

T. M. Tariq Adnan

Website: <https://tmadnan10.github.io>

Email: tariqadnan@cse.buet.ac.bd

[\[Google Scholar\]](#) [\[GitHub\]](#)

RESEARCH INTEREST

- Big Data Analytics
- Data Mining
- Distributed Systems
- Social Networks
- Deep Learning
- Bioinformatics

EDUCATION

- **Bangladesh University of Engineering and Technology (BUET)** Dhaka, Bangladesh
M.Sc. in Computer Science and Engineering; CGPA: 3.92/4.0 October 2017 - February 2021
- **Bangladesh University of Engineering and Technology (BUET)** Dhaka, Bangladesh
B.Sc. in Computer Science and Engineering; CGPA: 3.95/4.0 February 2013 - September 2017
**Ranked 3rd in a class of 150 students*

WORK EXPERIENCE

- **Bangladesh University of Engineering and Technology (BUET)** Dhaka, Bangladesh
Assistant Professor, Department of CSE, BUET May 9, 2021 - Present
- **Bangladesh University of Engineering and Technology (BUET)** Dhaka, Bangladesh
Lecturer, Department of CSE, BUET July 3, 2018 - May 9, 2021
- **Bangladesh University of Engineering and Technology (BUET)** Dhaka, Bangladesh
Graduate Research Assistant, Department of CSE, BUET October, 2017 - March, 2018

RESEARCH EXPERIENCE

- **Hierarchical Attention for Host Intrusion Detection**
 - Proposed a novel hierarchical attention based deep learning method of detection intrusion on a host.
 - Evaluated the model on ADFA-LD dataset, which is a collection of a trace data of Linux system calls.
 - With proper tuning of hyper-parameters, the proposed method successfully outperforms the existing methods in terms of accuracy as well as lower false alarm rate.

Supervisor: [Dr. Shohrab Hossain](#)

Status: Preprint

- **Protein Function Prediction using Multi-Layer CNN**
 - This study is targeted to develop a highly accurate method for predicting protein functions which incorporates a novel **hierarchical multi-layer convolutional neural network (CNN)**.
 - The proposed model is capable of effectively capturing the **long-range interactions** among the amino acid residues.
 - The proposed model have been evaluated using **CAFA3** and **Uniprot** dataset.

Supervisor: [Dr. Shamsuzzoha Bayzid](#)

Status: Preprint

- **UACD: A Local Approach for Identifying the Most Influential Spreaders in Twitter in a Distributed Environment**

- Proposed a novel method of identifying the most influential spreaders on Twitter social network by incorporating the **user-specific information** (extracted from his/her Twitter account) to the topological information.
- Provided a **distributed implementation** of our proposed algorithm on the Amazon EC2 and observe that the algorithm is **scalable** and can process a significantly large network.
- Compared the ranking generated by UACD with that of the existing methods using widely accepted metrics of ranking comparison and the experimental results indicate that UACD is **12.5%** (on average) more accurate and can produce the result in **175×** less time in comparison to the existing methods.

Supervisor: [Dr. Muhammad Abdullah Adnan](#)

Status: Under review at [SNAM](#)

- **Fast, Scalable and Geo-Distributed PCA for Big Data Analytics**

- Taken advantage of the **zero-noise-limit** Probabilistic PCA model, and introduce a **block-division** method for it in order to suppress the explosion of intermediate data efficiently.
- Proposed a communication efficient solution in the geo-distributed environment.
- The proposed algorithm is referred to as **TallnWide**, and empirical evaluation with real datasets shows that TallnWide can successfully handle significantly higher dimensional data (**10×**) than existing methods, and offer up to **2.9×** improvement in running time in the geo-distributed environment compared to the conventional approaches.

Supervisor: [Dr. Muhammad Abdullah Adnan](#)

Status: Published in [Information Systems](#)

PUBLICATIONS

- **TM Tariq Adnan**, Md Mehrab Tanjim, and Muhammad Abdullah Adnan. “Fast, scalable and geo-distributed PCA for big data analytics”. Information Systems, 98 (2021): 101710. [\[Paper\]](#) [\[Code\]](#)
- **TM Tariq Adnan**, Md. Saiful Islam, Md. Tarikul Islam Papon, Sourav Kumar Nath, Muhammad Abdullah Adnan. “UACD: A Local Approach for Identifying the Most Influential Spreaders in Twitter in a Distributed Environment”. Article is under review at Social Network Analysis and Mining (SNAM).

TEACHING EXPERIENCE (SELECTED)

- **CSE 453:** High Performance Database System
- **CSE 315:** Microprocessors and Microcontrollers
- **CSE 391:** Embedded Systems and Interfacing
- **CSE 216:** Database Sessional
- **CSE 204:** Data Structure and Algorithm I Sessional
- **CSE 110:** Programming Language Sessional

TECHNICAL SKILL

- **Programming Languages:** Python, C, C++, Java, Assembly Language (8086), Prolog, PL/SQL
- **Database:** mySQL, Oracle, PostgreSQL
- **Frameworks:** Keras, Tensorflow, Django, Spring Boot, React, Laravel
- **Others:** Hadoop MapReduce, Apache Spark, Scala

EXTRA CURRICULAR ACTIVITIES

- **Member of Organizing Committee**

International Conference on Networking Systems and Security (NSysS), organized by Department of CSE, BUET (2018, 2019, 2020)

- **Coach**

BUET International Collegiate Programming Contest (ICPC) Teams (2018, 2019, 2020)

- **Team Leader and Member**

Departmental class test scheduling committee (2018-up to date)

HONORS AND AWARDS (SELECTED)

- Dean's Award in each academic year in BUET for academic result
- University Merit Scholarships in each semester in BUET for academic result
- University Scholarship for Best Project in July-2016 semester

ACADEMIC PROJECTS (SELECTED)

- **Sudoku Solving Game**

A graphical classic sudoku puzzle solving game developed using C.

- **Download Manager**

A file download manager developed using Java, which tries to increase the download speed by partitioning the file and download concurrently.

- **School Management System**

A web application that manages academic events of a school. The app was developed using Laravel and MySQL.

- **Coin Sorting Machine**

An automated device that sorts different valued Bangladeshi coins. Thw project was developed using Arduino, Load Cell with Amplifier, multiple motors etc. It was awarded the Best Project Award. [\[Weblink\]](#)

REFERENCE

- **Dr. Muhammad Abdullah Adnan**

Associate Professor, Department of CSE

Bangladesh University of Engineering and Technology (BUET)

Email: adnan@cse.buet.ac.bd

[\[Google Scholar Profile\]](#)

- **Dr. Md. Shamsuzzoha Bayzid**

Associate Professor, Department of CSE

Bangladesh University of Engineering and Technology (BUET)

Email: shams_bayzid@cse.buet.ac.bd

[\[Google Scholar Profile\]](#)