

Sumit Tarafder

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RESEARCH INTERESTS

I am interested in the intersection of bioinformatics and machine learning. Specifically, I am working on quality assessment, refinement, and prediction of RNA 3D monomers and complex structures.

EDUCATION

Virginia Tech

Blacksburg, VA

- Ph.D. student in Computer Science, Advisor: [Prof. Debswapna Bhattacharya](#).

2022 - 2027 (Expected)

Bangladesh University of Engineering & Technology (BUET)

Dhaka, Bangladesh

- M.Sc. in Computer Science and Engineering, CGPA: 3.58 / 4.00
- B.Sc. in Computer Science and Engineering, CGPA: 3.85 / 4.00

2018 – 2021

2012 – 2017

WORK EXPERIENCE

Virginia Tech

Blacksburg, VA

- Graduate Research Assistant, Research Lab: [Bhattacharya Lab](#)
- Projects: Focused on working with the prediction and refinement of macromolecular structure of RNA and associated complexes.

Aug 2022 - Present

Virginia Tech

Blacksburg, VA

- Graduate Teaching Assistant, [CS 5914 -TS: Warehouse Scale Computing](#)
- Graded multiple paper review and summary writings for individual students and conducted office hours for problem solving.

Aug 2022 - Dec 2022

United International University

Dhaka, Bangladesh

- Lecturer, [Department of Computer Science and Engineering](#)
- I was the instructor and coordinator for a wide range of undergraduate-level theory and practical courses such as: CSE-323 - Computer Networks, CSE-315: Data Communications, CSE-429: Digital System Design for 13 semesters.

May 2017 - Oct 2021

CERTIFICATIONS & AWARDS

- [Machine Learning by Stanford University on Coursera. Certificate earned at Friday, June 1, 2018 2:20 PM GMT.](#)
- Academic Excellence: University Merit Scholarship & Dean's List from [BUET](#).

SKILLS

- Languages: Python, C++, Java, HTML, CSS
- Frameworks: Pytorch, Matplotlib, Scikit-learn
- Tools: Git, Docker, Chimera

PUBLICATIONS

1. **Sumit Tarafder**, Debswapna Bhattacharya. "*lociPARSE: a locality-aware invariant point attention model for scoring RNA 3D structures*", 2023. [[Under Submission](#)] [[PDF](#)] [[Source code](#)]
2. Rahmatullah Roche, Bernard Moussad, Md Hossain Shuvo, **Sumit Tarafder**, Debswapna Bhattacharya. "*EquiPNAS: improved protein-nucleic acid binding site prediction using protein-language-model-informed equivariant deep graph neural networks*", 2023. [[Under Submission](#)] [[PDF](#)] [[Source code](#)]
3. **Sumit Tarafder**, Mazharul Islam, Swakkhar Shatabda, Atif Rahman. "*Figbird: A probabilistic method for filling gaps in genome assemblies*", *Bioinformatics*, Volume 38, August 2022, Pages 3717–3724, Issue 15. [[Impact factor: 5.8](#)] [[PDF](#)] [[Source code](#)]
4. **Sumit Tarafder**, Md. Toukir Ahmed, Sumaiya Iqbal, Md Tamjidul Hoque, M. Sohel Rahman. "*RBSURFpred : Modeling Protein Accessible Surface Area in Real and Binary Space using Regularized and Optimized Regression*", *Journal of Theoretical Biology*, Volume 441, Jan 2018, Pages 44 - 57. [[Impact factor: 2.0](#)] [[PDF](#)] [[Source code](#)]