

# ABITATHA ROY

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## Headline

Enthusiastic undergraduate with a strong foundation in probabilistic modelling and applied ML. Actively gaining experience in Data Science and Systems Biology. Seeking to contribute to interdisciplinary roles that blend analytical thinking and creativity in both academic and practical settings.

## Education

### B.Tech. Information Technology and Mathematical Innovations

Cluster Innovation Centre, University of Delhi

**Expected:** 2027

**Grade:** 89.1%

**Selected Coursework:** Calculus, Linear Algebra, ODE, Probability and Statistics, Data Structures, Algorithms, Data Science, DBMS, Flow of Information in Living Systems, *in silico* Biology, Genes to Genomes.

### High School Diploma – Indian School Certificate (ISC)

Calcutta Public School, Kalikapur

2023

**Grade:** 97.0%

## Selected Experience

### Student Intern

Cluster Innovation Centre, University of Delhi

08/2025 – present

- Working with ground data and AI/ML techniques to study urban weather and pollution patterns and derive actionable insights.

## Selected Projects

### Gamified Fitness Tracker App (ongoing) – *Code available upon request*

**Knowledge Stack:** MATLAB, Python, Kinematics, Machine Learning, Real-Time Data Sensing and Processing

- Secured 2nd Prize at the MathWorks Hackathon** for a novel gamified fitness application.
- Captures and processes real-time mobile sensor data to calculate and report on user kinematics (eg. speed, distance) and calories burned.
- Developed a unique gamification module that correlates the user's real-world performance against virtual metrics, such as the speed of Indian Railways trains.

### Implementation of Chaos for Secure Communication using Chua Diode (ongoing) – *Report available upon request*

**Knowledge Stack:** LTspice, Chaotic Circuits

- Performed simulation of an optimized circuit constructed using readily available components demonstrating secure data transmission using chaotic signals from a Chua diode.

### Career Transitions and Candidate Evaluation by Probabilistic Modelling (ongoing) – *Report available upon request*

**Knowledge Stack:** R, Markov Chains, Bayes' Theorem

- Performed modelling, inferential analysis and predictive analysis on career transitions using Markov Chains.
- Performed probabilistic modelling on hiring possibilities based on resume parameters using Bayes' Theorem.

### GitHub Smart Search (ongoing) – *GitHub*

**Knowledge Stack:** Python, Streamlit, Semantic Search, Sentence Transformer, Google Gemini

- Engineered a semantic search engine to query personal GitHub repositories using natural language, moving beyond traditional keyword matching.
- Leveraged Sentence Transformers to create vector embeddings for repository metadata and READMEs, enabling relevant results via cosine similarity.
- Generative AI used to preprocess and refine user query for better search results.

## Selected Certifications

**IBM Data Science Professional Certificate** – Coursera (Ongoing)

Certificate

## Skills

**Technical Skills:** Mathematical Modelling, Data Analysis, Machine Learning, Artificial Neural Networks, Bioinformatics, Prompt Engineering, Technical Communication

**Programming and Software:** C, Java, Python, R, SQL, Mathematica, MATLAB, MS Excel