Ekarsi Lodh

ekarsi24 | exl533@student.bham.ac.uk | Ekarsi Lodh | Ekarsi Lodh | ekarsilodh | +44 7311486696

Flat 106, Asbury Overseas House, 3 College Walk, Selly Oak, Birmingham, B29 6LF

Education

2025 - Present	MSc in Bioinformatics FT, **University of Birmingham, United Kingdom**	
2020 - 2025	BTech in Computer Science and Engineering at **Techno Main Salt Lake, India**	(CGPA: 8.13/10.0)
2018 - 2020	Class 11th & 12th, **Ramakrishna Mission Boys' Home High School (H.S.), Rahara, India**, WBCHSE	(87.80%)
2012 - 2018	Class 5th - 10th, **Ramakrishna Mission Boys' Home High School (H.S.), Rahara, India**, WBBSE	(94.28%)

Research Experience

Group Research Project (2025 - present)

- Currently working under the supervision of Dr. Lindsey Compton, Associate Professor in Genetics, School of Biosciences, University of Birmingham, UK
  Research Topic: Optimising GWAS pipelines to uncover genetic loci underlying canopy architecture and yield (complex traits) in autotetraploid potato using SNP and phenotyping datasets, enabling enhanced precision breeding for climate-resilient crop improvement. The work integrates population structure analysis (DAPC and STRUCTURE), environmental correction using Best Linear Unbiased Estimates (BLUEs), and comparative statistical models to improve trait–locus associations. Gaining hands-on experience in developing a robust polyploid GWAS workflow using R and Linux.

Research Internship Feb 2023 - Sept 2025

– Pursued under the supervision of Dr. Tapan Chowdhury, Head and Associate Professor, Department of Computer Science and Engineering, Techno Main Salt Lake, Kolkata, India

– **Research Domain:** Signaling Pathway Analysis, Molecular Docking, Drug Repurposing, Deep Learning for Protein-Ligand Binding Affinity Prediction, Sequence Alignment Algorithms

Publications-Journal

[1] **E. Lodh**, S. Majumder, T. Chowdhury, and M. De, "RLBindDeep: A ResNet-LSTM based novel framework for protein–ligand binding affinity prediction," *Journal of Molecular Graphics and Modelling*, vol. 144, no. 109282, p. 24, Jan. 2026, doi: 10.1016/j.jmgm.2026.109282

[2] T. Chowdhury, S. Basu, A. Roy, V. Sarkar, K. Mondal, **E. Lodh**, and M. De, "Graph-theoretic and emotional analysis of character dynamics in novel-to-film adaptations," *Journal of Computational Social Science*, vol. 9, no. 18, p. 23, Jan. 2026. doi: 10.1007/s42001-025-00451-2

[3] S. Majumder, **E. Lodh**, and T. Chowdhury, "Implications of trinodal inhibitions and drug repurposing in MAPK pathway: A putative remedy for breast cancer," *Computational Biology and Chemistry*, vol. 113, no. 108255, p. 22, Oct. 2024, doi: 10.1016/j.compbiolchem.2024.108255.

[4] **E. Lodh**, S. Majumder, and T. Chowdhury, "PAM50GenePath: A CatBoost-Driven Framework for Enhanced Invasive Breast Cancer Subtype Classification," *Sādhanā*, Feb. 2025, (Under Review).

Publication-Conference

[1] **E. Lodh**, S. Majumder and T. Chowdhury, "CGDeepAff: Deep Learning-Based Approach for Protein-Ligand Binding Affinity Estimation Using CNN-GRU," *2025 8th International Conference on Electronics, Materials Engineering & Nano-Technology (IEMENTech)*, Kolkata, India, 2025, pp. 1-6, doi: 10.1109/IEMENTech65115.2025.10959578. (**Presenter**)

[2] T. Chowdhury, U. Das, A. Makur, A. Sinha, D. Jana, A. Das, and **E. Lodh**, "Ensemble Clustering on Big Data," *2025 8th International Conference on Electronics, Materials Engineering & Nano-Technology (IEMENTech)*, Kolkata, India, 2025, pp. 1-6, doi: 10.1109/IEMENTech65115.2025.10959554. (**Presenter**)

[3] M. De, R. L. Chhetri, M. Konar, A. N. Joardar, A. Jain, **E. Lodh** and T. Chowdhury, "A Deep Learning-Based Method for the Categorization of Different Skin Diseases," *Second International Conference on Advanced Computing and Systems (AdComSys 2025)*, Kolkata, India, 2025 (Accepted, In Press). (**Presenter**)

[4] **E. Lodh**, S. Majumder, T. De, T. Chowdhury, and M. De, "GeneDeepNet: A Differential Expression and Deep Learning Based Novel Framework for Detecting Invasive Breast Cancer Subtypes," *4th International Conference on Machine Learning and Data Engineering (ICMLDE-2025), Procedia Computer Science*, 2025 (Accepted, In Press). (**Presenter**)

Projects

Streamlit-Based Trio VCF Analyzer for Structural Variant Interpretation (Launch App, GitHub Repo) (2025)
Based on Genomics & NGS Module Project · Interactive Web App
- Developed an interactive Streamlit app that ingests VCF files from trio-based structural variant calling and presents a complete summary of SV types, genomic locations, and functional context.
- Implements trio role inference (child/parents), sex inference based on X-chromosome heterozygosity, and detection of de novo mutations via Mendelian consistency checks.

Delly-VCF-Trio-Analyzer: Command-Line SV Interpretation Pipeline (GitHub Repo) (2025)
Genomics & NGS Module Project; Reproducible Analysis Workflow
- End-to-end command-line pipeline for parsing, summarising, and prioritising structural variants from Delly-generated trio VCF files, including QC, de novo calling, annotating, tiering pathogenic variants, and plotting.
- Designed for reproducible workflows with clearly structured output tables, text reports, and visualisations that can be integrated into downstream clinical or research pipelines.

Professional Memberships

IEEE (Institute of Electrical and Electronics Engineers) Member Feb 2025 - present
– Member of IEEE Computational Intelligence Society and IEEE Engineering in Medicine and Biology Society

Leadership

2025 - present	Postgraduate Student Ambassador, **University of Birmingham**
2025 - present	Student Rep, MSc Bioinformatics FT (2025-26 Batch), **University of Birmingham**
2024 - 2025	Convenor of Department of Computer Science and Engineering, **Techno Main Salt Lake**
2023 - 2025	Class Representative, Department of Computer Science and Engineering, **Techno Main Salt Lake**

Skills

Programming Languages	Python, R, Shell Scripting, Awk, Linux, C
Bioinformatics Tools	- Proficiency in molecular docking and real-time simulation tools (e.g., **UCSF Chimera, PyRx, AutoDock Vina 1.2.5, ClusPro 2.0, Discovery Studio (BIOVIA)**) - Familiar with in silico ncRNA chracterization tools (e.g., **RNAfold, LncRRISearch, LncBase v.3, lncLocator, iLOC-LncRNA(2.0), CPC2, RNAinter v4.0, NPInter v5.0**) - Familiar with primer tools (e.g., **NEBcutter V2.0, Primer3 Input**) - Done working with plant regulome analysis tools (e.g., **PlantPAN 4.0, Phytozome v13**)
High-performance Computing Skill	Gained experience in running large-scale genomics workflows in BlueBEAR HPC (University of Birmingham)
Digital Skills	Microsoft Office tools, Canva, DATAtab, Cytoscape
Editing Softwares	Adobe Photoshop, Adobe Premier, Adobe Audition

Competitions

Internal Hackathon'23 Sept 2023
- Intra-college hackathon for finals of SIH-2023
- Organised by Techno Main Salt Lake
- **Position:** Qualified to the finals

INDUSTRIAL CARNIVAL 4.0, a 36 Hours Ideathon May 2021
- Organised by SPE-VIT (Vellore Institute of Technology), School of Chemical Engineering
- **Position:** Qualified to the finals

LOKNITI, Policy Conclave 2021 Apr 2021
- Organised by Public Policy & Opinion Cell, IIT Kanpur
- **Project:** ACCEPTaB (Activated, controllable, cost-effective, eco-friendly, perennial, thermo-absorbent bio-generator
- **Position:** 1st

ENVITIATIVE, Public Policy Hackathon 2021 Apr 2021
- Organised by Environment Cell, University Business School, Punjab University
- **Project:** ACCEPTaB
- **Position:** 3rd

West Bengal State Student-Youth Science Fair 2019 Nov 2019
- Organised by Department of Youth Services and Sports, Government of West Bengal
- **Category:** State Science Quiz Contest
- **Position:** 1st

West Bengal District Level Student-Youth Science Fair 2019 Sept 2019
- Organised by Department of Youth Services and Sports, Government of West Bengal
- **Project:** S.M.A.R.T HOME
- **Position:** 1st

Most Innovative Research Presentation Dec 2018
- Organised by Ramakrishna Mission Boys' Home High School (H.S.), Rahara
- **Project:** Enemy Detection Radar using Arduino and A.A.V.A.R.S
- **Position:** 1st

Language Qualifications

IELTS, Overall Band Score: 8.0 (Listening: 8.5, Reading: 9.0, Writing: 8.0, Speaking: 6.5), CEFR level: C1 (2025)
Goethe Start Deutsch A1, Goethe-Institut, Score: 71/100, Befriedigend (2024)

Certifications

Biology Meets Programming: Bioinformatics for Beginners from University of California San Diego, Coursera (2025)
Python for Genomic Data Science from Johns Hopkins University, Coursera (2024)
Introduction to Machine Learning from Duke University, Coursera (2023)
Introduction to Python Programming from University of Pennsylvania, Coursera (2022)

Extracurriculum

Participation in the cultural programme at the Jahresabschlussfeier at Goethe-Institut Kolkata (2024)
Organised Hasta-La-Vista, Dept. of CSE, Techno Main Salt Lake (2023)
Participation in Photography event, by Calcutta Youth Meet Chapter 5 (2021)
1st in TRIFECTA, a Fandom Quiz - by Literary Club of Techno Main Salt Lake (2021)
Participation in SIYAAHI (Bengali), a Writing Competition, by Heramba Chandra College (2021)
Passed Sangeet Visharad Part 1 (4th Year) in Vocal-Classical, from Pracheen Kala Kendra (2016)