Rajashik Datta

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Education

Institute of Engineering & Management, Kolkata   **2022 – 2026**
B.Tech in Computer Science & Engineering (Artificial Intelligence)   *CGPA: 9.12 / 10*

D.A.V. Public School, Siliguri   **April 2020 – March 2022**
Higher Secondary School   *CBSE: 75.4 / 100*

Nirmala Convent School, Jalpaiguri   **April 2008 – March 2020**
Primary School, High School   *ICSE: 90 / 100*

Research Profile

My research centers on advancing the foundations of artificial intelligence, machine learning, and deep learning to design interpretable and scalable computational frameworks. I am particularly motivated by interdisciplinary challenges where rigorous modeling can generate impactful solutions, including computational intelligence, bioinformatics and precision agriculture. By leveraging frameworks such as TensorFlow and PyTorch in conjunction with statistical modeling and cloud platforms, I aim to bridge methodological innovation with real-world applicability. Currently, I am engaged in research on feature selection algorithms at the University of Calcutta, as well as phenotype–genotype mapping at the University of Nebraska–Lincoln, where I integrate explainable AI methods to improve the interpretability of predictive models. My long-term goal is to contribute to the development of principled, transparent, and scalable AI systems that advance both theory and practice across scientific disciplines.

Experience

University of Nebraska, Lincoln, USA   **June 2025 – Present**
Research Intern   *Remote (USA)*

- **Supervisor:** *Dr. Sruti Das Choudhury* (*Offer Letter)*
- Conducted research on the application of explainable AI, data analytics & narrative visualization in precision agriculture and its contribution to crop recommendations. *(Submitted)*
- Conducting research on phenotype–genotype mapping on spatial agricultural datasets from UNL and time-series prediction, with special analysis on advanced clustering and xAI techniques for better understanding. *(Working paper)*
- Contributing to active research on "Hyperspectral image analysis for plant phenotyping based on deep neural networks." *(Working paper)*
- Featured in the university's news story for research contributions: snr.unl.edu

University of Calcutta   **January 2025 – Present**
Research Scholar   *Kolkata, India*

- **Supervisors:** *Dr. Arup Kumar Chattopadhyay*, *Prof. Amit Kumar Das*, *Prof. Amlan Chakrabarti*
- Proposed a novel algorithm for feature selection using fuzzy hypergraphs on high-dimensional datasets, with a special focus on high-dimensional remote sensing datasets as application. *(Submitted)*
- Contributing to active research on a fuzzy intuitionistic non-uniform hypergraph based feature-selection framework for high-dimensional datasets. *(Working paper)*

Generative AI CoE, IEM   **November 2024 – Present**
Student Research Lead at GenAI CoE   *Kolkata, India*

- Manage research project assignments and mentor sophomore and junior students in initiating their research careers.
- Launched *ReelBook*, a pioneering initiative to teach AI fundamentals through concise, engaging video content.

IEM Consultancy Services   **August 2024 – March 2025**
Project Intern at bair.ai (Certificate)   *Kolkata, India*

- Developed end-to-end system of a Cluster-based Cryptocurrency Price-prediction Engine, MemeMetric, architecting the algorithm, data pipeline, and automated report-generation framework to deliver actionable market insights.
- Designed and implemented NLP-driven social-media sentiment analytics, aggregating real-time data from Twitter, Telegram, and Reddit to quantify market sentiment and bolster model robustness, reducing forecast error and volatility.

Innovation & Entrepreneurship Development Cell (CSE)   **March 2024 – August 2024**
Undergraduate Research Assistant (Certificate)   *Kolkata, India*

- Co-authored a research paper accepted at IEM-HEALS 2024 – Analyzed Jul 2019–Dec 2022 closing prices of 20 pharma stocks using multivariate regression, volatility metrics, and event-study methods.
- Developed a real-time stock trading simulation platform, TraderBot, using Flask for backend trade logic and MongoDB for data persistence.

- Integrated Yahoo Finance API to fetch live market data, allowing users to simulate trading strategies, test portfolio management techniques, and analyze stock movements without risking actual capital.

National University of Singapore (NUS)   **July 2023 (1 week)**
Undergraduate Study Abroad Program (Certificate)   *Singapore*
- Studied fundamentals of "Artificial Intelligence, Internet of Things, Machine Learning & Data Analytics", lectured by *Dr. Peter Leong*, *Dr. Eric Cambria*, *Dr. Matthew Chua*, *Dr. Yiliang Zhao*, *Dr. Gábor Benedek*, *Dr. Tan Kian Hua*, *Yong Heng Michael Tan*, *Marton Szel*, *Gillian Cheng*.

Publications

Accepted

1. Sanjan Baitalik, **Rajashik Datta**, Utsho Banerjee, Rajarshi Karmakar, Vincent Stoerger, Himadri Nath Saha, Sruti Das Choudhury, "ReproPheno and ReproPhenoNet: A Large-Scale Multimodal Benchmark Dataset and Deep Learning Framework for Reproductive-Stage Plant Phenotyping", AAAI Workshop 2026, December 2025.

2. **Rajashik Datta**, Sanjan Baitalik, Amit Kumar Das, Sruti Das Choudhury, "PlantPhenoLM: Phenotype-Genotype Mapping Inference with Multi-Turn LLM Reasoning and Selective Prediction", AAAI Bridge 2026, December 2025.

3. Sanjan Baitalik, **Rajashik Datta**, Amit Kumar Das, Sruti Das Choudhury, "Conversation as Belief Revision: GreedySAT Revision for Global Logical Consistency in Multi-Turn LLM Dialogues", AAAI Bridge 2026, December 2025.

4. Sruti Das Choudhury, **Rajashik Datta**, Sanjan Baitalik, "Enhancing Interpretability Through Clustering, Explainable AI, and Narrative Visualization: Applications in Precision Agriculture and Healthcare Patient Segmentation", Information (Impact Factor: 2.9), October 2025.

5. Sanjan Baitalik, **Rajashik Datta**, Sanket Ghosh, Darothi Sarkar, Ayan Chaudhuri, "Machine Learning-Driven Insights For Stock Market Analysis And Trading", International Conference on Interdisciplinary Research in Technology and Management (IRTM 2024).

6. Sanket Ghosh, Sanjan Baitalik, **Rajashik Datta**, Darothi Sarkar, "The COVID-19 Shock: An Analysis Of Impacts And Responses Of Indian Stock Market", International Conference on Interdisciplinary Research in Technology and Management (IRTM 2024).

7. **Rajashik Datta**, Sanjan Baitalik, Sanket Ghosh, Saugata Ghosh, Swarnendu Ghosh, "Is Indian Financial Market Ready for Pandemics?". In International Conference on Advancing Science and Technologies in Health Science (IEM-HEALS 2024) *Book of Abstracts*.

Submitted

1. *(Under Review)* **Rajashik Datta**, Sanjan Baitalik, Sruti Das Choudhury, Arup Kumar Chattopadhyay, Amit Kumar Das, "Fuzzy Hyper-Feature Association Mapping for High-Dimensional Data: Advancing Feature Selection for Agricultural Science and Natural Resource Management", International Journal of Fuzzy Systems (Impact Factor: 3.6), November 2025.

2. *(Under Review)* Sanjan Baitalik, **Rajashik Datta**, Sujaan Bhattacharyya, Sanket Ghosh, Subhabrata Banerjee, Malay Gangopadhyay, "Multi-modal Framework for Memecoin Price Prognostication using Portfolio Risk-aware Independent Set Meta-learning (PRISM) Approach", Computational Economics (Impact Factor: 2.2), September 2025.

3. Sanjan Baitalik, **Rajashik Datta**, Darothi Sarkar, Ayan Chaudhuri, MiQ-MCP: Valid and Conditionally Robust Uncertainty Quantification for High-Frequency Financial Time Series via Mondrian Conformalized Quantile Regression (GitHub: MiQ-MCP)

In Progress

1. Sanjan Baitaik, **Rajashik Datta**, Arup Kumar Chattopadhyay, Amit Kumar Das, Amlan Chakraborty, "Greedy Optimization with Provable Guarantees for Non-Uniform Intuitionistic Hypergraph-Based Feature Selection". Intended for submission to Pattern Recognition (Impact Factor: 7.6), December 2025.

2. **Rajashik Datta**, Sanjan Baitalik, Sruti Das Choudhury, Amit Kumar Das, "Visual Analytics of Plant Phenotype–Genotype Dynamics via Temporal Embeddings". Intended for submission to IEEE Transactions on Visualization and Computer Graphics (Impact Factor: 6.5), November 2025.

3. Sanjan Baitalik, **Rajashik Datta**, Sruti Das Choudhury, "HyperProbe Insight: An Interactive Tool for Exploration of Hyperspectral Image Sequences". Intended for submission to IEEE Transactions on Visualization and Computer Graphics (Impact Factor: 6.5), December 2025.

Technical Skills

Programming Languages: Python, C, C++, Java, MATLAB
Machine Learning & AI Frameworks: TensorFlow, PyTorch, Scikit-learn, Keras, SHAP, LIME, Transformers
Data Analysis Tools: Pandas, NumPy, SciPy
Database Management: MySQL, PostgreSQL, MongoDB
Cloud & Big Data: AWS (S3, EC2, SageMaker), Google Cloud (BigQuery, Compute Engine)
Research Tools: LaTex, Jupyter Notebook, Git, Docker, MATLAB App Designer, TensorBoard
Visualization Tools: Matplotlib, Seaborn, Plotly, Tableau

Projects

Recruvia : Agentic AI System for HR Automation (*GitHub*)   **March 2025**
- Built an AI-powered recruitment automation system using ChromaDB and Mistral LLM for CV screening, candidate search, interview scheduling, and real-time insights, streamlining HR processes.

Pizzamania : Agile Management Using Jira (*GitHub*)   **November 2024**
- Developed an online pizza ordering system with agile methodology, featuring customization, real-time tracking, and secure payments for enhanced user experience.

Fitness Emporium (*Documentation*)   **February 2024**
- Designed an e-commerce as a one-stop solution for fitness enthusiasts to discover, purchase, and engage with a wide range of fitness products, equipment, and services.

Volunteering

GenSpark 1.0 Ideathon 2025   **June - August 2025**
- Organized the first Ideathon under GenAI CoE, IEM, promoting innovation and collaboration among participants.
- 50+ teams participated, 3 funded ideas from finalists.

IEM-ICDC 2025   **April 2025**
- Volunteered for IEM-ICDC (3rd International Conference on Computational Intelligence, Data Science and Cloud Computing) 2025, assisted with event coordination and support for the conference.

Department of CSE, IEM   **March 2024**
- Contributed to the NBA(National Board of Accreditation) accreditation process through volunteered efforts, supported the team in documentation and assessment tasks.

Achievement

- Ranked 6th in the top 10% of class in Year 3 (AY 2024-25).