

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

## PROFESSIONAL EXPERIENCES

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<b>University of Notre Dame, IN, USA</b>   <i>Graduate Research Assistant</i>	January, 2023 - Present
<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>	
<b>Cummins Inc., IN, USA</b>   <i>Data Scientist Co-op</i>	June, 2023 - August, 2023
<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>	
<b>University of Notre Dame, IN, USA</b>   <i>Graduate Teaching Assistant</i>	January, 2022 - December, 2022
<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>	
<b>REVE Systems, Dhaka, Bangladesh</b>   <i>Junior Software Engineer</i>	March, 2021 - November, 2021
<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>	

## 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.

## PEER REVIEWED PUBLICATIONS

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- ⟨C1⟩ **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)*.
- ⟨C2⟩ **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)*.
- ⟨C3⟩ **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)*.
- ⟨C4⟩ **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)*.

## PEER REVIEWED SPECIAL TRACK AND WORKSHOP PUBLICATIONS

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- ⟨S1⟩ **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)*.
- ⟨S2⟩ **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)*.
- ⟨W1⟩ **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 2024)*.
- ⟨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 2024)*.
- ⟨W3⟩ **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 2023)*.

## ARXIV PREPRINTS

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- (P1) **Mohammed Latif Siddiq**, Simantika Dristi, Joy Saha, and Joanna C. S. Santos. “**Quality Assessment of Prompts Used in Code Generation**”. 2024.
- (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.
- (P3) **Mohammed Latif Siddiq**, Beatrice Casey, and Joanna C. S. Santos. “**A Lightweight Framework for High-Quality Code Generation**”. 2023.
- (P4) 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.

## 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  
**IEEE Xtrme 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<sup>@</sup>, Maisha Rahman Mim<sup>@</sup>, and Sourov Jajodia<sup>@</sup>

### Fall 2022

Ridwanul Hasan Tanvir<sup>@</sup>, Noshin Ulfat<sup>@</sup>, and Fahmid Al Rifat<sup>@</sup>

### Spring 2023

Abdus Samee<sup>@</sup>, Sk Ruhul Azgor<sup>@</sup>, Md. Asif Haider<sup>@</sup>, and Shehabul Islam Sawraz<sup>@</sup>

### Summer 2023

Simantika Dristi<sup>@</sup>, and Joy Saha<sup>@</sup>

### 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