

MOHAMMED LATIF SIDDIQ

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

EXECUTIVE SUMMARY

- 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.
- **Research Interest:** Applied Language Models, Software Engineering, Software Security, and Testing.

EDUCATION

University of Notre Dame, USA

January 2022 - Present

Ph.D. in Computer Science and Engineering

Advisor: Dr. Joanna C.S. Santos

University of Notre Dame, USA

January 2022 - January 2025

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: SQLIFIX: Learning Based Approach to Fix SQL Injection Vulnerabilities in Source Code

PROFESSIONAL EXPERIENCES

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

January, 2022 - Present

- Working in the intersection of language models, their applications, and security.
- Published fourteen peer-reviewed research papers.

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

June, 2023 - August, 2023

- Worked on building a question-answering pipeline using large language models.
- **Tech stack:** Python, Langchain, Gradio, and Databricks platform.

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

March, 2021 - November, 2021

- Developing enterprise software for Bangladesh Parliament Secretariat.
- **Tech stack:** Java servlet, JSP and MySQL.

PUBLICATIONS

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.

⟨C7⟩ Nishat Raihan, **Mohammed Latif Siddiq**, Joanna C. S. Santos, and Marcos Zampieri. “**Large Language Models in Computer Science Education: A Systematic Literature Review**”. 56th *ACM Technical Symposium on Computer Science Education (SIGCSE TS 2025)*.

⟨S3⟩ **Mohammed Latif Siddiq**. “**Advancing Secure and Standard Source Code Generation Techniques**”. 47th *International Conference on Software Engineering, Doctoral Symposium (ICSE DS 2025)*.

- ⟨W5⟩ Mushfiqur Rahman, Mohammed Latif Siddiq. “Code Comment Classification with Data Augmentation and Transformer-Based Models”. *4th 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”. *32nd 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”. *28th 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”. *24th 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”. *24th 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”. *21st 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”. *46th 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”. *6th 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”. *2nd 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”. *22nd 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”. *1st 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”. *1st 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. “Shashtosheba: 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**”. 28th *IEEE International Conference on Software Analysis, Evolution and Re-engineering (SANER 2021)*.

SERVICES

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

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.

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[@], and Joy Saha[@]

Spring 2023

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

Fall 2022

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

Summer 2022

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

Spring 2022

Mark Cheng*

GRANTS & SCHOLARSHIPS

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

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: 5th Among Bangladeshi Teams

IEEE Xtrme 12.0, Global, 2018, Position: 4th Among Bangladeshi Teams

AUB Programming Contest, Bangladesh, 2018, Position: 11th

Samsung Coding Contest, Bangladesh, 2018, 2019, Finalist

Tech for Peace Hackathon, Bangladesh, 2017, Winner

TECHNICAL SKILLS

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

Database: Oracle, MySQL, SQLite, MongoDB, Firebase

Machine Learning Tools: Gradio, Langchain, Databricks, PyTorch

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

O.S.: Windows, Ubuntu 20.04, Windows Server 2016, Mac OS Monterey, CentOS 7/RedHat

Technical Writing: L^AT_EX, Beamer, Overleaf

Miscellaneous: Google Apps Script, Software Defined Networking, OpenGL, Weka, Mininet, NS2

CERTIFICATES

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)

HIGHLIGHTED ACADEMIC COURSES

Graduate Course, University of Notre Dame

CSE-60770 Secure Software Engineering

CSE 60625 Advanced Machine Learning

CSE 60647 Data Science

CSE-60326 Computational Behavior Modeling

CSE-60657 Natural Language Processing

CSE-60556 Large Language Models

Undergraduate Course, Bangladesh University of Engineering and Technology

CSE-405 Computer Security

CSE-423 Fault Tolerant Systems

CSE-463 Introduction to Bioinformatics

CSE-471 Machine Learning

CSE-473 Pattern Recognition

REFERENCE

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