

# Mahima Chakraborty

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## EDUCATION

### International Institute of Information Technology (IIIT) Hyderabad

MS by Research in Bioinformatics

Expected graduation - 2027

### Vellore Institute of Technology (VIT) Vellore

Bachelor of Technology (B.Tech) in Biotechnology

2021-2025

CGPA: 9.51 / 10.0

Merit Scholarship recipient 2023-24 and 2024-25 (Overall Batch Rank- 5)

### Delhi Public School Newtown (PCMB)

West Bengal, India

ISC (XII) - 93.2% (2021); ICSE (X) - 96.2% (2019)

Computer Science Topper (2019), Blue Blazer Merit Award (2011-2017)

## EXPERIENCE

### Final Year Bachelor's Thesis Student

Jan-July 2025

Prof. Qasim Ayub, Genomics Platform, Monash University, Malaysia

Project Title: Zonadhesin (ZAN) Variation Across Primates, Archaic and Modern Humans

### Bioinformatics Intern – HackBio (Remote)

Aug-Oct 2024

Differential Gene Expression and Functional Pathway Enrichment Analysis using ShinyGO on TCGA datasets using R to predict significant cancer biomarkers and built a ML model to classify cancer subtypes based on gene expression profiles ([Link](#))

### Bioinformatics Research Intern

May-July 2024

Prof. Sayak Ganguli, SG-LAB, St. Xavier's College Kolkata

Project Title- 'Computational Characterization and Structural Analysis of BbKst protein isolated from *Bambusa balcooa*'

Structural and functional bioinformatics analysis of the protein encoded by the *BbKst* gene of *B. balcooa* including ORF analysis, Domain identification, Homology modelling, Structure validation, Molecular dynamics simulations, Binding pocket analysis

### Clinical Microbiology Observership - Tata Medical Cancer Research Centre, Kolkata

Nov-Dec 2023

Clinical sample processing and handling (Urine, Stool, Sputum, Tissue, Blood), Sanger sequencing, Gel electrophoresis, Serology, DNA extraction (Bacteria/Human/Virus), PCR (CARBA, MRSA, RT, Multiplex), Body fluid/Blood culture using Bact/ALERT 3D, Identification and Antibiotic Susceptibility Testing, Kirby Bauer Test, Gram's Staining, Acid Fast Staining

### Molecular Biology Intern - SHRM Biotechnologies Pvt. Ltd., Kolkata

Aug-Sept 2023

Transformation, PCR, Competent cell preparation, DNA/RNA extraction, Primer design, UV-Spectrophotometry, SDS-PAGE, Agarose Gel Electrophoresis, Enzyme purification (Dialysis), DNA Quantification, Gel extraction, Karyotyping

## PROJECTS

### Microbiology Group Research Project [ Supervisor- Dr. Subathradevi C., VIT Vellore ]

May 2023- Oct 2024

Studied the in vitro thrombolytic activity of the Nattokinase enzyme produced by *B. subtilis* strain SMGM23 isolated from fermented goat milk followed by partial purification and immobilization with chitosan. Successfully obtained a clot lysis activity of 91.7% after 6h incubation. Paper submitted for publication.

### COVID-19 Drug Discovery Using Machine Learning – Personal Project ([Project Link](#))

Oct 2023

- Collected and pre-processed bioactivity data of Coronavirus target proteins from the ChEMBL database and conducted chemical space analysis and molecular descriptor calculations using RDKit and PaDEL.
- Built a regression model using PyTorch to predict IC50 values of potential drug candidates and applied the Mann-Whitney U test for statistical analysis; optimized the model to classify active and inactive compounds based on pIC50 values.

## RELEVANT SKILLS

- Programming languages/Tools:** R, Shell scripting/BASH, Python, Galaxy
- Databases:** Ensembl, UCSC Genome Browser, NCBI, UniProt, TCGA
- Languages:** Fluent in English, Bengali, Hindi; Japanese (Beginner)
- Certifications:** Galaxy Training Academy (2025), Supervised Machine Learning (Coursera), Bioinformatics for Beginners (Coursera), AI Programming with Python (2023), FSSAI FOSTAC Food Safety Supervisor (2023)
- Others:** Literature review, Poster presentation, Effective communication and collaboration, Journal clubs

## ACHIEVEMENTS

- GATE Biotechnology 2024** – Qualified (94 Percentile) – AIR 998
- TOEFL iBT** Qualified: Score- 106/120
- Selected for **CompGen 2025** hosted by the **Max Delbruck Centre Berlin**
- Udacity- AWS AI & ML Scholarship Awardee** 2023 and 2024 – Phase 1 and 2 (Among top 500 candidates globally)
- Scholarship Awardee for the **Stanford Data Ocean** Certification - 'Fundamentals of AI & ML in Precision Medicine'

PUBLICATIONS

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Book Chapter

**Chakraborty, M.**, Shrujana, K., Karkhanis, A., Surya, R.S., Nair, S.R., C., S.D. (2024). Impacts of Microfiber Pollutants on the Global Ecosystem. In: Das, A.P., Behera, I.D., Das, N.P. (eds) Renewable Energy Generation and Value Addition from Environmental Microfiber Pollution Through Advanced Greener Solution. Environmental Science and Engineering. Springer, Cham. [https://doi.org/10.1007/978-3-031-51792-1\\_9](https://doi.org/10.1007/978-3-031-51792-1_9)

EXTRACURRICULAR ACTIVITIES & LEADERSHIP

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- **Udacity-AWS AI & ML Nanodegree Scholarship Program 2023** *May-Oct 2023*  
Project- Built an image classifier that can classify images of 102 different flower species using pre-trained models by applying transfer learning on a dataset using PyTorch and converted it into an application using Command Line.
- **Senior Core Member of the Society of Biological Engineering (SBE-VIT)-** Mentored 50+ university juniors on AI in Biotechnology and guided them on the importance of learning practical coding skills for career growth in the Biotechnology industry.
- Volunteered to raise donation funds and teach music and art at Sukanya Orphanage, Kolkata, India *Aug 2018*