

Junayed Mahmud

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EDUCATION

University of Central Florida, Florida, USA

Ph.D. in Computer Science

Aug 2023 – Dec 2024 (Expected)

- Advisor: [Dr. Kevin Moran](#)
- Started Ph.D. in Computer Science at George Mason University in Aug 2019 and transferring 48 credits from that university

George Mason University, Virginia, USA

M.S. in Computer Science

May 2023

- Advisor: [Dr. Kevin Moran](#)

Islamic University of Technology, Dhaka, Bangladesh

B.S. in Computer Science and Engineering

Nov 2016

- Advisor: [Dr. Abu Raihan Mostofa Kamal](#)

WORK EXPERIENCE

University of Central Florida, Florida, USA

▪ *Graduate Research Assistant*

Aug 2023 – Present

- Applied large language models (LLMs) for software engineering tasks
- Fine-tuned transformer-based models with multi-modal data

George Mason University, Virginia, USA

▪ *Graduate Research Assistant*

May 2021 – Aug 2023

- Applied large language models (LLMs) for software engineering tasks
- Fine-tuned transformer-based models with multi-modal data
- Studied the effectiveness of code summarization models qualitatively
- Leveraged graphical user interface (GUI) interaction data for text-retrieval-based bug localization
- Implemented a tool to convert user-performed app actions into replayable scenarios and extract GUI information
- Studied the characteristics of reproducible bug reports
- Performed user study on interaction with a chatbot for bug reporting

▪ *Graduate Teaching Assistant*

Aug 2019 – May 2021

- Assisted in the following courses: CS367 (Computer Systems and Programming) and CS222 (Computer Programming for Engineers)

Samsung R&D Institute Bangladesh Ltd., Dhaka, Bangladesh

▪ *Software Engineer*

Jan 2017 – Mar 2019

- Worked in an iOS application named *SmartThings*, designed to enable users to monitor and control smart electronic devices or appliances through their phones
- Worked on developing the IoTivity architecture, which enables seamless communication between cloud services and consumer electronics devices
- Developed multiple GUIs for the *SmartThings* project

RESEARCH INTERESTS

Software Engineering, Bug Reporting, Bug Localization, Automated Mobile Testing, Natural Language Processing for Software Engineering, Source Code Analysis

REFERRED CONFERENCE (RESEARCH TRACK) PUBLICATIONS

- [8*] [[ICSE'24](#)] **J. Mahmud**, N. D. Silva, S. A. Khan, S. H. Mostafavi, S. M. H. Mansur, O. Chaparro, A. Marcus, and K. Moran, "On Using GUI Interaction Data to Improve Text Retrieval-based Bug Localization*," in *Proceedings of the 46th IEEE/ACM International Conference on Software Engineering*, Lisbon, Portugal, Apr 2024, pp. to appear in 12 pages. (**6.6% acceptance rate**)

*Top tier publications

- [7*] [ESEC/FSE'22] Y. Song, **J. Mahmud**, Y. Zhou, O. Chaparro, K. Moran, A. Marcus, and D. Poshyvanyk, "Toward Interactive Bug Reporting for (Android App) End Users*," in *Proceedings of the 2022 ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering*, Singapore, Nov 2022, pp. 344-356. (22% acceptance rate)
- [6] [SANER'22] J. Johnson, **J. Mahmud**, T. Wendland, K. Moran, J. Rubin and M. Fazzini, "An Empirical Investigation into the Reproduction of Bug Reports for Android Apps," in *Proceedings of the 29th IEEE International Conference on Software Analysis, Evolution and Reengineering*, Honolulu, Hawaii, Mar 2022, pp. 321-332. (24% acceptance rate)
- [5] [SANER'22] K. Moran, A. Yachnes, G. Purnell, **J. Mahmud**, M. Tufano, C. B. Cardenas, D. Poshyvanyk, and Z. H'Doubler, "An Empirical Investigation into the Use of Image Captioning for Automated Software Documentation," in *Proceedings of the 29th IEEE International Conference on Software Analysis, Evolution and Reengineering*, Honolulu, Hawaii, Mar 2022, pp. 514-525. (24% acceptance rate)

REFERRED SHORT CONFERENCE & WORKSHOP PUBLICATIONS

- [4] [ICSE'23] Y. Song, **J. Mahmud**, N. D. Silva, Y. Zhou, O. Chaparro, K. Moran, A. Marcus, and D. Poshyvanyk, "BURT: A Chatbot for Interactive Bug Reporting," in *Proceedings of the 45th IEEE/ACM International Conference on Software Engineering, Formal Tool Demonstrations Track*, Melbourne, Australia, May 2023, pp. to appear in 5 pages. (48% acceptance rate)
- [3] [NLP4Prog'21] **J. Mahmud**, F. Faisal, R. I. Arnob, A. Anastasopoulos, and K. Moran, "Code to Comment Translation: A Comparative Study on Model Effectiveness & Errors," in *Proceedings of the First Workshop on Natural Language Processing for Programming*, Co-located with ACL-IJCNLP'21, Bangkok, Thailand, Aug 2021, pp. 1-16.
- [2] [MSR'21] T. Wendland, J. Sun, **J. Mahmud**, S. M. H. Mansur, S. Huang, K. Moran, J. Rubin and M. Fazzini, "AndroR2: A Dataset of Manually-Reproduced Bug Reports for Android Apps," in *Proceedings of the 18th Conference on Mining Software Repositories*, Data showcase track, Madrid, Spain, May 2021, pp. 600-604.
- [1] [SAS'18] A. R. Chowdhury, **J. Mahmud**, A. R. M. Kamal, and M. A. Hamid, "MAES: Modified Advanced Encryption Standard for Resource Constraint Environments," in *Proceedings of the 2018 IEEE Sensors Applications Symposium*, Seoul, Korea (South), Mar 2018, pp. 1-6.

TALKS & FORMAL PRESENTATIONS

- **Invited Seminar Talk** - Microsoft Research, Virtual Apr 20, 2022
 - "Automated Software Documentation: A Brief Retrospective & Future Directions"
- **Research Paper Presentation** - Proceedings of the 29th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER'22), Virtual (originally Honolulu, Hawaii) Mar 16, 2022
 - "An Empirical Investigation into the Use of Image Captioning for Automated Software Documentation"
- **Research Paper Presentation** - Software Engineering Seminar, George Mason University, Virginia, USA Nov 11, 2021
 - "Code to Comment Translation: A Comparative Study on Model Effectiveness & Errors"
- **Research Paper Presentation** - Proceedings of the First Workshop on Natural Language Processing for Programming (NLP4Prog'21), Co-located with ACL-IJCNLP'21, Virtual (originally Bangkok, Thailand) Aug 06, 2021
 - "Code to Comment Translation: A Comparative Study on Model Effectiveness & Errors"

PROFESSIONAL SERVICES

External Reviewer

- 37th IEEE/ACM International Conference on Automated Software Engineering (ASE'22)
- 29th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER'22)
- 29th IEEE/ACM International Conference on Program Comprehension (ICPC'21)
- 2021 Mining Software Repositories (MSR'21)

TECHNICAL SKILLS

- Programming Languages: Python, Java, C, C++, Swift, Objective C
- Machine Learning: Pytorch, Tensorflow

- Mobile Development: Android, iOS
- Databases: Oracle, MySQL, PostgreSQL
- IDE: Visual Studio Code, Android Studio, IntelliJ IDEA, Eclipse, Xcode

**HONORS &
AWARDS**

- Summer Research Initiation Award May 2020
- Professional level (second highest level programming skill test at Samsung) programmer at Samsung Electronics Jan 2018
- Icon of the month at Samsung R&D Institute Bangladesh Ltd. Apr 2018
- Received 4 years of OIC scholarship 2012
- Received 4 years of government scholarship for Higher Secondary Certificate result 2012

REFERENCES

Assistant Professor Kevin Moran

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 Orlando, FL 32816, USA
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Assistant Professor Oscar Chaparro

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 College of William and Mary
 McGlothlin-Street Hall 311, 251 Jamestown Rd.
 Williamsburg, VA 23185, USA
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 Phone: (757)-221-2144