

ANISHA ISLAM

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EDUCATION

Bachelor of Science in Computer Science and Engineering (CSE)

Expected May 2022

Bangladesh University of Engineering and Technology (BUET)

Dhaka, Bangladesh

CGPA: **3.80/4.00** (*Calculated based on 7 completed semesters*)

Relevant Coursework: Computer Graphics, Computer Security, Computer Architecture, Compiler, Operating System, Software Engineering, Data Structures and Algorithms, Object-Oriented Programming Language, etc.

RESEARCH EXPERIENCE

Undergraduate Thesis

Mar 2021 – Present

Topic: Region mapping and transfer learning in the field of crime prediction.

Supervisor: [Dr. Tanzima Hashem](#), Professor, Department of CSE, BUET

- Conducted a literature review on transfer learning and crime prediction to learn about state-of-the-art systems.
- Extracted geospatial data from OpenStreetMap using **OSMnx**, performed planar geometric data processing and analysis using **Shapely**, experimented with various similarity measurement methods such as **Pearson Co-efficient**, **Cosine Similarity**, and **Attention Mechanism** etc.
- Processed and analyzed datasets with more than **6 million records** (i.e., New York City taxi trip dataset).
- Used an **autoencoder** to learn representations for the source and target city regions. After that, applied **attention mechanism** to find similarities between source and target city regions. Finally, used a **Spatio-temporal deep learning model** to predict crime occurrences in the target city by using information from the most similar source city. Then, fine-tuned the target city model using the features of the target city.
- Currently exploring various combinations of spatial and temporal deep learning models such as **GRU**, **RNN**, **GAT** to get the best prediction.

WORK EXPERIENCE

Intern

Feb 2021 – Mar 2021

eSystems Research and Development (eSRD) Lab

Department of CSE, BUET

Dhaka, Bangladesh

Under research grant of ICT Division, Government of Bangladesh.

- Created an e-prescription generation system using Angular, Spring Boot, and MongoDB.
- Developed the APIs needed to generate and download e-prescription, create, read, update and delete hospital, patient, and doctor profiles, etc. Designed the frontend to show the functions of the APIs.
- Participated in the final evaluation hackathon, debugged a given system, and added additional functionalities to the existing system. Achieved "**Excellent**" (**Performance >= 80%**) in the final evaluation of the internship and was awarded as the best performer.

TEACHING EXPERIENCE

- **Private Tutor:** High School Physics and Chemistry *Jan 2018 – Jan 2021*

STANDARDIZED TEST

- **IELTS: 8.0/9.0** *Oct 2021 – Oct 2023*
Reading: 9.0; Listening: 8.5; Speaking: 8.0; Writing: 7.0

AWARDS AND HONORS

- **Runners up (Team Tessera)** - Ada Lovelace Datathon, 2021 *Jan 2021*
- **Winner (Team Anomaly)** *2020*
Covid-19 Idea contest, IEEE BUET Student Branch
- **University Merit Scholarship, BUET** *2019*
- **Dean's List Award, BUET** *2018*
- **Talent Pool Scholarship, Merit Position: 2nd (Dhaka Board-Female)** in Higher
Secondary School Certificate Exam (GPA: 5.00/5.00) *2017*
- **General Scholarship** in Secondary School Certificate Exam (GPA: 5.00/5.00) *2014*

NOTABLE ACADEMIC PROJECTS

Easy Internet Service *Apr 2021 – Jul 2021*

- A web platform to facilitate internet connection establishment for three entities – NTTN, Internet Service Providers, and End Users.
- Led a three-person team to finalize the project scope, designed the Entity-Relationship Diagram (ERD), and assisted in designing the Class Diagram.
- Developed 90% of the backend APIs using Node.js, designed the database schema, established and populated the MongoDB database, created the frontend using React and CSS.

Lines of Action *Nov 2020*

- An example of an adversarial search with alpha-beta pruning.
- Implemented two modes of this game: **Human vs Human** and **Human vs AI** using Java and JavaFX.
- The AI applied different heuristics such as piece square table, area, mobility, and connectedness of the dices to choose the best move.

Self-Driven Vacuum Cleaner *Dec 2019 – Jan 2020*

- A self-driven vacuum cleaning robot using ATmega32A as the core.
- Assisted in hardware connection establishment of the robot.

YouTube Database *Jan 2019*

- A database project with similar features like YouTube.
- Designed the frontend of the project using PHP and CSS, connected the PostgreSQL database with the frontend.

English Game *Sep 2017 – Feb 2018*

- Developed a Java project for English grammar quizzes, used multi-threading to enable multiplayer functionality.
- Designed the UI using JavaFX.

TECHNICAL SKILLS

- **Languages:** JavaScript, Python, Java, C/C++, PHP, HTML, CSS
- **Databases:** MongoDB, PostgreSQL
- **Frameworks:** Node.js, Spring Boot, React, Angular
- **IDEs:** Visual Studio Code, Code Blocks, IntelliJ Idea
- **Others:** LaTeX, Scikit Learn, JavaFX, TensorFlow, Git, Google Colab, Jupyter Notebook

VOLUNTEER EXPERIENCE

Treasurer

Jan 2021 – Present

BWCSE (Bangladeshi Women in Computer Science and Engineering)

Dhaka, Bangladesh

- Managed the budget of the club, collected funds for hosting events, maintained logs of transactions, submitted financial statements to advisory board members.
- Co-hosted events like programming contests, project showcasing competitions, and workshops for female students of BUET.

Backend Developer

Feb 2020 – Apr 2020

Badhan – BUET Zone

Dhaka, Bangladesh

Badhan is a non-political, social organization for voluntary blood donors in Bangladesh.

- Developed the APIs needed to search blood donors from BUET based on their last blood donation date, phone number, residential hall, address, blood group, and availability.
- Technology stack used: Node.js and MongoDB.

EXTRA-CURRICULAR ACTIVITIES

- **Performer** (stage-drama and musical events) *2017 - Present*
 - Cultural Night, CSE Festival, BUET
- **House Captain** *2013 – 2014*

Krishnachura House, Viqarunnisa Noon School and College

 - Led the students of one of the four houses of Viqarunnisa Noon School, supervised the vice-captain, received an overall performance award.
- **Vice-Captain** *2012 – 2013*

Krishnachura House, Viqarunnisa Noon School and College

 - Maintained the discipline of the school, organized various cultural events.

REFERENCES

- Dr. Tanzima Hashem
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- Dr. Abu Sayed Md. Latiful Hoque
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