

Aksh Agrawal

Computer Science & Engineering (Data Science), B.Tech (Hons.) – CSVTU, Bhilai

Specialization: Artificial Intelligence & Machine Learning

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Education

B.Tech (Hons.), Computer Science & Engineering (Data Science) – CSVTU, Bhilai

2024–2028 (Currently 3rd Semester) | CGPA: 8.38

Senior Secondary (XII) – V.C.S.E.M. School, CG Board

2024 | 77.4%

Key Skilled Areas

Artificial Intelligence, Machine Learning, Deep Learning, Large Language Models & Generative AI, Full Stack Development

Research Experience

Research Intern – Deep Learning for Sickle Cell Disease Complication Prediction – IIT Bhilai

Dept. of Bioscience and Biomedical Engineering, Guide: Dr. Henu Kumar Verma

- Worked on predicting organ-specific complications in Sickle Cell Disease patients using multimodal clinical data.
- Explored time-series modeling techniques to capture temporal patterns in patient clinical records.
- Implemented and evaluated LSTM and Transformer-based architectures for sequential, multimodal clinical data.
- Applied SHAP-based explainability methods to interpret predictions and identify clinically relevant risk factors.

Key Projects

NextGenAML – Graph-Based Anti-Money Laundering Investigation Platform – Jan '26 – Present

Live Demo: nextaml-iim.onrender.com

- Modeled financial transactions as a directed graph to identify suspicious accounts and fraudulent activity patterns.
- Engineered behavioral and graph-based features (transaction frequency, connectivity, flow characteristics) combined with ML for anomaly and risk detection.
- Built an investigation workflow enabling analysts to explore suspicious accounts through graph-based analysis.
- Tools: Python, NetworkX, Pandas, NumPy, Machine Learning, Generative AI

CodeClash – 1v1 Competitive Programming Battle Platform

Live Demo: codeclash-bahz.onrender.com

- Built a real-time platform matching two users in a head-to-head coding battle with live judging.
- Designed lobby/matchmaking system supporting room creation, synchronized game state, and live standings.
- Integrated online code execution and judging via Judge0; containerized frontend, backend, and judge-worker services.
- Tools: React.js, Next.js, Node.js, Express.js, WebSockets, Docker, Judge0

Retrieval-Augmented Generation (RAG) System for Intelligent QA

- Designed an end-to-end RAG pipeline for domain-specific question answering using open-source LLMs.
- Built semantic retrieval using embeddings and vector databases (FAISS/Chroma); compared chunking strategies.
- Evaluated response relevance, context precision, and hallucination reduction against baseline LLM outputs.

- Tools: Python, LangChain/LlamaIndex, FAISS/Chroma, HuggingFace Transformers

Ak-dskit – Open-Source Data Science & ML Toolkit – Mentor & Contributor

PyPI: pypi.org/project/Ak-dskit

- Contributed to a production Python toolkit with 221+ functions covering preprocessing, EDA, AutoML, visualization, and model explainability; 11K+ downloads on PyPI.
- Mentored contributors and reviewed pull requests to maintain code quality and documentation.

easy-opencv-wrapper – Python Computer Vision Library – Creator & Maintainer

PyPI: pypi.org/project/easy-opencv-wrapper

- Published an open-source wrapper simplifying OpenCV workflows for image, video, and webcam processing.
- Implemented reusable class-based detectors for face, eye, color, and motion detection.

Colabstro – AI Development Platform

Website: colabstro.me

- Built a platform to streamline AI development workflows, with scalable backend and responsive frontend.

AI Content Detector with Voice Assistant

- Built an NLP-based system for AI-generated content detection with an integrated multilingual voice assistant.
- Developed full-stack architecture using Next.js and Flask APIs.

Technical Skills

Languages: Python, C++, C, JavaScript, R, HTML, CSS

Frameworks/Libraries: React.js, Streamlit, Tailwind CSS, LangChain, NumPy, Pandas, OpenCV, Matplotlib, Seaborn, NetworkX, YOLOv5

AI/ML: Machine Learning, Deep Learning, LLMs, Generative AI, RAG, NLP, Computer Vision, OCR, Prompt Engineering

Tools: Git, GitHub, Docker, VS Code, Google Colab, Arduino IDE

Positions of Responsibility

- **Technical Secretary**, CSVTU (2025 – Present) – Organized technical events, workshops, and coding competitions; led execution of a multi-event state-level technical fest.
- **Arduino Workshop Organizer** (Apr '25) – Conducted a beginner-friendly workshop on Arduino and embedded systems.
- **Hackathon Team Leader** – Led teams to build AI-based prototypes across multiple competitions.

Achievements

- **1st Place, National-Level Hackathon:** Digital Infrastructure Services Trust track, 36-hour hackathon by Tata Centre for AI and ML, NIT Tiruchirappalli.
- **Special Mention, SIPS 2026:** For NextGenAML, at Student Innovation and Product Summit, CSITM, IIM Bangalore.
- **Top 10, Code Nakshatra 2:** 24-hour hackathon organized by TIIPS, Greater Noida.
- **IIIT Hyderabad Ideathon:** Selected for Round 2 for an innovative technology-based solution.
- **Smart India Hackathon 2024:** Qualified for the Internal Round.
- **Novmesh Hackathon:** Finalist for an AI-based prototype addressing a real-world problem.