

Farhan Tanvir

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Education

Oklahoma State University (OSU)

Aug. 2019 - Aug 2024

PhD in Computer Science, 3.91/4.00

Stillwater, Oklahoma

Relevant coursework: Machine Learning, Big Data Management, Big Data Analytics, Data Structures and Algorithms Analysis 2.

Islamic University of Technology (IUT)

Jan. 2012 - Dec. 2015

Bachelor of Science in Computer Science and Engineering,

Dhaka, Bangladesh

Relevant coursework: Calculus (I-IV), Data Structures and Algorithms, Introduction to Database Management Systems, Machine Learning, Relational Database Management System.

Experience

Graduate Research and Teaching Assistant

Aug 2019 - Current

Oklahoma State University

Stillwater, Oklahoma

- Authored a paper on DDI prediction, which is accepted in IEEE CIBCB 2021. Tasks include collecting, analyzing and interpreting large datasets, developing machine learning models and performing data management tasks.
- Conducting a study on DDI prediction using heterogeneous graph neural networks, a critical issue and a major driver of drug related death in US.
- Conducting a study on Drug repurposing for COVID-19 using heterogeneous graph neural networks.
- Taught discrete math, database management and C/C++ programming in a freshman and sophomore class containing 50+ students.

Software Engineer

Jul. 2018 - Jul. 2019

Impulse (BD) Ltd

Dhaka, Bangladesh

- Developed 40% of two modules (payment, payment refund) of Event Management System built in ASP.NET.
- Communicated with clients of foreign companies for 1 year which enhanced communication skill.

Software Developer

Apr. 2016 - Jul. 2018

DataSoft Systems Bangladesh Ltd

Dhaka, Bangladesh

- Implemented 10% of ERP solution (consisting of 26 modules) built in ASP.NET MVC and entity frameworks resulting in \$15000 funding and bonus from BIGM. Project website: <http://www.bigm.edu.bd>
- Performed various tasks including developing dashboard for data visualization, CMS and website, testing software, supervising subordinates in designated task and maintain stakeholder's interaction.

Publications

Accepted Journal Papers

- Muhammad Ifte Khairul Islam, **Farhan Tanvir**, Ginger Johnson, Esra Akbas and Mehmet Emin Aktas, "Proximity-Based Compression for Network Embedding," *Frontiers in Big Data*, 2020.
DOI: <https://www.frontiersin.org/articles/10.3389/fdata.2020.608043/full> **2020**

Accepted Conference Papers

- **Farhan Tanvir**, Muhammad Ifte Khairul Islam and Esra Akbas, "Predicting Drug-Drug Interactions Using Meta-path Based Similarities," *2021 IEEE Conference on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB)*, Melbourne, Australia, 1-6 (2021).
DOI: [10.1109/CIBCB49929.2021.9562802](https://doi.org/10.1109/CIBCB49929.2021.9562802) **2021**

Conference Papers under Review

- Bri Bumgardner, **Farhan Tanvir**, Khaled Mohammed Saifuddin and Esra Akbas, "Drug-Drug Interaction Prediction: a Purely SMILES Based Approach," Submitted in *IEEE BigData*, 2021. **2021**

Relevant Projects

DDI Prediction | *Python, Pytorch, Tensorflow, Pandas, Numpy* **Mar. 2020 - Current**

- Conducting multiple studies for DDI Prediction and Polypharmacy Side Effect Prediction. Each of these studies consider drug information and its interaction with other biomedical entities.
- For DDI prediction, these studies undertook various approaches including heterogeneous information network, heterogeneous graph neural network, hypergraph and hypergraph neural network.

Drug repurposing for COVID-19 | *Python, Pytorch, Tensorflow, Pandas, Numpy* **Sept. 2021 - Current**

- Conducting a study addressing drug repurposing for COVID-19 using heterogeneous graph neural network. This study takes into account drug information and its interaction with other biomedical entities, genes and diseases related to COVID-19.

Network Embedding | *Python* **Aug 2019 - Dec 2020**

- proposed a novel graph compression method based on the neighborhood similarity that compresses the input graph to a smaller graph with incorporating local proximity of its vertices into super-nodes.
- employed the compressed graph for network embedding instead of the original large graph to bring down the embedding cost and also to capture the global structure of the original graph

Technical Skills

Programming Languages C, C++, Python, Java, Android.

Web Language HTML, CSS, JavaScript.

Statistical Analysis Predictive Modeling, Machine learning, Deep Learning, Data Cleaning, Analyzing and Visualization, and Time-series Analysis.

ML/DL Tools TensorFlow, Pytorch, Keras, Scikit-learn, Pandas, Numpy, SciPy, Matplotlib, GraphX, NetworkX, and DGL (Deep Graph Library).

Big Data Application Hadoop, Apache Kafka, Apache Flume, HiveQL, HBase, MapReduce, Hive.

Volunteer Activities

Judge, Oklahoma State Science and Engineering Fair.

2020 and 2021

Organizing Secretary, Bangaldesh Student Association, OSU.

Jan. 2021 - Current

Secretary, IUT Computer Society, Bangladesh.

Jan. 2015 - Dec 2015