Md. Fahim Sultan

Website view

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House 26, Chalabond, Sector-4,Uttara, Dhaka,Bangladesh

EDUCATION

Bachelor of Science in Computer Science & Engineering

Jan 2020 - Feb 2024

Daffodil International University

- Cgpa : 3.72 on 4.00
- Thesis on "MLAFP-XN: Leveraging Neural Network Model for Development of Antifungal Peptide Identification Tool".
- Research Assistant (RA) at HIRL lab.

PhD in Computer Science & Engineering

Jan 2025 - Dec 2029 (Expected)

Oakland University

- Cgpa : -- on 4.00 (First Semester-Fresher)
- Thesis on

WORK EXPERIENCE

Research Assistant (RA)

Jan 2023 - Feb 2024

Health Informatics Research Lab (HIRL) - Daffodil International University

- Published machine-learning based Paper on Q1 journal.
- Gained skill to build a comprehensive machine-learning model.
- Developed a web-server of anticancer prediction based on ANVIL softwar: https://circular-palatable-term.anvil.app/.
- Created a methodology, generated visualizations, model develop.
- Developed AI webserver.
- Provided mentorship on two undergraduate students during their research based project.

Graduate Research Assistant (GRA)

Jan 2025 - Present

Security and AI Research Lab (S-AIR Lab) - Oakland University

- Papers were published on **EMNLP, MICCAI conferences** and **Q1 journals**.
- Independently handled and managed **grant proposals for NIH funding**, showcasing strong research planning, writing, and strategic funding acquisition skills
- Designed and implemented a novel pre-trained base embedding system cybersecurity, similar to LLMs.
- Designed LLM optimization methodology, conceptualized ML enhancement, developed SOTA models from scratch, fine-tuned LLMs for specific tasks, and managed collaborative cross-domain projects

PUBLICATIONS

Journal Publications

- **Md. Fahim Sultan**, Md. Mamun Ali, Md. Ali Moni, Kawsar Ahmed, Mst Shapna Akter topic on BitterRF: Efficient tools for detect the bitter peptide based on feature selection approach with ML model ,**Computers in Biology and Medicine.**
- **Sultan, M.F.**, Shaon, M.S.H., Karim, T., Ali, M.M., Hasan, M.Z., Ahmed, K., Bui, F.M., Chen, L., Dhasarathan, V. and Moni, M.A., 2024. MLAFP-XN: Leveraging Neural Network Model for Development of Antifungal Peptide Identification Tool. **Heliyon**.
- **Sultan, M.F**., Karim, T., Shaon, M.S.H., Azim, S.M., Dehzangi, I., Akter, M.S., Ibrahim, S.M., Ali, M.M., Ahmed, K. and Bui, F.M., 2025. DHUpredET: A Comparative Computational Approach for Identification of Dihydrouridine Modification Sites in RNA Sequence. **Analytical Biochemistry**, p.115828.
- M. S. Akter, **Sultan, M. F.**, T. Karim, and M. S. H. Shaon, "ReVGG-R2Net: Optimized recurrent framework for microscopic blood cell segmentation," **Tissue and Cell**, vol. 98, p. 103189, 2026. doi: 10.1016/j.tice.2025.103189.
- Karim, T., Shaon, M.S.H., **Sultan, M.F**., Hasan, M.Z. and Kafy, A.A., 2024. ANNprob-ACPs: A novel anticancer peptide identifier based on probabilistic feature fusion approach. **Computers in Biology and Medicine**, 169, p.107915.
- Shaon, M.S.H., Karim, T., **Sultan, M.F**. et al. AMP-RNNpro: a two-stage approach for identification of antimicrobials using probabilistic features. **Scientific Reports**, Sci Rep 14, 12892 (2024).

Conference Publications

- Shaon, M.S.H., **Sultan, M.F**., Karim, T., Alshan, M.S.H., Cuzzocrea, A. and Akter, M.S., 2024, December. NeuroBooster: A Robust Classifier for the Discovery of Neuropeptide Sequences based on Meta-learning Approach. In **2024 IEEE International Conference on Big Data (BigData)** (pp. 6132-6141). IEEE.
- Shaon, M.S.H., **Sultan, M.F**., Karim, T., Cuzzocrea, A. and Akter, M.S., 2024, December. An Advanced Liver Disease Detection Tool with a Stacking-Ensemble-based Machine Learning Approach. In **2024 IEEE International Conference on Big Data (BigData)** (pp. 6123-6131). IEEE.
- Shaon, M.S.H., **Sultan, F.**, Karim, T. and Akter, S., 2025. Anti-BioEn: An advanced framework for accurate bioactive agent classification based on hybrid models and graph feature encoding method. In **BIO Web of Conferences** (Vol. 163, p. 01007). EDP Sciences.
- Mst Shapna Akter., **Sultan, M.F**., Alfredo Cuzzocrea. Neuro-Symbolic Methods in Natural Language Processing: A Review. In **international conference in Data Science, Technology and Application.**
- **Md. Fahim Sultan**, Tasmin Karim, Md. Shazzad Hossain Shaon, Alfredo Cuzzocrea, and Mst Shapna Akter. "Leveraging Pre-Trained LLMs and NLP-Based Extractors for Robust Null Pointer Dereference Detection". **SDS2025**

Conference Publications (Submitted)

- **Md. Fahim Sultan**, Mst Shapna Akter. “CodeVul+: A Structure-Aware Framework for Cross-Repository Vulnerability Detection”. **EMNLP 2025**

SKILLS

- **Programming Language:** C, Python, R, PHP.
- **Python Packages:** NumPy, protlearn, pfeatures, Pandas, Scikit-Learn, Matplotlib, Seaborn, Keras, PyTorch, Bio-python, Tanserflow.
- **Data Analysis:** Python, Weka, R, Collab, IlearnPlus, IfeatureOmega.
- **Research Tools:** Canva, Latex, Quilbot, MS Office, Draw.io, Lucid charts.
- **Research Skills:** Machine Learning, Deep Learning, Data Science, Exploratory Data Analysis, Statistical Data Analysis and Bioinformatics, Health Informatics, Biomedical Engineering, Peptide Genome Sequence Classification, Gene Expression, Tabular Data, NLP, Sequence-based Data.
- **Web Server:** ANVIL, AWS, local-host, HTML, CSS, Docker.
- **Database:** MySQL.
- **Ongoing**: KAN model, NLP analysis, Ensemble model, Meta-learning's mathematical terms, GNN model, BioLLMs, LLM optimization.
- **Graduate Teaching Assistant.**

RESEARCH INTEREST

AI-security, AI development, Machine learning, LLM, NLP, Bio-technology, Health-informatics, Deep-learning, Model development, Enforce ML approach.

ACADEMIC PROJECTS

Dr. is Here

Dec 2020, 2nd semester

- Our project, named "Dr. is Here", utilizes **C programming and data structures** to provide a range of services. Availble in webserver: https://sites.google.com/diu.edu.bd/dr-is-here/home?authuser=1

Fix Finder

Aug 2023, 10th semester

- Developed a website for home services using **HTML, CSS, PHP, AJAX and JavaScript**.
- This project has been exclusively deployed on a local server using **XAMPP**.

MLAFPXN

Aug 2023, 10th semester

- Developed a website with ML model for detect the antifungal using **HTML, CSS, PHP, AJAX, Python, JavaScript, and Anvil**.
- This project successfully **published in Heliyon** journal and contribution in various types of feature processing and finds the most suitable features using SHAP.

CERTIFICATES

- **Advance Certificate Course in Computer Application.** — **2017**
  NIT
- **Academic Excellence Award.** — **2019**
  Dhaka Metropoliton Police (DMP)
- **Advances in Computational Intelligence in Algorithms & Computing.** — **2020**
  (IJCACI 2020)
- **Participation in 3rd ELC Economical Project Contest, Indonesia.** — **2022**
  Universitas Islam Sultan Agung.
- **Participation in AI Celebration Project Showcase, Bangladesh** — **2024**
  Daffodil International University.
- **Participation as a Conference Speaker, Spain** — **2025**
  14th International Conference DATA 2025.
- **Graduate Student Teacher Training** — **2025**
  Oakland University, 2025.

SERVICES

Reviewer Experiences

- Journal name: **SN Computers,**
  Reviewer position: 2nd, Article Type: Original Research, Review date: 14 Jan. 2025.
- Journal name: **SN SNAPP,**
  Reviewer position: 1st, Article Type: Original Research. Review date: 15 Jun. 2025.
- Journal name: **Scientific Reports,**
  Reviewer position: 1st, Article Type: Original Research. Review date: 01 Jul. 2025.
- Journal name: **SN SNAPP,**
  Reviewer position: 1st, Article Type: Original Research. Review date: 25 Oct. 2025.
- Journal name: **BigData 2025 Conference.**
  Reviewer position: 1st, Article Type: Original Research. Review date: 29 Oct. 2025.

Conference Speaker

- 14th International Conference on Data Science, Technology, and Applications (DATA 2025).
  Held in Bilbao - Spain, June 10, 2025

REFFERENCES

Refference 1

Dr. Mst Shapna Akter
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Refference 2

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