

Rohan Ghosh Dastidar

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EDUCATION

2022 – 2027	Indian Institute of Technology Kharagpur B.Tech/M.Tech (Dual Degree) in Chemical Engineering <i>Minor: Bioscience and Biotechnology</i> <i>Micro Spl: High-Performance Computing and Applications</i> <i>Micro Spl: Micro Fluidics and Nano Patterning</i>	GPA: 8.78
2021	Indira Gandhi Memorial High School (CBSE Class 12)	86.6%
2019	Pramila Memorial Institute (ICSE Class 10)	97.6%

RESEARCH EXPERIENCE

- Computational Structural Biology, IIT Kharagpur** *Jan 2026 – Present*
Bachelor's Thesis Project II — Prof. Ranjit Prasad Bahadur
• Developing a machine learning based model for the prediction of SLIMs (short linear motifs) and MoRFs (molecular recognition features) in RNA binding proteins.
- Structural Protein Biology and Engineering Lab, Iowa State University, USA** *July 2025 – Present*
Remote Research Intern — Prof. Ratul Chowdhury
• Integrating PLM's with SMILES-based language models and using a contrastive alignment strategy to map proteins and ligands into a unified "context-aware" space to predict protein-ligand binding affinity without a traditional supervised training scheme.
• Performed analysis on performance, memory consumption and runtime for different PLM's for running Seq2Bind – a transformer based protein-protein binding affinity predictor
• Conducted extensive literature review and developed a corpus of publicly available machine learning models for protein-protein binding affinity
- Computational Structural Biology, IIT Kharagpur** *July 2025 – Dec 2025*
Bachelor's Thesis Project I — Prof. Ranjit Prasad Bahadur
• Developed a bioinformatics pipeline to predict intrinsic disorder in proteins from gene sequences using machine learning.
• Performed genomic analysis of specific organisms from the three domains – bacteria, archaea, eukarya to assess the nature of disordered regions
- Cancer Systems Biology Lab, IISc Bengaluru, India** *May 2025 – July 2025*
Summer Research Intern — Prof. Mohit Kumar Jolly
• Investigated the role of Transcriptional Noise in Epithelial-Mesenchymal Heterogeneity to study phenotypic switching.
• Simulated gene regulatory networks using **Stochastic Differential Equations** and high-throughput parameter scans.
• Implemented a "partitioned leapfrog" algorithm to optimize space and time complexity of stochastic simulations.
- Biomolecular Nanotechnology Lab, CIC biomaGUNE, Spain (Remote)** *May 2024 – Aug 2024*
Foreign Training Program — Prof. Aitziber Lopez Cortajarena
• Designed CTPR4 protein variants with electron-active Tryptophan substitutions for higher stability and conductivity.
• Utilized **PyMOL** and Python for molecular modeling and structural simulations.
- Structural Biology & Protein Engineering Lab, IIT Kharagpur** *Nov 2023 – Jan 2024*
Winter intern — Prof. Soumya De
• Learned about designing novel peptides that can inhibit protein-protein interactions linked to specific cancer signalling pathways
• Wet lab - Performed plating, Molecular cloning, SDS PAGE, PCR, Site-directed mutagenesis, Protein purification (Ni-NTA Affinity Chromatography), Primary culture & protein expression
• Computational – Analysis of protein structures in PyMOL and executing energy minimization algorithms in ROSETTA

SKILLS

- **Languages:** Python, MATLAB, C, Julia
- **Frameworks/Tools:** PyTorch, NumPy, Pandas, Matplotlib, PyMOL, Rosetta
- **Methodologies:** Mathematical Modelling, Stochastic Simulations, Deep Learning, Structural Bioinformatics
- **Wet Lab:** Molecular Cloning, SDS PAGE, PCR, Site-directed Mutagenesis, Protein Purification (protein engineering techniques)

COURSEWORK

* indicates ongoing course

- **Biotechnology:** Microbiology, Cell & Molecular Biology, Biochemical reaction engineering, Bioinformatics*
- **Programming:** Systems Biology – Modelling & Control, Computational neuroscience, Computational biophysics, Machine learning in Biological systems, Programming & Data structures, Quantum mechanics & Quantum computing* [\[Course Projects\]](#)
- **Chemical Engg:** Thermodynamics, Transport Phenomena, Biochemical Engineering, Advanced Mathematical Techniques, Advanced Fluid Dynamics, Computer aided process engineering, Advanced Mass Transfer*, Advanced Heat Transfer*, Process Dynamics & Control*