

# MOHAMMED LATIF SIDDIQ

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[GitHub](#) | [LinkedIn](#) | [Google Scholar](#) | [Researchgate](#)

## EXECUTIVE SUMMARY

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- Software engineering researcher with three years of hands-on experience developing and conducting research in the intersection of software security and applied machine learning.
- Industry-level software engineering experience developing enterprise and machine learning-based software.

## EDUCATION

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<b>University of Notre Dame, USA</b> Ph.D. in Computer Science and Engineering Department of Computer Science and Engineering	January 2022 - Present  CGPA: 3.50/4.00
<b>University of Notre Dame, USA</b> M.S. in Computer Science and Engineering Department of Computer Science and Engineering	January 2022 - August 2024  CGPA: 3.50/4.00
<b>Bangladesh University of Engineering and Technology, Bangladesh</b> Bachelor of Science in Computer Science and Engineering Department of Computer Science and Engineering	February 2016 - February 2021  CGPA: 3.46/4.00

## PROFESSIONAL EXPERIENCES

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<b>University of Notre Dame, IN, USA</b>   <i>Graduate Research Assistant</i> <ul style="list-style-type: none"><li>• Working in the intersection of language models, their application, and security.</li><li>• Published eight peer-reviewed research papers.</li></ul>	January, 2023 - Present
<b>Cummins Inc., IN, USA</b>   <i>Data Scientist Co-op</i> <ul style="list-style-type: none"><li>• Worked on building a question-answering pipeline using large language models.</li><li>• <b>Tech stack:</b> Python, Langchain, Gradio, and Databricks platform.</li></ul>	June, 2023 - August, 2023
<b>University of Notre Dame, IN, USA</b>   <i>Graduate Teaching Assistant</i> <ul style="list-style-type: none"><li>• <b>Spring 2022:</b> CSE 30321 Computer Architecture</li><li>• <b>Fall 2022:</b> CSE 30332 Programming Paradigms</li></ul>	January, 2022 - December, 2022
<b>REVE Systems, Dhaka, Bangladesh</b>   <i>Junior Software Engineer</i> <ul style="list-style-type: none"><li>• Developing enterprise software for Bangladesh Parliament Secretariat.</li><li>• <b>Tech stack:</b> Java servlet, JSP and MySQL.</li></ul>	March, 2021 - November, 2021

## PUBLICATIONS

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Peer-reviewed full conference papers are prefixed with C, peer-reviewed special track papers with S, peer-reviewed workshop papers with W, and preprints with P.

- ⟨C6⟩ **Mohammed Latif Siddiq**, Simantika Dristi, Joy Saha, and Joanna C. S. Santos. “**Quality Assessment of Prompts Used in Code Generation**”. 24<sup>th</sup> *IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM 2024)*.
- ⟨C5⟩ **Mohammed Latif Siddiq**, Beatrice Casey, and Joanna C. S. Santos. “**A Lightweight Framework for High-Quality Code Generation**”. 24<sup>th</sup> *IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM 2024)*.

- ⟨C4⟩ **Mohammed Latif Siddiq**, Joanna C. S. Santos, Ridwanul Hasan Tanvir, Noshin Ulfat, Fahmid Al Rifat, and Vinicius Carvalho Lopes. **“Using Large Language Models to Generate JUnit Tests: An Empirical Study”**. 28<sup>th</sup> *International Conference on Evaluation and Assessment in Software Engineering (EASE 2024)*.
- ⟨C3⟩ **Mohammed Latif Siddiq\***, Jiahao Zhang\*, and Joanna C. S. Santos (\*Equal contribution). **“Understanding Regular Expression Denial of Service (ReDoS): Insights from LLM-Generated Regexes and Developer Forums”**. 32<sup>nd</sup> *IEEE/ACM International Conference on Program Comprehension (ICPC 2024)*.
- ⟨S2⟩ **Mohammed Latif Siddiq**, Lindsay Roney, Jiahao Zhang, and Joanna C. S. Santos. **“Quality Assessment of ChatGPT Generated Code and their Use by Developers”**. 21<sup>st</sup> *International Conference on Mining Software Repositories, Mining Challenge Track (MSR-Mining Challenge 2024)*.
- ⟨S1⟩ **Mohammed Latif Siddiq**, Jiahao Zhang, Lindsay Roney, and Joanna C. S. Santos. **“Re(gEx|DoS)Eval: Evaluating Generated Regular Expressions and their Proneness to DoS Attacks”**. 46<sup>th</sup> *International Conference on Software Engineering, New Ideas and Emerging Results Track (ICSE-NIER 2024)*.
- ⟨P3⟩ Rishov Paul, Md. Mohib Hossain, **Mohammed Latif Siddiq**, Masum Hasan, Anindya Iqbal, Joanna C. S. Santos. **“Enhancing Automated Program Repair through Fine-tuning and Prompt Engineering”**. 2023.
- ⟨P2⟩ **Mohammed Latif Siddiq**, Joanna C. S. Santos, Sajith Devareddy, and Anna Muller. **“Generate and Pray: Using SALLMS to Evaluate the Security of LLM Generated Code”**. 2024.
- ⟨W3⟩ **Mohammed Latif Siddiq**, Abdus Samee, Sk Ruhul Azgor, Md. Asif Haider, Shehabul Islam Sawraz, and Joanna C. S. Santos. **“Zero-shot Prompting for Code Complexity Prediction Using GitHub Copilot”**. 2<sup>nd</sup> *International Workshop on Natural Language-based Software Engineering (NLBSE 2023)*.
- ⟨W2⟩ **Mohammed Latif Siddiq**, and Joanna C. S. Santos. **“SecurityEval Dataset: Mining Vulnerability Examples to Evaluate Machine Learning-Based Code Generation Techniques”**. 1<sup>st</sup> *International Workshop on Mining Software Repositories Applications for Privacy and Security (MSR4P&S 2022)*.
- ⟨C2⟩ **Mohammed Latif Siddiq**, Shafayat Hossain Majumder, Maisha Rahman Mim, Sourov Jajodia, and Joanna C. S. Santos. **“An Empirical Study of Code Smells in Transformer-based Code Generation Techniques”**. 22<sup>nd</sup> *IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM 2022)*.
- ⟨P1⟩ Waqar Hassan Khan, Md Al Imran, Ahmed Nafis Fuad, **Mohammed Latif Siddiq**, and ABM Islam. **“Shashthosheba: Dissecting Perception of Bangladeshi People towards Telemedicine Apps through the Lens of Features of the Apps”**. 2022.
- ⟨W1⟩ **Mohammed Latif Siddiq**, and Joanna C. S. Santos. **“BERT-Based GitHub Issue Report Classification”**. 1<sup>st</sup> *International Workshop on Natural Language-based Software Engineering (NLBSE 2022)*.
- ⟨C1⟩ **Mohammed Latif Siddiq\***, Md. Rezwanur Rahman Jahin\*, Mohammad Rafid Ul Islam, Rifat Shahriyar, and Anindya Iqbal (\*Equal contribution). **“SQLIFIX: Learning Based Approach to Fix SQL Injection Vulnerabilities in Source Code”**. 28<sup>th</sup> *IEEE International Conference on Software Analysis, Evolution and Re-engineering (SANER 2021)*.

## GRANTS & SCHOLARSHIPS

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### Travel Grants, NSF ICSE 2024 Travel Awards, 2024

1,938\$ grants to participate in ICSE 2024 in-person and Student Mentoring Workshop in Lisbon, Portugal with a 30% acceptance rate.

**Travel Grants, ACM SIGSOFT Travel Grants, 2023**

1,200\$ grants to participate in ICSE 2023 in-person and Student Mentoring Workshop in Melbourne, Australia with a 50% acceptance rate.

**Travel Grants, Bangladesh Sweden Trust Fund, 2022 - 2023**

100\$ grants for one-way plane fare to attend USA school with financial funding.

**Travel Grants, NSF ICSE 2022 Travel Awards, 2022**

1,075\$ grants to participate in ICSE 2022 in-person and Student Mentoring Workshop along with complimentary registration for the conference.

**Research Assistantship, University of Notre Dame, 2022 - 2027**

Tuition scholarship, including health insurance and bimonthly stipends.

**Technical Scholarship, Bangladesh, 2016 - 2020**

Complimentary government scholarship for regular engineering students.

**Government Scholarship, Bangladesh, 2016 - 2020**

Awarded for outstanding Performance in Higher School Certificate Examination.

**Government Scholarship, Bangladesh, 2011 - 2012**

Awarded for outstanding Performance in Junior School Certificate Examination.

## ACHIEVEMENTS

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**AI for Bangla, Bangladesh, 2021**, Position: Top 30

**Google Hashcode, Global, 2019**, Position: 5<sup>th</sup> Among Bangladeshi Teams

**IEEEEXtrme 12.0, Global, 2018**, Position: 4<sup>th</sup> Among Bangladeshi Teams

**AUB Programming Contest, Bangladesh, 2018**, Position: 11<sup>th</sup>

**Samsung Coding Contest, Bangladesh, 2018, 2019**, Finalist

**Tech for Peace Hackathon, Bangladesh, 2017**, Winner

## TECHNICAL SKILLS

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**Languages:** Java, C, C++, Python, Matlab, Dart, Shell

**Database:** Oracle, MySQL, SQLite, MongoDB, Firebase

**OS:** Windows, Ubuntu 20.04, Windows Server 2016, Mac OS Monterey, CentOS 7/RedHat

**Version Control:** Git(GitHub, Bitbucket, Gitlab), TFS(Azure DevOps)

**Frameworks:** Vue.js, JSP, Flutter, JavaFX, Node.js, Django, Java servlet

**Web Technology:** HTML, CSS, Rest API, JSON, XML

**Cloud:** EC2, S3 Bucket, Azure

**Technical Writing:** L<sup>A</sup>T<sub>E</sub>X, Beamer, Overleaf

**Miscellaneous:** Gradio, Langchain, Databricks, Google Apps Script, Software Defined Networking, PyTorch, OpenGL, Weka, Mininet, NS2

## CERTIFICATES

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**TOEFL iBT**

Total: 99 (Out of 120, 30 Per section)

Reading: 24, Listening: 27, Speaking: 23, Writing: 25

**LinkedIn Assessment**

C, C++, Python, Django, MongoDB, MySQL, Git, HTML, Windows server, and Machine Learning

**Other Certifications**

Deep Learning Specialization (Coursera), Human-Computer Interaction I (Edx.org), Cyber Security

Essential (CISCO Learning Platform), Problem Solving (Advanced) Skills Certification Test (Hackerrank)

**Problem Solving**

Codeforces (Highest Rating: 1620), Codechef (Highest Rating: 1841), Hackerrank (Highest Rating: 1780)

## SERVICES

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**Mentor**, CSE Summer Enrichment Program, 2024.

**PC member**, Automated Software Engineering Conference 2024 Industry Showcase (ASE 2024).

**Junior PC member**, Mining Software Repositories Conference 2024 (MSR 2024).

**Committee Member**, Artifact Evaluation Committee, The ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2024).

**Student volunteer**, The IEEE/ACM International Conference on Software Engineering (ICSE 2024).

**Vice President**, Bangladeshi Students Association of Notre Dame (BDSA-ND) (2024 - 25).

**Treasurer**, Bangladeshi Students Association of Notre Dame (BDSA-ND) (2023 - 24).

## MENTORSHIP EXPERIENCE

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All mentees were supervised in conjunction with Dr. Joanna C.S. Santos (University of Notre Dame).

\* Mentees from University of Notre Dame.

@ Mentees from Bangladesh University of Engineering and Technology.

### **Spring 2022**

Mark Cheng\*

### **Summer 2022**

Shafayat Hossain Majumder@, Maisha Rahman Mim@, and Sourov Jajodia@

### **Fall 2022**

Ridwanul Hasan Tanvir@, Noshin Ulfat@, and Fahmid Al Rifat@

### **Spring 2023**

Abdus Samee@, Sk Ruhul Azgor@, Md. Asif Haider@, and Shehabul Islam Sawraz@

### **Summer 2023**

Simantika Dristi@, and Joy Saha@

### **Fall 2023**

Jiahao Zhang\*, Anna Muller\*, and Lindsay Roney\*

### **Spring 2024**

Lindsay Roney\*, Sajith Devareddy\*, Miguel Jose Maninang\*, and Neol Gutierrez\*

## REFERENCE

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**Dr. Joanna Cecilia da Silva Santos**

Assistant Professor

Department of Computer Science and Engineering

University of Notre Dame, IN, USA.

**Email:** joannacss AT nd DOT edu

**Relation:** Ph.D. Advisor