personalized recommendations and a smooth, mobile-friendly UI.
- **Designed** and implemented a complete REST API architecture with 3 core endpoints and zero-downtime deployments with health check endpoint monitoring.
- **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 (SQLite for development, PostgreSQL for production).

### Othello Dojo

[Livelihood](#) — [GitHub](#)

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

- **Led** a team of 5 members to develop a sophisticated Minimax algorithm with Alpha-Beta pruning for an autonomous Reversi agent, featuring multiple difficulty levels.
- **Integrated** Google Gemini AI via the Genkit framework to provide real-time move suggestions and strategic explanations.
- **Combined** traditional algorithmic AI (Minimax) with generative AI (Gemini) to provide both competitive gameplay and educational insights.
- **Implemented** the core Othello game logic with complete rule validation, move generation, piece flipping mechanics, and scoring systems.

### Cinema AI

[Hugging Face](#) — [GitHub](#)

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

- **Built** a full-stack movie recommendation system that leverages machine learning algorithms to provide personalized movie suggestions based on user preferences.
- **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 and cosine similarity on movie feature vectors.

## 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, PostgreSQL, MongoDB, Redis, AWS, GCP Vertex AI, IBM Cloud

## Certifications

- [Building GenAI Applications with MongoDB](#)
- [Generative AI using IBM Watson X](#)
- [Machine Learning for Data Science Projects](#)
- [Cloud Computing Fundamentals](#)
- [Cybersecurity Fundamentals](#)

MongoDB University

IBM Developers Network

IBM SkillsBuild

IBM SkillsBuild

The Linux Foundation