

RONAK SARKAR

M.Sc in Big Data Analytics
RKMVERI, Belur Math, West Bengal, India

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🌐 Portfolio

PROJECTS

- **Congruence Theory and Its Applications** 🔗 Project Link
Explored applications of Congruence Theory in Number Theory and Cryptography.
- **Fashion MNIST Classification** 🔗 Project Link
Built machine learning models to classify fashion items using the Fashion MNIST dataset; focused on high-accuracy classification.
- **MFCC-Based Speech Feature Extraction** 🔗 Project Link
Built a full pipeline in Python to extract Mel-Frequency Cepstral Coefficients (MFCCs) from speech audio. Implemented key steps: pre-emphasis, framing, FFT, Mel filterbanks, DCT, and delta features. Visualized intermediate results and explained the auditory motivation behind each stage.
- **ChessLens: Chess Board Visualization**
Developed a real-time chessboard digitization tool using OpenCV and Tkinter.
- **Visual Question Answering on VizWiz Dataset** 🔗 Project Link
Leveraged CLIP ViT-B/32 and MLPs to handle image-question pairs for accessibility-focused VQA; tackled noise and long-tail answers.
- **Reinforcement Learning-Based Portfolio Optimization** 🔗 Project Link
Designed an RL-driven stock portfolio strategy using Graph Attention Networks and spatio-temporal features; validated through backtesting.

COURSEWORK

- Universal Human Values
- Indian Knowledge System
- Basic Statistics
- Probability and Stochastic Process
- Linear and Abstract Algebra
- Advanced Statistical Methods
- Multivariate Analysis
- Data Structures and Algorithms
- Java & Hadoop
- DBMS
- Machine Learning
- Applied Machine Learning
- Time Series & Survival Analysis
- Computer Vision
- Deep Learning and NLP
- Reinforcement Learning

ACHIEVEMENTS

- Selected for the IASc-INSa-NASI Summer Research Fellowship Programme 2025 (SRFP) — among nationally shortlisted candidates.
- Secured 1st position in Chess event at TECHetc 2K23, Hooghly Engineering & Technology College (March 2023).
- Secured 1st prize in Intra-College Chess Tournament 2023–24 at Chandernagore College (Jan 2024).
- FIDE Classical Chess Rating: 1447

CERTIFICATIONS

- IT/ITES Vocational Course: Level 1
- Python Project for Beginners — Great Learning Academy (August 2024)

EXPERIENCE

IASc-INSa-NASI Summer Research Fellow

Indian Institute of Technology Bombay

📅 May 2025 – July 2025 📍 Mumbai, India

- Selected under national SRFP programme to work under Prof. K.S. Mallikarjuna Rao.
- Worked on Portfolio Optimization.

EDUCATION

- Ramakrishna Mission Vivekananda Educational and Research Institute, Howrah

M.Sc in Big Data Analytics

📅 2024 – 2026 (Expected)

- Chandernagore College, University of Burdwan

B.Sc(H) in Mathematics

📅 2021 – 2024

- Pandua Sasibhusan Saha High School

Higher Secondary (PCM
Computer Science)

📅 2013 – 2021

- Nivedita Sishu Siksha Kendra

Elementary School

📅 2009 – 2012

SKILLS

- **Programming:** Python, R
- **Concepts:** Machine Learning, Data Analysis, Portfolio Optimization, Data Structures, Time Series Analysis
- **Mathematics:** Abstract and Linear Algebra, Probability and Statistics
- **Tools:** Git/Github, Oracle Database, MySQL Database, MS Office, ELAN Annotation Tool

HOBBY

- Playing Chess