

# MEHIL SHAH

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## EDUCATION

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### Doctor of Philosophy in Computer Science

January 2023 - Present

Dalhousie University, Halifax, NS

*Doctoral Advisors: Dr. Masud Rahman & Dr. Foutse Khomh*

*CGPA: 4.25/4.3*

### 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

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### *During PhD:*

1. **Shah, Mehil B.**, Mohammad Masudur Rahman, and Foutse Khomh. "Towards enhancing the reproducibility of deep learning bugs: an empirical study." *Empirical Software Engineering* 30, no. 1 (2025): 23, (**EMSE** + Journal-first track at **FSE 2025**).
2. **Shah, Mehil B.**, Mohammad Masudur Rahman, and Foutse Khomh. "Towards Understanding the Impact of Data Bugs on Deep Learning Models in Software Engineering." *arXiv preprint arXiv:2411.12137* (2024). (*Under Major Revision at EMSE*)
3. Jahan, Sigma, **Mehil B. Shah**, Parvez Mahbub, and Mohammad Masudur Rahman. "Improved Detection and Diagnosis of Faults in Deep Neural Networks Using Hierarchical and Explainable Classification." In *Proceedings of The 47th IEEE/ACM International Conference on Software Engineering (ICSE 2025)*.
4. Jahan, Sigma, **Mehil B. Shah**, and Mohammad Masudur Rahman. "Towards understanding the challenges of bug localization in deep learning systems." *arXiv preprint arXiv:2402.01021* (2024). (*Under Major Revision at EMSE*)

### *Before PhD:*

1. Devi, Bali, **Mehil Bimal Shah**, Venkatesh Gauri Shankar, and Gauri Sharma. "NPQuant: A Robust Quantum Inspired Computation Algorithms as an Efficient Solution to NP-Complete Problems." In *International Conference on Cyber Warfare, Security and Space Computing*, pp. 302-313. Cham: Springer Nature Switzerland, 2024.
2. **Shah, Mehil B.**, Maheeka Kaistha, and Yogesh Gupta. "Student performance assessment and prediction system using machine learning." In *2019 4th international conference on information systems and computer networks (ISCON)*, pp. 386-390. IEEE, 2019.

## POSTER PRESENTATIONS

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1. **Mehil B. Shah**, M. Masudur Rahman, and Foutse Khomh. 2025, *Poster: Towards Enhancing the Reproducibility of Deep Learning Bugs: An Empirical Study*, CSER, Halifax, Canada (**Best Paper Presentation Award**).
2. **Mehil B. Shah**, M. Masudur Rahman, and Foutse Khomh. 2024, *Poster: Towards Enhancing the Reproducibility of Deep Learning Bugs: An Empirical Study*, SEMLA, Montreal, Canada.
3. Sigma Jahan, **Mehil B. Shah**, and M. Masudur Rahman. 2024, *Poster: Towards Understanding the Challenges of Bug Localization in Deep Learning Systems*, SEMLA, Montreal, Canada.

## PROFESSIONAL EXPERIENCE

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### 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 focus on understanding the unique challenges of deep learning bugs and building automated tools to improve their reproducibility - a critical first step toward resolving them. My work has shown that with proper techniques, we can significantly reduce bug reproduction time and increase success rates for previously challenging DL bugs.
- Teaching Experience: Served as a teaching assistant and marker for the courses *CSCI x691: Project Courses*, *CSCI 3130: Software Engineering*, *CSCI5308: Advanced Topics in Software Development*, and *CSCI6409: Process of Data Science*.

#### 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

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- 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.

### INTERNSHIPS

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- **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

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

### ACADEMIC SERVICE

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- Organizing Committee – **FSE 2026 (Web Co-Chair)**, **IJCAI 2025 (Web Co-Chair)**, **SANER 2025 (Web Co-Chair)**
- Program Committee Member – **MSR 2024 (Junior PC Member)**
- Student Volunteer - **ICSE 2025**, **CSER 2025**

- Subreviewer – **ICSE 2025**, **FSE 2025**, **ASE 2024**, **FSE 2024** (Research Track + Artifact Track), **ICSE 2024** (Demo Track), SANER 2024, **ASE 2023** (Tool Track), **TOSEM**, JSS.

## REFERENCES

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**Dr. Mohammad Masudur Rahman**

PhD Supervisor

Assistant Professor, Dalhousie University, Canada

✉ masud.rahman@dal.ca

**Dr. Foutse Khomh**

PhD Supervisor

Professor, Polytechnique Montreal, Canada

✉ foutse.khomh@polymtl.ca

**Mr. Nikhil Yadav**

Former Manager at Accenture

Vice President - Technology at Deutsche Bank, Germany

✉ nikhilyadav3@gmail.com