

Taseen Mubassira

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Research Interests

My primary interests lie at the intersection of Human-Computer Interaction (HCI), Computer-Supported Cooperative Work (CSCW), computer security and user privacy. I am also enthusiastic about ubiquitous technologies and systems with a particular focus on distributed systems and database design. Through my work experience, I have developed a keen interest in accessible learning and collaborative technologies for individuals with physical and intellectual disabilities.

Education

Bangladesh University of Engineering and Technology (BUET)

April 2018 - May 2023

B.Sc. in Computer Science and Engineering

Notable courses

CSE 305 - Computer Architecture
CSE 321 - Computer Networks
CSE 471 - Machine Learning
CSE 461 - Algorithm Engineering
CSE 313 - Operating System
CSE 405 - Computer Security
CSE 309 - Compiler

CSE 463 - Introduction to Bioinformatics
CSE 409 - Computer Graphics
MATH 247 - Linear Algebra
MATH 145 - Calculus and Coordinate Geometry
CSE 315 - Microprocessors, Microcontrollers and Embedded Systems

English Proficiency

TOEFL iBT

September, 2023

- *Total Score : 103*
Reading: 26, Listening: 28, Speaking: 23, Writing: 26

Publications

- Mubassira, T., Hasan, M., Sharmin, S. (2024). **"Reading the Mind's Eye: Detecting Trauma-Vulnerability in Individuals by Analyzing Attention Through Eye-Tracking"**. In: Zaslavsky, A., Ning, Z., Kalogeraki, V., Georgakopoulos, D., Chrysanthis, P.K. (eds) Mobile and Ubiquitous Systems: Computing, Networking and Services. MobiQuitous 2023 (EAI MobiQuitous 2023) (Acceptance Rate 30 %). DOI: 10.1007/978-3-031-63992-0_28
- Mubassira, T., Hasan, M., Mukta, J., Islam, A (2024). **"Enhancing EmoBot: An In-Depth Analysis of User Expectation and Satisfaction in An Emotion-Aware Chatbot"**. In: International Conference on Networking, Systems and Security, 2024. (Peer Reviewed)
- Mubassira, T., Sharmin, S. (2023) **Attention to Threat Images: A Machine Learning Approach to Detect and Predict Trauma-Vulnerability in Individuals Using Eye-Tracking** In: 1st International Dhaka Science conference for women by WSTC 2023

Research Experience

Towards perceiving and resolving the impediments to reporting for the developing countries

Aug 2024 - Current

Human Computer Interaction, Generic Reporting System

- **DOI:** 10.1109/NSYSS2.2017.8267790
- **Live At:** ureporter.cse.buet.ac.bd
- **Supervisor:** Dr. A. B. M. Alim Al Islam, Professor, CSE, BUET
- **Collaboration:** Tarik Reza Toha, University of North Carolina at Chapel Hill

- **Contribution:** Improved the system in collaboration with the research team

Detecting Sentiment in Anonymous Submissions: A Study on User Report Data
Human Computer Analysis, Sentiment Analysis

Sep 2024 - Current

- **Supervisor:** Dr. A. B. M. Alim Al Islam, Professor, CSE, BUET
- **Contribution:** Performed sentiment analysis on crowd sourced anonymous reports

From Redundancy to Resilience: An In-Depth Analysis of Fault Tolerance in Cloud Computing Systems
Fault tolerance, Cloud Computing, Distributed Systems

Feb 2024 - May 2024

- **Supervisor:** Dr. Rezwana Reaz, Assistant Professor, CSE, BUET
- **Contribution:** Analyzed fault tolerance mechanisms in cloud computing, categorize approaches, compare frameworks, and explore advanced techniques to enhance resilience and high availability

Fine-Tuning GPT-2 for Bengali Auto Text Completion Using Literary Corpus: A Qualitative Analysis
Natural Language Processing, Machine Learning

Jan 2023 - Mar 2023

- **Presentation:** Slides
- **Supervisor:** Dr. Mohammed Eunus Ali, Professor, CSE, BUET
- **Contribution:** Fine-tuned GPT-2 with a Bengali literature corpus to improve auto text completion

Work Experience

Therap Bd Ltd

August 2023 – Current

Database Engineer

Therap delivers Software as a Service (SaaS) to government and private organizations worldwide, specifically across the USA and Canada, that support individuals with intellectual and developmental disabilities. In this role, I carry out the following responsibilities.

- **Custom Reports:** I created SQL queries to produce health data reports and optimized and tuned their performance by reviewing and analyzing user requirements.
- **Patching:** I applied the latest patches to single Instance, container oracle databases, and RAC systems.
- **R&D:** I conducted extensive research and development on the latest versions of Goldengate, SQLTexplain, and DBSAT. I also performed R&D improving the performance, security, and functionality of Oracle's database products and tools such as TDE, database partitioning, in-memory processing and oracle audit vault.
- **Scripting:** I designed and implemented scripts in Shell, Python, and Java to automate various DBA tasks.
- **Training:** I mentored junior engineers by thoroughly explaining different modules of the software and visually illustrating the database structure and functionality.

Conferences & Talks

EAI MobiQuitous 2023 - 20th EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services

November 14-17, 2023

RMIT University, Melbourne, Australia

Presented our research work at the time alongside my co-author

NSysS 2023 - 10th International Conference on Networking, Systems and Security

December 21-23, 2023

BUET, Dhaka, Bangladesh

Presented our poster accepted in the conference alongside my co-author

1st International Science Conference for Women - 2023

February 15-16, 2023

Pan Pacific Sonargaon, Dhaka, Bangladesh

Presented my poster accepted in the conference

Honors & Awards

BUET Admission Test Merit Scholarship	2018
National Higher Secondary School Merit Scholarship by the Government of Bangladesh <i>Stood 2nd among the girls in Dhaka Board. Talent Pool Scholarship, a scholarship for excellent result in Bangladesh's higher secondary school exams.</i>	2017
National Secondary School Merit Scholarship by the Government of Bangladesh <i>Stood 5th among the girls in Dhaka Board. Talent Pool Scholarship, a scholarship for excellent result in Bangladesh's secondary school exams.</i>	2015
Primary School Merit Scholarship by the Government of Bangladesh <i>Talent Pool Scholarship</i>	2009

Academic Projects

- **Bangla Handwritten Digit Recognition**
python, numpy, pandas
A basic convolutional neural network implemented in Python with NumPy, trained on the NumtaDB dataset to recognize Bengali digits.
- **Drops of Life**
React-Native, java, javascript
Developed a cross-platform blood donation app with React Native, using Google Firebase for the database.
- **Curvilinear RED Implementation in NS3**
Network Simulator-3 (NS-3), C++
Developed an improved RED algorithm for internet routers.
- **Making a C Compiler from Scratch**
Flex, Bison, YACC, C++
Built a C compiler that reads small C programs and generates machine code for execution.
- **xv6 Memory Management (OS)**
Linux, C, bash, kernel programming
Added memory management support to the xv6 operating system.
- **Hand Gesture Based PC Controller**
C/C++, AVR Microcontrollers, Arduino
Built a microcontroller based hand gesture recognizer to control PC
- **CHAALDAAL**
HTML/CSS, JS, django/python, oracle/sql
Built a web interface similar to the website chaldal.com made with django, that updates a local oracle database

Other Experiences

- Active Member of Bangladeshi Women in Computer Science and Engineering (BWCSE)
- Participated in Bangladesh Math Olympiad (BDMO) several times
- Mentored two undergraduate students in research projects
- Tutored 9th to 12th grades students for six years

Technical Skills

- **Languages :** C/C++, Python, Java, Javascript, MySQL, x86 Assembly, Bison/Flex, Bash
- **Frameworks :** Oracle DBMS, PyTorch, TensorFlow, Docker, Django, NodeJs, React, React-Native, JavaFx, Firebase, NS3, xv6, Git, LaTeX, Wireshark
- **Libraries :** Sklearn, Pandas, Matplotlib, Seaborn