RUPAM MAJUMDAR

Aspiring AI Engineer | *Python • Machine Learning • Generative AI / LLMs*
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PROFESSIONAL SUMMARY

Final-year B.Tech CSE student (2027) with a 9.6 CGPA, specializing in AI, ML, and Generative AI. Developed an LLM-powered Legislative Analyzer using OpenAI API and FastAPI, and conducted CNN-based facial emotion recognition research (72.88% accuracy), with a first-author paper accepted for publication. Skilled in Python, SQL, backend development, and data visualization, with a strong interest in building real-world AI/GenAI solutions.

TECHNICAL SKILLS

Languages	Python, Java, JavaScript, C
AI / ML / Deep Learning	Machine Learning, Deep Learning, CNN, Model Training & Evaluation, PyTorch, Scikit-learn, MediaPipe
Generative AI / LLMs	OpenAI API, LLM-based Summarization, Prompt Engineering, ChatGPT, NLP (Keyphrase Extraction, Semantic Similarity)
Data Analytics	SQL, MySQL, Data Cleaning & Preprocessing, Power BI, Tableau, Data Visualization
Backend & APIs	FastAPI, Node.js/Express.js, REST API Development & Integration, Spring Boot (full-stack training)
CS Fundamentals	Data Structures & Algorithms, OOP, DBMS, Problem Solving

PUBLICATION

- Co-author -- "Fuzzy Logic-Based Intelligent Volume Control for Headphones Integrating Environmental and Activity Cues for User Safety" -- Accepted for publication, International Journal of Advances in Engineering Sciences and Applied Mathematics (2026). Designed and authored the research based on an adaptive audio control system using Mamdani fuzzy inference and real-time environmental/activity data.

TRAINING & INTERNSHIP EXPERIENCE

Industrial Trainee -- Full Stack Java (Spring Boot & Microservices) *Jun 2026 -- Nov 2026*
Ardent Computech Pvt. Ltd.

- Developing an e-commerce application using Spring Boot, implementing REST controllers, service layer, and repository layer following a layered MVC architecture.
- Designed entity models integrated with a relational database via JPA-based repositories, implementing CRUD operations, and added authentication/authorization using Spring Security.

Research Intern -- Deep Learning & Explainable AI (Completed) *Jun 2026 -- Aug 2026*
IEEE Computational Intelligence Society, Kolkata Chapter

- Independently designed and benchmarked 7 CNN architectures for facial emotion recognition on RAF-DB and CK+ datasets; best model achieved 72.88% test accuracy, ROC-AUC 0.923.
- Built an automated MediaPipe-based facial landmark pipeline, ran controlled ablations across fusion strategy and dataset, and authored a full technical report -- later extended into the published paper above.

Java Development Intern *Aug 2025 -- Sep 2025*
Pinnacle Labs

- Developed and debugged Java modules following structured, maintainable coding practices in a team-based project setting.

Gen-AI Intern (Remote) *May 2025 -- Jul 2025*
YBI Foundation

- Completed a remote, self-directed internship building foundational proficiency in AI/ML methodologies and industry workflows.

Data Visualisation Participant *Apr 2026 -- May 2026*
Tata Group Data Visualisation Virtual Experience Program (Forage)

- Built stakeholder-focused BI dashboards and translated business scenarios into analytical reporting tasks.

PROJECTS

AI Legislative Analyzer — GenAI / LLM Application
Python, FastAPI, OpenAI API, NLP, Prompt Engineering

- Built an end-to-end GenAI application that ingests dense legislative documents and generates concise, citizen-friendly summaries using LLM-based prompt engineering via the OpenAI API.
- Implemented NLP-based keyphrase extraction and semantic similarity to surface the most relevant content before passing it to the LLM, improving summarization relevance and reducing hallucination risk.
- Designed and exposed REST API endpoints through a FastAPI backend, with a connected Streamlit frontend for citizen-facing use.

Facial Emotion Recognition — Deep Learning Research Project
Python, PyTorch, MediaPipe, CNN, RAF-DB, CK+

- Independently designed and benchmarked 7 CNN architectures for 7-class facial emotion classification, isolating the effect of landmark-based feature fusion versus full-image processing.
- Built an automated MediaPipe-based facial landmark extraction pipeline and ran controlled ablation studies across fusion strategy and dataset (RAF-DB, CK+); best model achieved 72.88% test accuracy and ROC-AUC 0.923.
- Authored a full technical report that was later extended into a first-author research paper, accepted for publication in the International Journal of Advances in Engineering Sciences and Applied Mathematics (2026).

Email Triage Assistant — Full-Stack Web Application
Node.js, Express.js, REST APIs

- Built the backend and REST API layer for an AI-powered email management system processing 50+ threads simultaneously, using content compression to cut email size by ~85%.
- Reduced email overload by ~70% through intelligent categorization and automated prioritization logic.

Stock Market Trend Prediction — Machine Learning
Python, Pandas, Scikit-learn, Linear Regression

- Built an end-to-end pipeline (data cleaning, feature engineering, Linear Regression model) to predict next-day stock closing prices from 5 years of historical equity data.

HACKATHONS & INNOVATION CHALLENGES

- Top 10 Finalist — Mahindra Tech Innovators Garage (ILP Phase 9): Conceptualized and pitched an AI-powered hospital crowd-flow optimization system, competing against a national applicant pool on innovation, feasibility, and technical merit.
- Participant — Smart India Hackathon 2025 (College-Level Round): Developed a Smart Waste Segregation system concept at the internal/college-level selection round.
- Rank 246 — CodeClash 2025: The Battle of Algorithms (Let's Code Community): Competed in an algorithmic problem-solving contest, applying Data Structures & Algorithms under time constraints.
- 3rd Position — Innovative Idea Competition, Nurturing Innovation 2024, MCKV Institute of Engineering.

CERTIFICATIONS & ACHIEVEMENTS

- Career Essentials in Generative AI — Microsoft & LinkedIn Learning
- NPTEL Gold Certificate (Top 5%) — Fuzzy Sets, Logic and Systems & Applications
- Power BI & SQL Using AI — Workshop Certification
- Programming in Java & The Joy of Computing using Python — NPTEL
- Short Term Course on Privacy Preserving Cryptographic Security: Advanced Encryption, Authentication & Zero-Knowledge Proofs — Indian Statistical Institute

EDUCATION

Examination	Year	Marks/Grade
B.Tech – Computer Science & Engineering, MCKV Institute of Engineering	2023 – 2027	CGPA: 9.6033
WBCHSE (10+2), Kona High School	2023	88%
WBBSE (10), Kona High School	2021	94.14%

REFERENCES

Dr. Deep Suman Dev — Associate Professor, MCKV Institute of Engineering | +91 96747 09542

Mr. Milan Chakrabortty — Assistant Professor, MCKV Institute of Engineering | +91 8967262102

Mr. Avijit Bose — HOD, Computer Science & Engineering Dept., MCKV Institute of Engineering | +91 9831640627