Fatema Tuj Johora
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Work Experience

- **Software engineer** — Dhaka, Bangladesh
  Synesis IT — *April.2025– Ongoing*

Education

- **Bangladesh University of Engineering and Technology** — Dhaka, Bangladesh
  Bachelor of Engineering in Computer Science and Engineering; CGPA: 3.94 out of 4.00 — *Feb.2020–Mar.2025*
- **Ideal School and College,Motijheel** — Dhaka, Bangladesh
  HSC,GPA: 5.00 out of 5.00; Talent Pool scholarship — *2019*
- **BTCL Ideal School and College,Moghbazar** — Dhaka, Bangladesh
  SSC,GPA: 5.00 out of 5.00 — *2017*

Skills and Interests

- **Programming Languages**:C++, Java,Python, SQL, JavaScript, Bash, HTML, CSS, 8086 Assembly
  Interests: Database Management and Optimization, Object Oriented Programming, Data Structure and Algorithm, Computer Network and Security,Machine Learning

Research Experience

- **Uncovering Devitations Under Protocol State Fuzzing in TLS Implementations** Dec 2023 – Present
  Undergraduate Thesis, Supervised by Dr. Md. Shohrab Hossain, Professor, CSE, BUET
  Collaboration with Dr. Syed Rafiul Hussain and Syed Md. Mukit Rashid, Department of CSE, Pennsylvania State University, USA,
  Description: Developed an extension to the StateLearner framework for TLS 1.3 in Java to systematically test a range of TLS libraries. Conducted a thorough analysis of the full TLS 1.3 handshake process to detect deviations, verify protocol compliance, and identify bugs within tested libraries.

Projects

- **Kidney Anomaly Detection with Deep Learning Model**: Developed as part of the CSE-472(Machine Learning Sessional) course in the 4-2 as a two person project. This project includes:
  - Utilized four different deep learning models (VGG19, modified Xception, InceptionV3, and DenseNet) to detect kidney anomalies such as stones, cysts, and tumors, each producing individual predictions.
  - Merged the predictions from all models to improve accuracy and implemented a Feedforward Neural Network (FNN) for further enhancement of detection performance.
- **PixelShare**: Developed as part of the CSE-408(Software Development Sessional) course in the 4-1 with a three-person team.
  - A picture-sharing platform that allows users to upload photos and videos to designated groups, featuring an efficient tag-based search system for easy media discovery.
  - Fully implemented using Svelte, ensuring a responsive and dynamic user experience while supporting organized sharing and accessibility for group-based content.
- **Sherlock's Eye**: Developed as part of the CSE-216(Database Sessional) course in the 2-2 with a two-person team.
  - Enables users to file cases and track progress, while detectives can select cases based on expertise for efficient resolution.
  - Features real-time updates, status tracking, and secure communication channels to enhance interactions.
  - Built with Node.js (backend) and HTML/CSS (frontend), focusing on usability and security.
- **Securus Domas: Automated Home and Security**: Developed as part of the CSE-316(Microprocessors, Microcontrollers, and Embedded Systems Sessional) course in the 3-1 with a six-person team. This project includes:

- Bluetooth-controlled door and light system, along with gas and flame detection, providing real-time alerts via Telegram.
- Intruder detection utilizing LDR and laser technology, complemented by automated water tank management and plant watering systems.
- Integrated rain sensor for automatic window closure, ensuring optimal safety and resource management.

- **Football Player Database System**: Developed as part of the CSE-108(OOP Sessional) course in the 1-2 as a single person project. This project includes:
  - A system to manage football players in different clubs, making it easy to handle player profiles, club assignments, and transfer tracking.
  - Built with JavaFX for the user interface and a server-client network system for smooth data sharing and communication.

Academic Achievements

Scholarships: Dean's List Scholarship (L1-T2, L2-T2), University Merit Scholarship (L2-T1, L4-T1)

References

- **Dr. Md. Shohrab Hossain**: Professor, Department of Computer Science and Engineering (CSE), BUET
  Email: mshohrabhossain@cse.buet.ac.bd, Mobile: 01819250196
- **Sheikh Azizul Hakim**: Lecturer, Department of Computer Science and Engineering (CSE), BUET
  Email: hakim@cse.buet.ac.bd, Mobile: 01911302328