Rishit Kar

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Education

University	Institute	Year	CGPA / %
Mumbai University	DJ Sanghvi College of Engineering, B.Tech in Computer Engineering	2027	9.14
HSC	Vidyalankar Institute	2023	81.5%
ICSE	Smt Sulochanadevi Singhania School	2021	96.33%

Relevant Coursework: Operating Systems, DBMS, OOP, Java, Computer Networks, Data Structures, Analysis of Algorithms, Machine Learning, Artificial Intelligence, Big Data Analytics, Software Engineering, Data Warehousing and Mining

Experience

Artificial Intelligence Intern [LINK] Sep 2025 – Jan 2026

Indian Institute of Technology, Patna (Supervisor: Ms. Shivani Gupta)

- Built a **multimodal disease detection model** integrating **EHR time-series**, **clinical text**, and **CXR images** to enable phenotyping across **25 diseases**.
- Processed and aligned **40,000+ EHR records** with multimodal data from the **MIMIC** dataset for consistent training.
- Developed a **multimodal graph architecture** combining inter-patient spatial features via cosine similarity with intra-patient temporal heterogeneous graphs and a patient–disease correlation matrix to enhance the overall testing PRAUC score by **2.8%**.

Machine Learning Intern [LINK] Jun 2025 – Jul 2025

CAIR Lab, Indian Institute of Technology, Mandi (Supervisor: Mr. Md Umar Farooq)

- Worked on optimizing **amphibian propeller blade geometries** using the **APC dataset** to analyze aerodynamic performance.
- Automated preprocessing of **400+ 3D geometries** using Python by building a pipeline for converting **.peo** files to **.stl** via Julia.
- Generated **2048**-point clouds using Open3D and implemented a **Dynamic Graph CNN** for point cloud segmentation, establishing baseline performance and enabling evaluation of geometric feature learning for downstream optimization tasks.

Projects

Clipper-dev: Cross-Platform Clipboard Manager for Developers [Github] [PyPI] | *Python, CLI, TUI, PyPI, Pytest*

- Built a cross-platform clipboard manager CLI enabling persistent history tracking, structured content organization, and efficient retrieval through commands such as **add, search, restore**, and **export** across macOS, Linux, and Windows environments.
- Published as a Python package on **PyPI** with **5K downloads**, demonstrating adoption among developers.
- Implemented features such as a history browser, fuzzy search, statistics dashboard, and an interactive **TUI**.

OmniGate: Omics-Integrated Gating for Multi-Cancer Subtype Classification [Code] | *EDA, ML, Docker*

- Built **OmniGate**, a multi-modal cancer subtype classifier on the **MLOmics** benchmark with **8,000+ patients**, **32 cancer types**, mRNA/miRNA/CNV/methylation omics, and classifier-head ablations.
- Designed dynamic context gating and achieved best precision on **GS-BRCA: 0.890**, **GS-COAD: 0.947**, and **GS-LGG: 0.985**.
- Dockerized the pipeline and generated aggregated gate-importance plus **Top-20** feature-sensitivity plots for reproducibility.

Multi-Model Pneumonia Diagnosis using CNN, ResNet, GNN & Multimodal Learning [Github] | *TensorFlow, Keras*

- Tested multiple deep learning models for pneumonia classification on **5,000+ chest X-ray images**.
- Implemented components of a multimodal research pipeline integrating spatial attention features and a **Graph Attention Network (GAT)** model.
- Benchmarked against **ResNet**, **GNN**, and multimodal models; the custom CNN achieved **7–9% higher accuracy**.

CraniMem: Cranial Inspired Gated and Bounded Memory for Agentic Systems [Code] [PyPI] | *Agentic AI, RAG*

- Built neuro-inspired gated memory with utility filtering, episodic buffering, and pruned knowledge-graph consolidation.
- Evaluated on **100 HotPotQA samples** across **Qwen, Gemma, and Mistral**, achieving Δ_{noise} **= 0.004–0.022** and **F1: 0.312 vs. 0.068**; presented at the **ICLR Memagents Workshop in Brazil**.

Achievements and Extracurricular Activities

- Solved **350+** problems across Codeforces and LeetCode through regular practice and timed programming contests.
- Currently a **Pupil** on Codeforces with a max rating of **1256**, having participated in more than **40** rated and practice contests.
- Delivered a **PySpark workshop** at IDfy on Big Data concepts, architecture, and scalability, attended by **30+ participants**.
- Team member of the **DJS E-CELL** entrepreneurship team; helped launch a startup podcast series in college.
- Research Head at **DJSCE ACM**, mentoring **15+ students** in research and development in machine learning and agentic AI.
- Certified in **Supervised Machine Learning by Andrew Ng (Coursera)** and **Python for Data Science by NPTEL**.

Skills

- **Languages**: Core Java, Python, C, SQL (MySQL), HTML/CSS, JavaScript
- **Developer Tools/Knowledge**: Git, Google Colab, Vercel, Streamlit, VS Code, Visual Studio, Microsoft Excel, Microsoft PowerPoint, Operating Systems, Big Data, Machine Learning, PySpark, Docker, Apache Kafka
- **Libraries/Frameworks**: Scikit-Learn, Pandas, NumPy, Matplotlib, TensorFlow, Keras, LangChain, FastAPI, PyTorch
- **Soft Skills**: Communication, analytical thinking, leadership, problem-solving, teamwork, and collaboration