

# ANISHA ISLAM

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## EDUCATION

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**Master of Science in Computing Science**, University of Alberta Expected 2024

Relevant Coursework: Reinforcement Learning I, Software Analytics: ML and SE, Image Registration: Theory and Practice, Introduction to KDD & Data Mining.

**Supervisor:** [Dr. Abram Hindle](#)

**Bachelor of Science in Computer Science and Engineering**, Bangladesh University of Engineering and Technology (BUET) 2017 - 2022

Graduated with Honours (CGPA: 3.81)

**Thesis:** Cross-city Deep Transfer Learning Model for Crime Prediction, Supervised by: [Dr. Tanzima Hashem](#)

## PUBLICATION

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**Anisha Islam**, Nipuni Tharushika Hewage, Abdul Ali Bangash, and Abram Hindle. 2023. [Evolution of the Practice of Software Testing in Java Projects](#), Accepted at *20th International Conference on Mining Software Repositories (MSR'2023)*

## WORK EXPERIENCE

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### Graduate Research Assistant

Jan 2023 - Current

University of Alberta

*Edmonton, AB, Canada*

- Created a web interface for demonstrating the routing algorithm of the [personal shopper problem](#).
- Designed an interactive map frontend for locating the shopper and the customer using React-Leaflet.
- Developed the APIs needed to connect the React frontend to the Flask backend and calculated the routes using existing algorithms.
- Displayed the routes in the frontend using Leaflet Routing Machine.

### Graduate Teaching Assistant

Sep 2022 - Current

University of Alberta

*Edmonton, AB, Canada*

- Worked as a Teaching Assistant for the course **CMPUT 402/501: Software Quality**. Conducted lab sessions on test-driven development, CI-CD pipeline, code coverage, mocks and stubs, static analysis, technical debt, different testing techniques like Unit Testing, System Testing using pytest, and Mutation Testing using pitest. Graded assignments.
- Worked as a Teaching Assistant for the course **CMPUT 101: Introduction to Computing**. Conducted lab sessions on Python programming. Graded assignments and midterms. Proctored exams.

### Software Engineering Intern

May 2022 - Aug 2022

NewsCred, Inc. d/b/a Optimizely

*Dhaka, Bangladesh*

- Created an engineering dashboard using JIRA, Grafana, Docker, and Python.
- Used Grafana to visualize the results from the JIRA api and PostgreSQL database.
- Collaborated with senior developers, participated in peer-reviews.
- Conducted research on alternate technology stacks and documented the findings.

### Intern

Feb 2021 - Mar 2021

eSystems Research and Development (eSRD) Lab

*Dhaka, 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  $\geq 80\%$ ) in the final evaluation of the internship and was awarded as the best performer.

## AWARDS AND HONORS

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- **Graduate Recruitment Scholarship (\$5000.00)** University of Alberta, 2022 - 2023
- **Runners up (Team Tessera) (\$126.00)** Ada Lovelace Datathon, Dhaka, Bangladesh, 2021
- **Winner (Team Anomaly)** Covid-19 Idea contest, IEEE BUET Student Branch, Dhaka, Bangladesh, 2020
- **University Merit Scholarship (\$216.00)** Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, 2019 - 2021
- **Dean's List Award (\$76.00)** Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, 2018 - 2022
- **Talent Pool Scholarship (\$370.00)** Higher Secondary School Certificate Examination - Government of Bangladesh (Board Merit Position - 2nd), Dhaka, Bangladesh, 2017 - 2022
- **General Scholarship (\$97.00)** Secondary School Certificate Examination - Government of Bangladesh, Dhaka, Bangladesh, 2014 - 2016

## NOTABLE ACADEMIC PROJECTS

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### Visualizing the Representation Learned by a DDQN agent in the Mountain Car Environment

- Interpreted why certain learned representations give higher rewards than others.
- Provided insights into how the different layers of the network work together to learn to get higher rewards.
- Calculated how different representational properties change over the training period.

### Easy Internet Service

- 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

- 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.

## SKILLS

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|---------------------------------|--|
| <b>Programming Languages</b>    | Python, Java, JavaScript, C, C++, C#, HTML, CSS  |
| <b>Databases and Frameworks</b> | MongoDB, PostgreSQL, Node.js, Spring Boot, React, Flask                                  |
| <b>Others</b>                   | L <sup>A</sup> T <sub>E</sub> X, TensorFlow, PyTorch, Git, Grafana, JIRA, Docker, Gradle |
| <b>Soft Skills</b>              | Time Management, Teamwork, Documentation, Presentation, Leadership                       |

## VOLUNTEER EXPERIENCE

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|---|--------------------------|
| <b>Treasurer</b>  | Jan 2021 - May 2022      |
| BWCSE (Bangladeshi Women in Computer Science and Engineering) | <i>Dhaka, Bangladesh</i> |

- 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 the female students of BUET.

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|--------------------------|--------------------------|
| <b>Backend Developer</b> | Feb 2020 - Apr 2020      |
| Badhan – BUET Zone       | <i>Dhaka, Bangladesh</i> |

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.