

# MOHAMMED LATIF SIDDIQ

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

## EXECUTIVE SUMMARY

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- Software engineering and applied large language models researcher with three years of hands-on experience.
- Industry-level software engineering experience developing enterprise and machine learning-based software.
- Published 15+ papers in top-tier venues and research applied at Meta Platform and Cummins.
- **Research Interest:** Applied Language Models, Software Engineering, Software Security, and Testing.

## EDUCATION

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### University of Notre Dame, USA

January 2022 - May, 2026 (Expected)

Ph.D. in Computer Science and Engineering

**Advisor:** Dr. Joanna C.S. Santos

### University of Notre Dame, USA

January, 2022 - December, 2024

M.S. in Computer Science and Engineering (Non-thesis)

**Advisor:** Dr. Joanna C.S. Santos

### Bangladesh University of Engineering and Technology, Bangladesh

February, 2016 - February, 2021

Bachelor of Science in Computer Science and Engineering

**Advisor:** Dr. Anindya Iqbal

**Thesis:** SQLFIX: Learning Based Approach to Fix SQL Injection Vulnerabilities in Source Code

## PROFESSIONAL EXPERIENCES

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### Meta Platforms, Inc, CA, USA | *Software Engineer Intern (Ph.D.)*

May, 2025 - Present

- Worked with WhatsApp iOS development team for group and communities.
- Applied new LLM-based features for WhatsApp group chat.

### University of Notre Dame, IN, USA | *Graduate Assistant*

January, 2022 - Present

- Authored 14+ peer-reviewed publications, focusing on applied LLMs software engineering and security.
- Mentored 25+ students, contributing to 10+ research outputs and successful graduate school admissions.

### Cummins Inc., IN, USA | *Data Scientist Co-op*

June, 2023 - August, 2023

- Saved \$6M annually by automating warranty approval using an LLM-powered QA system.
- **Tech stack:** Python, Langchain, Gradio, and Databricks platform.

### REVE Systems, Dhaka, Bangladesh | *Junior Software Engineer*

March, 2021 - November, 2021

- Built enterprise-grade applications for the Bangladesh Parliament Secretariat using Java-based technologies.
- **Tech stack:** Java servlet, JSP and MySQL.

## PUBLICATIONS

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

- ⟨J1⟩ Nishat Raihan, Dhiman Goswami, Sadiya Sayara Chowdhury Puspo, **Mohammed Latif Siddiq**, Christian Newman, Tharindu Ranasinghe, Joanna C.S. Santos and Marcos Zampier “**On the Performance of Large Language Models on Introductory Programming Assignments**”. *Journal of Intelligent Information Systems*.
- ⟨C7⟩ Nishat Raihan, **Mohammed Latif Siddiq**, Joanna C. S. Santos, and Marcos Zampieri. “**Large Language Models in Computer Science Education: A Systematic Literature Review**”. 56<sup>th</sup> *ACM Technical Symposium on Computer Science Education (SIGCSE TS 2025)*.
- ⟨S3⟩ **Mohammed Latif Siddiq**. “**Advancing Secure and Standard Source Code Generation Techniques**”. 47<sup>th</sup> *International Conference on Software Engineering, Doctoral Symposium (ICSE DS 2025)*.
- ⟨W5⟩ Mushfiquir Rahman and **Mohammed Latif Siddiq**. “**Code Comment Classification with Data Augmentation and Transformer-Based Models**”. 4<sup>th</sup> *International Workshop on NL-based Software Engineering (NLBSE 2025)*.
- ⟨C6⟩ **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)*.
- ⟨C5⟩ **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)*.
- ⟨C4⟩ **Mohammed Latif Siddiq**, Simantika Dristi, Joy Saha, and Joanna C. S. Santos. “**The Fault in Our Stars: Quality Assessment of Prompts Used in Code Generation**”. 24<sup>th</sup> *IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM 2024)*.
- ⟨C3⟩ **Mohammed Latif Siddiq**, Beatrice Casey, and Joanna C. S. Santos. “**FRANC: A Lightweight Framework for High-Quality Code Generation**”. 24<sup>th</sup> *IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM 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)*.
- ⟨W4⟩ **Mohammed Latif Siddiq**, Joanna C. S. Santos, Sajith Devareddy, and Anna Muller. “**SALLM: Security Assessment of Generated Code**”. 6<sup>th</sup> *International Workshop on Automated and Verifiable Software System Development (ASYDE 2024)*.
- ⟨P2⟩ 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**”. *arXiv preprint arXiv:2304.07840*. 2023.

- ⟨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)*.
- ⟨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)*.
- ⟨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)*.
- ⟨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)*.
- ⟨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**”. *arXiv preprint arXiv:2205.02793*. 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)*.

## SERVICES

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**Journal Reviewer**, Springer Nature Empirical Software Engineering Journal, 2025

**Journal Reviewer**, IEEE Transactions on Software Engineering, 2025

**Journal Reviewer**, Elsevier Science of Computer Programming, 2024

**Committee Member**, Artifact Evaluation Committee, The IEEE/ACM International Conference on Software Engineering (ICSE 2025).

**Junior PC member**, Mining Software Repositories Conference (MSR 2025).

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

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

**Junior PC member**, Mining Software Repositories Conference (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 2022).

**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, IN, USA.

@ Mentees from Bangladesh University of Engineering and Technology, Dhaka, Bangladesh.

Spring 2025

Antonio Karam\*, Sajith Devareddy\*, Maria C. Leal\*, Neol Gutierrez\*, Arvin Islam-Gomes\* and Abby Kleist\*

Fall 2024

Antonio Karam\*, Sajith Devareddy\*, Maria C. Leal\*, Neol Gutierrez\*, and Noshin Ulfat@

Summer 2024

AJ Jones\*, and Vérité Mugabo\*

### Spring 2024

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

### Fall 2023

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

### Summer 2023

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

### Spring 2023

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

### Fall 2022

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

### Summer 2022

Shafayat Hossain Majumder<sup>@</sup>, Maisha Rahman Mim<sup>@</sup>, and Sourov Jajodia<sup>@</sup>

### Spring 2022

Mark Cheng\*

## GRANTS & SCHOLARSHIPS

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### **Travel Grants, NSF ICSE 2025 Travel Awards, 2025**

1,513\$ grants to participate in ICSE 2024 in-person and Doctoral Symposium in Ottawa, Canada

### **Travel Grants, Zahm Professional Development Fund, 2025**

1,250\$ grants to participate in ICSE 2025 in-person in Ottawa, Canada.

### **Travel Grants, ACM SIGSOFT Travel Grants, 2025**

550\$ grants to participate in ICSE 2025 in-person in Ottawa, Canada.

### **Travel Grants, ACM SIGSOFT ASE 2024 Travel Awards, 2024**

600\$ grants to participate in ASE 2024 in-person in Sacramento, California, United States.

### **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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**Nominated for IBM Ph.D. Fellowship, 2024**, 1 of 4 ND-CSE Ph.D. Students

**Nominated for Google Ph.D. Fellowship, 2024**, 1 of 4 ND-CSE Ph.D. Students

**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, Swift, Objective-C, Matlab, Dart, Shell  
**Database:** Oracle, MySQL, SQLite, MongoDB, Firebase  
**Machine Learning Tools:** Gradio, Langchain, Databricks, PyTorch  
**Version Control:** Git (GitHub, Bitbucket, Gitlab), Sapling (Meta), TFS (Azure DevOps)  
**Frameworks:** Vue.js, JSP, Flutter, JavaFX, Node.js, Django, Java servlet  
**Web Technology:** HTML, CSS, REST API, JSON, XML, GraphQL  
**Cloud:** EC2, S3 Bucket, Azure  
**O.S.:** Windows, Ubuntu 20.04, Windows Server 2016, Mac OS, CentOS 7/RedHat  
**Technical Writing:** L<sup>A</sup>T<sub>E</sub>X, Beamer, Overleaf  
**Miscellaneous:** Google Apps Script, Software Defined Networking, OpenGL, Weka, Mininet, NS2

## 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@nd.edu  
**Relation:** Ph.D. Advisor  
**Dr. Marcos Zampieri**  
Assistant Professor  
School of Computing  
George Mason University, Fairfax, VA, USA.  
**Email:** mzampier@gmu.edu  
**Relation:** Research Collaborator