MEHIL SHAH

◇ +1 (782) 882 6199 ◇ shahmehil@dal.ca ◇ mehilshah.github.io

EDUCATION

Doctor of Philosophy in Computer Science and Engineering January 2023 - Present
Dalhousie University, Halifax, NS
Doctoral Advisors: Dr. Masud Rahman & Dr. Foutse Khomh
CGPA: 4.23/4.3

Bachelor of Technology in Computer Science and Engineering August 2016 - July 2020
Manipal University Jaipur, Jaipur, *CGPA: 3.824 (9.56/10.0)*

RESEARCH PUBLICATIONS

- **M. B. Shah**, M. Kaistha and Y. Gupta, *"Student Performance Assessment and Prediction System using Machine Learning,"* 2019 4th International Conference on Information Systems and Computer Networks (ISCON), 2019, pp. 386-390, DOI: 10.1109/ISCON47742.2019.9036250
ISSN : 2169-3536 November 2019

EXPERIENCE

Dalhousie University Jan. 2023 - Present
Research & Teaching Assistant

· Currently working with **Dr. Masud Rahman** and **Dr. Foutse Khomh** in the area of bug reproducibility and bug localization for deep learning bugs.
· Working as a research assistant in the **RAISE Lab**, I primarily focus on research concerning deep learning bugs at the intersection of Software Engineering and Deep Learning.
· Served as a Teaching Assistant for **CSCI3130** in Summer 2023, Fall 2023, and **CSCIx691** in Fall 2023.

Accenture Aug. 2020 - Dec. 2022
Software Engineer

· Utilized technologies like **Java**, **Node.js**, **Spring**, **NestJS** and **Angular** to build products for Deutsche Bank's flagship project **Unity**, which is estimated to save **300M$** in revenue for the bank.
· Developed a secure and scalable SMS Verification system for Deutsche Bank's retail division's critical products using **Node.js** and **Hazelcast**, which allowed the client to stay compliant with court orders, potentially saving **4M$** in fines
· Responsible for designing, developing, and maintaining backend systems for products like Account Opening & Self-Services, used by more than **2M** people worldwide.

KEY ACHIEVEMENTS

- Received a fully-funded (including fees and living expenses) admission to the prestigious Ph.D. Program in Dalhousie University's Faculty of Computer Science, total scholarship amount: **108,000 CAD (4 Years)**
- Received various client appreciation awards for Client Value Creation, Outstanding Dependability, and fast-track promotion to **Analyst** for exemplary work and outstanding deliverables.
- Awarded the **TMA Pai Merit Scholarship** (50% Fee Waiver) during the entire tenure of undergraduate studies for scoring a 4868 Rank in the qualifying exams plus 95.6% in AISSCE.

PROJECTS

Towards Enhancing the Reproducibility of DL Bugs
Research Project, Dalhousie University *June 2023 - Aug. 2023*

· Conducted empirical study analyzing deep learning bugs to identify key edit actions and information needed to reproduce bugs.

· Utilized Apriori algorithm to analyze study data and determine specific edit actions and critical information associated with reproducing different bug types.
· Defined bug-specific edit actions and critical information to improve deep learning bugs' reproducibility.

Impact of Deep Learning Bugs on Siamese Neural Network
Research Project, Dalhousie University *Jan. 2023 - May 2023*

· Conducted an empirical study to comprehensively understand three common bugs (data bugs, initialization bugs, and logic bugs) in Siamese Neural Networks.
· Provided valuable insights for future research, focusing on automated bug localization and bug reproduction in deep learning bugs.

Quantum Computation Algorithms as efficient solution to Optimization Problems
B.Tech Final Year Project, ISRO Bengaluru *Jan. 2020 - May 2020*

· Worked with Dr. Yogesh Prasad to develop a novel algorithm to solve one of the 21 Karp's NP-complete problems, MaxCut, using Quantum Computing.
· Implemented Quantum Approximation in addition to basic statistical techniques using Single Parameter and Double Parameter Optimization to estimate the MaxCut Interval
· Predicted the MaxCut Interval and value with an average accuracy of nearly 91%, which is slightly better than the existing approximation algorithms.

Student Performance Assessment & Prediction System using Machine Learning
B.Tech Minor Project, Manipal University, Jaipur *Jan. 2019 - May 2019*

· Worked with Dr. Yogesh Gupta to create a Student Performance Assessment and Prediction System which predicts the student's performance and grades while keeping in mind other essential personality factors like interests, attributes, and opinions (IAO variables) which affect their lifestyle.
· Research findings of the project were presented at ISCON 2019, an IEEE Conference co-sponsored by **IEEE UP Section** and **DRDO**

INTERNSHIPS

- **Indian Space Research Organization** (Jan 2020 - May 2020): Developed a novel algorithm using the Quantum Approximation Optimization Algorithm to predict the value of MaxCut based on graph structure, yielding an accuracy of 91.7%.
- **School of Information Sciences, Manipal University** (June 2019 - July 2019): Underwent training on full stack development and built a capstone project using Angular & Spring Boot.
- **Motilal Oswal Financial Services Ltd.** (May 2018 - June 2018): Learnt about the fundamental concepts of technical analysis of financial markets and implemented the real-time analysis of stocks on the technical indicators using Python.

PROGRAMMING SKILLS

- **Languages**: C, C++, Java, Python, HTML, CSS, Javascript.
- **Frameworks**: Bootstrap, Angular, Node.js, NestJS, Express, JUnit, Mockito, Spring Boot.
- **Database Technologies**: MySQL
- **DevOps**: Linux Fundamentals & Scripting, Git, NPM, Maven, Teamcity, Jenkins, Docker, Kubernetes.

EXTRA-CURRICULAR AND SOCIAL ACTIVITIES

- Served as an active volunteer and teacher in Gramiksha, a pan India NGO to fix education at the grassroots level in India.
- Participated and volunteered in events for various social causes such as Blood Donation Drives, Cloth Donation Drives, Flash Mob for Charity, and India@75 Events.