MASUD RAHMAN, Ph.D.

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🌐 Homepage ⒼGoogle scholar ⒾORCID ✎DBLP Researchr

🎯 CAREER OBJECTIVES

Masud's research interests lie in the intersection of Software Engineering (SE) and Artificial Intelligence (AI). His career objectives are (a) conducting cutting edge research to advance AI4SE and SE4AI and challenging himself every day with tough, emerging, and interesting research problems, (b) innovating cost-effective, robust, practical solutions to support the developers in tackling their software bugs, crashes, vulnerabilities, and technical debt, (c) honing his research, development, and supervision skills through constant learning, evolution, active collaborations, and self-reflection, and (d) using his talents and skills to train the leaders of tomorrow.

🎓 EDUCATION

Doctor of Philosophy, Computer Science/Software Engineering
University of Saskatchewan, Canada
September 2014 – September 2019

Thesis	Supporting Source Code Search with Context-Aware and Semantics-Driven Query Reformulation 🅐 ⬈ ▶
Advisor	Prof. Dr. Chanchal K. Roy
Awards	**Governor General's Gold Medal 2019** ⬈, **USask Doctoral Thesis Award 2019** ⬈, Best PhD Thesis Award 2019 (CS), Dr. Keith Geddes Award 2017 ⬈, WAGS/ProQuest Innovation in Technology Award 2020 (Nomination)

Master of Science, Computer Science/Software Engineering
University of Saskatchewan, Canada
September 2012 – August 2014

Thesis	Exploiting Context in Dealing with Programming Errors and Exceptions in the IDE 🅐 ⬈ ▶
Supervisor	Prof. Dr. Chanchal K. Roy
Award	2014 Best MSc Thesis Award (Nomination)

Bachelor of Science, Computer Science and Engineering
Khulna University, Bangladesh
January 2005 – March 2009

CGPA	**3.91/4.00**, 1st class 1st
Thesis	Information Retrieval by Modified Term Weighting Method using Random Walk Model with Query Term Position Ranking 🅐
Supervisor	Prof. Dr. Abu Shamim Mohammad Arif
Award	**2010 Chancellor Gold Medal** ⬈

📚 PUBLICATIONS (66)

* = **A***, **Bold = A** category conference or journal in software engineering according to CORE

[2026]

[66] S. Jahan, S. Rajput, T. Sharma, and **M. Masudur Rahman**, *"Why Attention Fails: A Taxonomy of Faults in Attention-Based Neural Networks"*, In Proceedings of The 48th IEEE/ACM International Conference on Software Engineering (**ICSE***), pp. 12, Rio De Janiero, Brazil, 2026. (To appear)

[65] M. Shah, **M. Masudur Rahman**, and F. Khomh, *"Imitation Game: Reproducing Deep Learning Bugs Leveraging an Intelligent Agent"*, In Proceedings of The 48th IEEE/ACM International Conference on Software Engineering (**ICSE***), pp. 12, Rio De Janiero, Brazil, 2026. (Under Revision)

[64] U. Mukherjee, **M. Masudur Rahman**, and M. Ahsanul Habib. Housing Market Dynamics in Multi-Agent Simulation: Reinforcement and Deep Reinforcement Learning Approaches. Transportation Research Board Annual Meeting (TRBAM 2026), pp. 21, Washington DC, USA, 2026. (To appear)

[63] R. Mahbub, **M. Masudur Rahman**, and M. Ahsanul Habib. Exploring Code Smells In Simulation Modelling Systems: Effectiveness, Risks And Impacts. Transportation Research Board Annual Meeting (TRBAM 2026), pp. 21, Washington DC, USA, 2026. (To appear)

[2025]

[62] S. Jahan, M. Shah, P. Mahbub, and **M. Masudur Rahman**, *"Improved Detection and Diagnosis of Faults in Deep Neural Networks using Hierarchical and Explainable Classification"*, In Proceedings of The 47th IEEE/ACM International Conference on Software Engineering (**ICSE***), pp. 13, Ottawa, Canada, 2025.

[61] A. M. Samir and **M. Masudur Rahman**, *"Improved IR-based Bug Localization with Intelligent Relevance Feedback"*, In Proceeding of The 33rd IEEE/ACM International Conference on Program Comprehension (**ICPC**), pp. 12, Ottawa, Canada, 2025.

[60] U. Mukherjee and **M. Masudur Rahman**, *"Understanding the Impact of Domain Term Explanation on Duplicate Bug Report Detection"*, In Proceedings of International Conference on Evaluation and Assessment in Software Engineering (**EASE**), pp. 12, Istanbul, Turkey, 2025. (**Paper in spotlight***)

[59] M. Shah, **M. Masudur Rahman**, and F. Khomh, *"Towards Enhancing the Reproducibility of Deep Learning Bugs: An Empirical Study"*, In Proceedings of The 33rd ACM Symposium on the Foundations of Software Engineering (**FSE***), pp. 57, Trondheim, Norway, 2025. (Journal-First track)

[58] S. Jahan and **M. Masudur Rahman**, *"Can Hessian-Based Insights Support Fault Diagnosis in Attention-based Models?"*, In Proceedings of The 33rd ACM Symposium on the Foundations of Software Engineering (**FSE***), pp. 5, Trondheim, Norway, 2025.

[57] S. Yeasmin, C. K. Roy, K. Schneider, **M. Masudur Rahman**, K. Mittal, and R. Hardy, *"Towards Enhancing IR-based Bug Localization Leveraging Texts and Multimedia from Bug Reports"*, In Proceeding of The 33rd IEEE/ACM International Conference on Program Comprehension (**ICPC**), pp. 5, Ottawa, Canada, 2025.

[56] M. Shah, **M. Masudur Rahman**, and F. Khomh, *"Towards Understanding the Impact of Data Bugs on Deep Learning Models in Software Engineering"*, Empirical Software Engineering Journal (**EMSE**), pp. 48, 2025. (Impact Factor=**4.50**)

[55] S. Jahan, M. Shah, and **M. Masudur Rahman**, *"Towards Understanding the Challenges of Bug Localization in Deep Learning Systems"*, Empirical Software Engineering Journal (**EMSE**), pp. 63, 2025. (Impact Factor=**4.50**)

[54] U. Mukherjee and **M. Masudur Rahman**, *"BugMentor: Generating Answers to Follow-up Questions from Software Bug Reports using Structured Information Retrieval and Neural Text Generation"*, Journal of Systems and Software (**JSS**), pp. 27, 2025. (Impact Factor=**3.70**)

[53] A. M. Samir and **M. Masudur Rahman**, *"Improving IR-based Bug Localization with Semantics-Driven Query Reduction"*, Journal of Systems and Software (**JSS**), pp. 52, 2025. (Under Revision) (ID: JSSOFTWARE-D-25-00568).

[Under Review & Pre-submission]

- Riasat Mahbub, **M. Masudur Rahman**, M. Ahsanul Habib, *"On the Effectiveness, Risks, and Impact of Refactoring Practices in Simulation Software Systems"*, Journal of Systems and Software (JSS), pp. 31, 2025. (Under Review) (ID: JSSOFTWARE-D-25-01353)

- S. Yeasmin, C. K. Roy, K. A. Schneider, **M. Masudur Rahman**, and B. Yang, *"An Improved Localization of Visual Bugs Leveraging Agentic AI with Information Retrieval"*, Journal of Systems and Software (JSS), pp. 37, 2025. (Under Review)

- A. Samir and **M. Masudur Rahman**, *"Improved Bug Localization with AI Agents Leveraging Hypothesis and Dynamic Cognition"*, In The 34th IEEE/ACM International Conference on Program Comprehension (ICPC), pp. 12, 2026 (Under Review)

- S. Yeasmin, C. K. Roy, K. A. Scheneider and **M. Masudur Rahman**, *"Do Quality Levels and Localization Hints of Bug Reports Affect IR-based Bug Localization? - An Empirical Study"*, In Proceedings of The 23rd IEEE International Conference on Mining Software Repositories (MSR), pp. 12, 2026. (Under Review)

[2024]

[52] M. Shah, **M. Masudur Rahman**, and F. Khomh, *"Towards Enhancing the Reproducibility of Deep Learning Bugs: An Empirical Study"*, Empirical Software Engineering Journal (**EMSE**), pp. 57, 2024. (Impact Factor=**4.50**)

[51] P. Mahbub and **M. Masudur Rahman**, *"Predicting Line-Level Defects by Capturing Code Contexts with Hierarchical Transformers"*, In Proceeding of The 31st IEEE International Conference on Software Analysis, Evolution and Reengineering (**SANER**), pp. 308-319, Rovaniemi, Finland, March 2024. (Acceptance rate: **25.6%**)

[50] S. Mondal, **M. Masudur Rahman**, and C. K. Roy, *"Can We Identify Stack Overflow Questions Requiring Code Snippets? Investigating the Cause & Effect of Missing Code Snippets"*, In Proceeding of The 31st IEEE International Conference on Software Analysis, Evolution and Reengineering (**SANER**), pp. 764-775, Rovaniemi, Finland, March 2024. (Acceptance rate: **25.6%**)

[49] R. Mahbub, **M. Masudur Rahman** and M. Ahsanul Habib, *"On the Prevalence, Evolution, and Impact of Code Smells in Simulation Modelling Software"*, In Proceedings of The 24th IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM), pp. 12, Flagstaff, AZ, USA, October 2024.

[2023]

[48] P. Mahbub, O. Shuvo, and **M. Masudur Rahman**, *"Explaining Software Bugs Leveraging Code Structures in Neural Machine Translation"*, In Proceeding of The 45th IEEE/ACM International Conference on Software Engineering (**ICSE***), pp. 640–652, May 2023. (Acceptance rate: **26%**)

[47] **M. Masudur Rahman** and C. K. Roy, *"A Systematic Review of Automated Query Reformulations in Source Code Search"*, ACM Transactions on Software Engineering and Methodology (**TOSEM***), pp. 79, 2023. (Impact Factor=**6.60**)

[46] O. Shuvo, P. Mahbub, and **M. Masudur Rahman**, *"Recommending Code Reviews Leveraging Code Changes with Structured Information Retrieval"*, In Proceeding of The 39th IEEE International Conference on Software Maintenance and Evolution (**ICSME**), pp. 194–206, October 2023. (Acceptance rate: **22.70**%).

[45] S. Jahan and **M. Masudur Rahman** *"Towards Understanding the Impacts of Textual Dissimilarity on Duplicate Bug Report Detection"*, In Proceeding of The 30th IEEE International Conference on Software Analysis, Evolution and Reengineering (**SANER**), pp. 25–36, March 2023. (Acceptance rate: **27%**).

[44] S. Mondal, **M. Masudur Rahman**, and C. K. Roy, *"Do Subjectivity and Objectivity Always Agree? A Case Study with Stack Overflow Questions"*, In Proceeding of The 20th International Conference on Mining Software Repositories (**MSR**), pp. 389–401, May 2023. (Acceptance rate: 37%).

[43] P. Mahbub, **M. Masudur Rahman**, O. Shuvo, and A. Gopal, *"Bugsplainer: Leveraging Code Structures to Explain Software Bugs with Neural Machine Translation"*, In Proceeding of The 39th IEEE International Conference on Software Maintenance and Evolution (**ICSME**), pp. 530-535, October 2023.

[42] P. Mahbub, O. Shuvo, and **M. Masudur Rahman**, *"Defectors: A Large, Diverse Python Dataset for Defect Prediction"*, In Proceeding of The 20th International Conference on Mining Software Repositories (**MSR**), pp. 393–397, May 2023.

[2022]

[41] **M. Masudur Rahman**, F. Khomh, and M. Castelluccio, *"Works for Me! Cannot Reproduce – A Large Scale Empirical Study of Non-reproducible Bugs"*, Empirical Software Engineering Journal (**EMSE**), pp. 45, 2022. (Impact Factor=**4.50**)

[40] S. Mondal, **M. Masudur Rahman**, C. K. Roy, and K. Schneider, *"The Reproducibility of Programming-Related Issues in Stack Overflow Questions"*, Empirical Software Engineering Journal (**EMSE**), pp. 52, 2022. (Impact Factor=**4.50**)

[39] **M. Masudur Rahman**, F. Khomh, S. Yeasmin, and C. K. Roy, *"The Forgotten Role of Search Queries in IR-based Bug Localization: An Empirical Study"*, In Proceeding of The 44th IEEE/ACM International Conference on Software Engineering (**ICSE***), Pittsburgh, PA, USA, May 2022. (Journal-First)

[2021]

[38] **M. Masudur Rahman**, F. Khomh, S. Yeasmin, and C. K. Roy, *"The Forgotten Role of Search Queries in IR-based Bug Localization: An Empirical Study"*, Empirical Software Engineering Journal (**EMSE**), pp. 56, 2021. (Impact Factor=**4.50**) (Invited at Journal First track by SANER 2022)

[37] M. Vahedi, **M. Masudur Rahman**, F. Khomh, G. Uddin, and G. Antoniol. *"Summarizing Relevant Parts from Technical Videos"*. In Proceeding of The 28th IEEE International Conference on Software Analysis, Evolution and Reengineering (**SANER**), pp. 434-445, Honolulu, HI, USA, March 2021. (Acceptance rate: **42/165=25.00%**)

[36] R. F. Silva, **M. Masudur Rahman**, C. E. Dantas, C. Roy, F. Khomh, and M. A. Maia. *"Improved Retrieval of Explained Programming Solutions Using a Multi-featured Score"*. Journal of Systems & Software (**JSS**), pp. 31, 2021. (Impact Factor=**3.70**)

[35] S. Mondal, C M K. Saifullah, A. Bhattacharjee, **M. Masudur Rahman**, and C. K. Roy. *"Early Detection and Guidelines to Improve Unanswered Questions on Stack Overflow"*. In Proceeding of The 13th Innovation in Software Engineering Conference (ISEC), pp. 11, Bhubaneswar, India, February 2021. (Acceptance rate: 22/66=33.33%).

[2020]

[34] **M. Masudur Rahman**, F. Khomh, and M. Castelluccio, *"Why are Some Bugs Non-Reproducible? An Empirical Investigation using Data Fusion"*, In Proceeding of The 36th International Conference on Software Maintenance and Evolution (**ICSME**), pp. 605–616, Adelaide, Australia, September 2020. (Acceptance rate: **50/201=24.90%**) (Invited for **EMSE** special issue) (**TCSE Distinguished Paper Award 2020***) ↗

[33] H. Jebnoun, H. Ben Braiek, **M. Masudur Rahman**, and F. Khomh, *"The Scent of Deep Learning Code: An Empirical Study"*, In Proceeding of The 17th International Conference on Mining Software Repositories (**MSR**), pp. 420–430, Seoul, South Korea, May 2020. (Acceptance rate: **41/138=29.70**%)

[32] B. Asmare Muse, **M. Masudur Rahman**, C. Nagy, A. Cleve, F. Khomh, and G. Antoniol, *"On the Prevalence, Impact, and Evolution of SQLcode smells in Data-Intensive Systems"*, In Proceeding of The 17th International Conference on Mining Software Repositories (**MSR**), pp. 327–338, Seoul, South Korea, May 2020. (Acceptance rate: **41/138=29.70**%)

[31] Rodrigo F. G. Da Silva, C. K. Roy, **M. Masudur Rahman**, K. Schneider, K. Paixão, M. Maia, and C. E. Dantas, *"CROKAGE: Effective Solution Recommendations for Programming Tasks by Leveraging Crowd Knowledge"*, Empirical Software Engineering Journal (**EMSE**), 25:4707–4758, 2020. (Impact Factor=**4.50**)

[2019]

[30] **M. Masudur Rahman**, C. K. Roy, and David Lo, *"Automatic Query Reformulation for Code Search using Crowdsourced Knowledge"*, Empirical Software Engineering Journal (**EMSE**), 24(4):1869–1924, 2019. (Impact Factor=**4.50**) (Invited at Journal First track by VL/HCC 2020, Dunedin, New Zealand)

[29] **M. Masudur Rahman**, *"Supporting Code Search with Context-Aware, Analytics-Driven, Effective Query Reformulation"*, In Proceeding of The 41st ACM/IEEE International Conference on Software Engineering (Companion volume, Doctoral Symposium Track) (**ICSE***), pp. 226–229, Montreal, Canada, May 2019. (Acceptance rate: **9/31=29.03**%)

[28] S. Mondal, **M. Masudur Rahman**, and C. K. Roy, *"Can Issues Reported at Stack Overflow Questions be Reproduced? An Exploratory Study"*, In Proceeding of The 16th International Conference on Mining Software Repositories (**MSR**), pp. 479–489, Montreal, Canada, May 2019. (Acceptance rate: **32/126=25.40**%)

[27] Rodrigo F. G. Da Silva, C. K. Roy, **M. Masudur Rahman**, K. Schneider, K. Paixão, and M. Maia, *"Recommending Comprehensive Solutions for Programming Tasks by Mining Crowd Knowledge"*, In Proceeding of The 27th IEEE/ACM International Conference on Program Comprehension (**ICPC**), pp. 358–368, Montreal, Canada, May 2019. (Acceptance rate: **28/93=30.11**%) (**Featured at Stack Overflow Blog***) ↗

[2018]

[26] **M. Masudur Rahman** and C. K. Roy, *"Improving IR-Based Bug Localization with Context-Aware Query Reformulation"*, In Proceeding of The 26th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (**ESEC/FSE***), pp. 621–632, Florida, USA, November 2018. (Acceptance rate: **55/295=19.00**%) (ACM Artifact Badges by peer reviews: **Functional*** + **Available*** + **Reusable***) ↗

[25] **M. Masudur Rahman** and C. K. Roy, *"Effective Reformulation of Query for Code Search using Crowdsourced Knowledge and Extra-Large Data Analytics"*, In Proceeding of The 34th International Conference on Software Maintenance and Evolution (**ICSME**), pp. 516–527, Madrid, Spain, September 2018. (Acceptance rate: **37/174=21.00**%) (**TCSE Distinguished Paper Award 2018 Nomination***) ↗

[24] **M. Masudur Rahman** and C. K. Roy, *"Poster: Improving Bug Localization with Report Quality Dynamics and Query Reformulation"*, In Proceeding of The 40th International Conference on Software Engineering (**ICSE*** 2018), pp. 348–349, Gothenburg, Sweden, May 2018.

[23] **M. Masudur Rahman** and C. K. Roy, *"NLP2API: Query Reformulation for Code Search using Crowdsourced Knowledge and Extra-Large Data Analytics"*, In Proceeding of The 34th International Conference on Software Maintenance and Evolution (Artifact Track) (**ICSME**), pp. 714, Madrid, Spain, September 2018. (Artifact **Verified & Accepted***) ⬈

[2017]

[22] **M. Masudur Rahman** and C. K. Roy, *"Improved Query Reformulation for Concept Location using CodeRank and Document Structures"*, In Proceeding of The 32nd IEEE/ACM International Conference on Automated Software Engineering (**ASE***), pp. 428-439, Urbana-Champaign, Illinois, USA, October 2017. (Acceptance rate: **65/314=21.00**%)

[21] **M. Masudur Rahman** and C. K. Roy, and R. G. Kula, *"Predicting Usefulness of Code Review Comments using Textual Features and Developer Experience"*, In Proceeding of The 14th International Conference on Mining Software Repositories (**MSR**), pp. 215–226, Buenos Aires, Argentina, May 2017. (Acceptance rate: **37/121=30.60**%)

[20] **M. Masudur Rahman** and C. K. Roy, and David Lo, *"RACK: Code Search in the IDE using Crowdsourced Knowledge"*, In Proceeding of The 39th International Conference on Software Engineering (Companion Volume) (**ICSE***), pp. 51–54, Buenos Aires, Argentina, May 2017. (Acceptance rate: **18/57=31.58**%)

[19] **M. Masudur Rahman** and C. K. Roy, *"STRICT: Information Retrieval Based Search Term Identification for Concept Location"*, In Proceeding of The 24th IEEE International Conference on Software Analysis, Evolution, and Reengineering (**SANER**), pp. 79–90, Klagenfurt, Austria, February 2017. (Acceptance rate: **34/140=24.00**%)

[18] **M. Masudur Rahman** and C. K. Roy, *"Impact of Continuous Integration on Code Reviews"*, In Proceeding of The 14th International Conference on Mining Software Repositories (**MSR**), pp. 499–502, Buenos Aires, Argentina, May 2017.

[2016]

[17] **M. Masudur Rahman**, C. K. Roy, and Jason Collins, *"CORRECT: Code Reviewer Recommendation in GitHub Based on Cross-Project and Technology Experience"*, In Proceeding of The 38th International Conference on Software Engineering (Companion Volume) (**ICSE***), pp. 222–231, Austin, Texas, USA, May 2016. (Acceptance rate: **28/108=26.00**%)

[16] **M. Masudur Rahman** and C. K. Roy, *"QUICKAR: Automatic Query Reformulation for Concept Location Using Crowdsourced Knowledge"*, In Proceeding of The 31st IEEE/ACM International Conference on Automated Software Engineering (**ASE***) (New Ideas Track), pp. 220–225, Singapore, September 2016.

[15] **M. Masudur Rahman**, C. K. Roy, Jesse Redl, and Jason Collins, *"CORRECT: Code Reviewer Recommendation at GitHub for Vendasta Technologies"*, In Proceeding of The 31st IEEE/ACM International Conference on Automated Software Engineering (**ASE***) (Tool Demo Track), pp. 792–797, Singapore, September 2016.

[14] **M. Masudur Rahman**, C. K. Roy, and David Lo, *"RACK: Automatic API Recommendation using Crowdsourced Knowledge"*, In Proceeding of The 23rd IEEE International Conference on Software Analysis, Evolution, and Reengineering (**SANER**), pp. 349–359, Osaka, Japan, March 2016. (Acceptance rate: **52/140=37.00**%)

[13] Amit K. Mondal, **M. Masudur Rahman** and C. K. Roy, *"Embedded Emotion-based Classification of Stack Overflow Questions Towards the Question Quality Prediction"*, In Proceeding of The 28th International Conference on Software Engineering & Knowledge Engineering (SEKE), pp. 521–526, San Francisco Bay, California, USA, July 2016.

[2015]

[12] **M. Masudur Rahman**, C. K. Roy, and Iman Keivanloo, *"Recommending Insightful Comments for Source Code using Crowdsourced Knowledge"*, In Proceeding of The 15th IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM), pp. 81–90, Bremen, Germany, September 2015. (Acceptance: **24/68=35.00**%) (Most Influential Paper Award*)

[11] **M. Masudur Rahman** and C. K. Roy, *"Recommending Relevant Sections from a Webpage about Programming Errors and Exceptions"*, In Proceeding of The 25th International Conference on Computer Science and Software Engineering (CASCON), pp. 181–190, Markham, Canada, November 2015. (Acceptance rate: **21/71=29.57**%)

[10] **M. Masudur Rahman** and C. K. Roy, *"An Insight into the Unresolved Questions at Stack Overflow"*, In Proceeding of the 12th Working Conference on Mining Software Repositories (Challenge Track) (**MSR**), pp. 426–429, Florence, Italy, May 2015.

[9] **M. Masudur Rahman** and C. K. Roy, *"TextRank Based Search Term Identification for Software Change Tasks"*, In Proceeding of the 22nd IEEE International Conference on Software Analysis, Evolution, and Reengineering (ERA Track) (**SANER**), pp. 540–544, Montreal, Canada, March 2015.

[2014]

[8] **M. Masudur Rahman**, S. Yeasmin, and C. K. Roy, *"Towards a Context-Aware Meta Search Engine for IDE-Based Recommendation about Programming Errors and Exceptions"*, In Proceeding of the IEEE CSMR-18/WCRE-21 (CSMR/WCRE), pp. 194–203, Antwerp, Belgium, February 2014. (Acceptance rate: **27/87=31.00**%)

[7] **M. Masudur Rahman** and C. K. Roy, *"On the Use of Context in Recommending Exception Handling Code Examples"*, In Proceeding of the 14th IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM), pp. 285–294, Victoria, Canada, September 2014. (Acceptance rate: **26/82=31.70**%)

[6] **M. Masudur Rahman** and C. K. Roy, *"SurfClipse: Context-Aware Meta Search in the IDE"*, In Proceeding of the 30th International Conference on Software Maintenance and Evolution (Demo Track) (**ICSME**), pp. 617–620, Victoria, Canada, September 2014.

[5] **M. Masudur Rahman** and C. K. Roy, *"An Insight into the Pull Requests of GitHub"*, In Proceeding of the 11th Working Conference on Mining Software Repositories (Challenge Track) (**MSR**), pp. 364–367, Hyderabad, India, May 2014.

[2013]

[4] **M. Masudur Rahman**, S. Yeasmin, and C. K. Roy, *"An IDE-Based Context-Aware Meta Search Engine"*, In Proceedings of the 20th Working Conference on Reverse Engineering (ERA Track) (WCRE), pp. 467–471, Koblenz, Germany, October 2013.

[2009–2012]

[3] A. S. Mohammad Arif, **M. Masudur Rahman**, and S. Y. Mukta, *"Information Retrieval by Modified Term Weighting Method using Random Walk Model with Query Term Position Ranking"*, In Proceedings of International Conference on Signal Processing Systems (ICSPS), pp. 526–530, Singapore, May 2009. (Acceptance: **170/570=29.82**%)

[2] H. Rahman, M. M. Rashid, and **Masudur Rahman**, *"Heritage Interpretation: Collective Reconstruction of Sompur Mahavihara, Bangladesh"*, In Proceedings of International Conference on Virtual Systems and Multimedia (VSMM), pp. 163–170, Seoul, South Korea, October 2010.

Book Chapters

[1] Foutse Khomh, **M. Masudur Rahman**, and Antoine Barbez (2023). Intelligent Software Maintenance. DOI: https://doi.org/10.1007/978-981-19-9948-2_9

🏆 AWARDS & HONOURS (37)

[37] **[2025] Killam Memorial Research Chair (ECR) (Nomination):** Nominated by the Faculty of Computer Science, Dalhousie University, for establishing an exceptional research program, as an Early Career Researcher.

[36] **[2025] Most Influential Paper Award:** Awarded by SCAM 2025 for our SCAM 2015 paper – *Recommending Insightful Comments for Source Code using Crowdsourced Knowledge.*

[35] **[2025] Research program showcased by Futurum Careers:** Research program was showcased in the October 2025 issue by Futurum Careers, a UK-based scientific communication magazine targeting high school students and inspiring next-generation of researchers across the world. Issue 34, Page 56.

[34] **[2025] ICPC Steering Committee Member (Nomination):** Nominated by the ICPC community for exceptional scientific contributions and strong community engagement over the years.

[33] **[2025-2024] TCSE Rising Star Award (Nomination):** Nominated for exceptional contributions to software engineering research, education, community services, and leaderships.

[32] **[2025-2024] ACM SIGSOFT Early Career Researcher Award (Nomination):** Nominated for excellent contributions to software engineering research, especially in the automation of software debugging, code review, and code search.

[31] **[2024] SCAM Steering Committee Member (Nomination):** Nominated by the SCAM community for exceptional scientific contributions and strong community engagement over the years.

[30] **[2024] Dalhousie President's Research Excellence Award (Nomination):** Nominated by the Faculty of Computer Science for this prestigious, university-wide award competition (Emerging Investigator track) within Dalhousie University.

[29] **[2022] JSS Best Reviewer Award:** Awarded by Journal of Systems and Software (JSS) for high-quality peer reviews and feedback.

[28] **[2021] Featured at USASK CGPS Magazine:** Featured by the USASK College of Graduate & Postdoctoral Studies (CGPS) for excellence in academic research, publications, and impacts. Link to CGPS 75 Magazine, Page 16.

[27] **[2021] MSR Distinguished Reviewer Award:** Awarded by the International Conference on Mining Software Repositories (MSR) for high-quality peer reviews and feedback.

[26] **[2021] Dalhousie President's Research Excellence Award (Nomination):** Nominated by the Faculty of Computer Science for this prestigious, university-wide award competition (Emerging Investigator track) within Dalhousie University.

[25] **[2020] TCSE Distinguished Paper Award:** Awarded by the Technical Council of Software Engineering for the **ICSME** 2020 paper – *"Why are Some Bugs Non-Reproducible? An Empirical Investigation using Data Fusion."* ↗

[24] **[2020]** Governor General's Gold Medal: Awarded by the Governor General of Canada. The highest academic award that a Canadian PhD student can be awarded for academic and research excellence in the PhD program in the Canadian universities. ⬈

[23] **[2020]** U of S Doctoral Thesis Award: Awarded by the University of Saskatchewan for the best PhD thesis in the area of Physical and Engineering Science. ⬈

[22] **[2020]** Best PhD Thesis Award: Awarded by the Department of Computer Science, University of Saskatchewan, Canada.

[21] **[2020]** WAGS/ProQuest Innovation in Technology Award (Nomination): My PhD thesis was nominated by the University of Saskatchewan for this national-level PhD dissertation contest. ⬈

[20] **[2018]** TCSE Distinguished Paper Award (Nomination): Nominated for TCSE Distinguished Paper Award for the **ICSME** 2018 paper – *"Effective Reformulation of Query for Code Search using Crowdsourced Knowledge and Extra-Large Data Analytics."* ⬈

[19] **[2017]** Dr. Keith Geddes Award, Student of the Year: Awarded to *only one* PhD student by the Department of Computer Science, University of Saskatchewan, for outstanding research and academic performance in the ongoing **PhD** program. Award value: $2,500. ⬈

[18] **[2010]** Chancellor Gold Medal: Awarded by the President, Peoples' Republic of Bangladesh and Chancellor, Khulna University. I scored the highest CGPA **3.91/4.00** in the year 2008 among 200 students from five departments of the School of Science, Engineering and Technology (SET), Khulna University. Award value: ≈ $1,000. ⬈ ⬈

[17] **[2019]** ACM SIGSoft CAPS Award: Awarded by ACM SIGSoft for attending ICSE 2019, held at Montreal, Canada, based on research and academic excellence. Award value: $400 USD. ⬈

[16] **[2017]** ACM SIGSoft CAPS Award: Awarded by ACM SIGSoft for attending ASE 2017, held at University of Illinois Urbana-Champaign, IL, USA, based on research and academic excellence. Award value: $600 USD. ⬈

[15] **[2020]** Wiley Reviewer Recognition: Awarded by Journal of Software Evolution and Process for high-quality journal reviews. ⬈

[14] **[2019]** Springer Reviewer Recognition: Awarded by Empirical Software Engineering journal for high-quality journal reviews. ⬈

[13] **[2018]** Elsevier Reviewer Recognition: Awarded by Journal of Systems and Software for high-quality journal reviews. ⬈

[12] **[2011]** Prime Minister Gold Medal (Nomination): Nominated by School of Science, Engineering and Technology, Khulna University. I scored the highest CGPA 3.91/4.00 in B.Sc in Computer Science and Engineering, Khulna University

[11] **[2014]** Best MSc Thesis Award (Nomination): My MSc thesis was nominated for the Best MSc Thesis Award 2014 by the Department of Computer Science, U of S

[10] **[2014]** Best Graduate Award (Nomination): I was nominated for the Best Graduate Award 2014 from the Department of Computer Science, U of S

[9] **[2014]** Graduate Research Video Contest Winner: One of three winners of the video contests arranged by the Department of Computer Science, U of S. Award value: $100.

[8] **[2016] Vanier Graduate Scholarship (Nomination):** I was nominated for Vanier Graduate Scholarship by the Department of Computer Science, U of S.

[7] **[2016] Microsoft PhD Fellowship (Nomination):** I was nominated for Microsoft PhD Fellowship by the Department of Computer Science, U of S.

[6] **[2010] Service Excellence Award**: Awarded by NOCHALLENGE TECHNOLOGY LLC for service excellence as a professional software developer during 2009–2010. ↗

[5] **[2007–2008] Programming Contest Award Winner** of Khulna University.

[4] **[2018] Graduate Travel Award**: Awarded by University of Saskatchewan for ICSME 2018 travel to Madrid, Spain. Award value: $550.

[3] **[2015] Graduate Travel Award**: Awarded by University of Saskatchewan for CASCON 2015 travel to Markham, Canada. Award value: $250.

[2] **[2014] Graduate Travel Award**: Awarded by GrammaTech for SCAM 2014 travel to Victoria, Canada. Award value: $150.

[1] **[2013] Graduate Travel Award**: Awarded by University of Saskatchewan for WCRE 2013 travel to Koblenz, Germany. Award value: $550.

💰 RESEARCH GRANTS (15)

[15] [2021] NSERC Discovery Grant

Title	Mining, Intelligence and Automation in Tackling Machine-Learning Bugs
Role	Primary Applicant
Duration	April 2021 – March 2026
Amount	**$145,000** ($29,000×5 years)

[14] [2021] NSERC Discovery Launch Supplement

Role	Primary Applicant
Duration	April 2021 – March 2026
Amount	$12,500

[13] [2026] Mitacs Global Research Initiative

Title	Explaining Machine Learning Models with Generative AI
Role	Principal Investigator
Duration	Spring/Summer 2026
Amount	$12,000
Note	Conditionally awarded based on the availability of two matching interns.

[12] [2025] Dalhousie Research Equipment Grant

Role	Co-Principal Investigator
Applicants	**Masud Rahman**; Christopher Whidden; Gabriel Spadon De Souza; Ga Wu; Hassan Sajjad;Israat Haque; Janarthanan Rajendran; Oladapo Oyebode; and Tushar Sharma
Duration	Sep 2025 –
Amount	**$135,000**

[11] [2025] Digital Research Alliance of Canada Grant

Title	Proactive Identification of Code Quality Issues for Effective Reviews
Role	Co-Principal Investigator
Applicants	**Masud Rahman** and Tushar Sharma
Duration	July 2025 – April 2026
Amount	**$49,042**

[10] [2025] Mitacs Global Research Initiative

Title	Making Software Crash Reports Explainable with Intelligent Bots
Role	Principal Investigator
Duration	Spring/Summer 2025
Amount	$6,000

[9] [2024] Digital Research Alliance of Canada Grant

Title	Proactive Identification of Code Quality Issues for Effective Reviews
Role	Co-Principal Investigator
Applicants	**Masud Rahman** and Tushar Sharma
Duration	April 2024 – July 2025
Amount	**$51,318**

[8] [2024] Mitacs Global Research Initiative ↗

Title	Making Bug Reports Readable with Intelligent Bots
Role	Principal Investigator
Duration	Spring/Summer 2024
Amount	$6,000

[7] [2024] NRC Science & Technology Collaboration

Title	Code and Architectural Reviews of Drinkable's Codebase.
Role	Principal Investigator
Duration	May 2024 – July 2024
Amount	$4,920
Partner	Drinkable Water Solutions

[6] [2023] NSERC Alliance Grant

Title	Mobility and Greenhouse Gas Emissions: Partnerships for Innovation through Bottom-up Modelling and Monitoring at Local Levels
Role	Co-applicant
Applicants	Ahsan Habib (PI), M Ali Ülkü, Peter Vanberkel, **Masud Rahman**, and Hamid Afshari
Duration	2022 – 2025
Amount	**$620,159**

[5] [2022] Climate Action and Awareness Fund

Title	Climate Action Evaluation: Development of a Bottom-up, Activity-based Transport Network and Emissions Modelling System
Role	Co-applicant
Applicants	Ahsan Habib (PI), Kevin Quigley, Daniel Rainham, **Masud Rahman**, Peter VanBerkel, M. Ali Ülkü, Mahmudur Fatmi, Darren Scott, and Jeffrey Brook
Duration	March 2022 – December 2026
Amount	**$3,620,000**
Received	**$120,000** (as co-applicant)

[4] [2021] Mitacs Accelerate International

Title	Explaining Faulty Software Code with Artificial Intelligence
Role	Primary Applicant
Duration	May 2022 – March 2023
Amount	**$45,000** (3 Internship units)
Partner	Metabob Inc. ↗

[3] [2019] NSERC Postdoctoral Fellowship (Declined)
Title   Towards Automated Reproduction of Software Bugs and Failures from
             Incomplete Bug Reports
Role   Primary Applicant
Duration   March 2021 – February 2023
Amount   **$90,000**

[2] [2020] Dalhousie Belong Fellowship Award⬈
Title   Making Software Development Efficient Using Artificial Intelligence in Code Reviews
Role   Primary Applicant
Duration   January 2021 – December 2023
Amount $5,000

[1] [2020] Dalhousie University Tenure-Track Startup Fund
Role   Principal Investigator
Duration   July 2020 – June 2026
Amount   **≈$165,000** ($25,000 + Funding for two MSc students, ≈$70,000/student)

[Under Review, Pre-submission & Not Awarded] (7)

[7] [2025] NSERC Discovery Grant (Under Review)
Title   Modelling, Integration, and Automation in Tackling Agentic AI Bugs
Role   Principal Investigator
Duration   April 2026 – March 2031
Amount $702,980

[6] [2024] NSERC CREATE Grant
Title   NSERC CREATE: Training in Human-Centred Methods for AI-Driven Systems Devel-
             opment (T-HC-AI)
Role   Co-applicant
Applicants Mayra Donaji Barrera Machuca (PI), Evangelos Milios, Yujie Tang, Richard Evans,
             Israat Haque, Somayeh Kafaie, Ga Wu, Lizbeth Escobedo, **Masud Rahman**, Jamie
             Blustein, Louis Beaubien, and Colin Conrad
Amount $1,345,000

[5] [2024] New Frontiers in Research Fund
Title   Mining, Intelligence, and Automation for Tackling AI Washing and AI Hushing in Cana-
             dian Business Landscape
Role   Nominated Principal Investigator
Applicants **Masud Rahman**, Mohammad Rahaman, and Foutse Khomh
Amount $248,149

[4] [2024] Amazon Research Awards
Title   Understanding and Reproducing Deep Learning Bugs Leveraging Generative AI
Role   Principal Investigator
Amount   Cash: $69,906 USD + AWS Credit: $49,200

[3] [2024] Horizon Europe
Title   HCAI-Prev: Human-Centered AI for Industrial Preventive Maintenance
Role   Co-applicant
Note   Dalhousie & Carleton are handling the Explainable AI module.

[2] [2024] National Cybersecurity Consortium
Title   Enhancing the Security of Internet of Vehicles
Role   Co-applicant
Amount $4,957,700

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[1] [2023] Sony Research Award

Title	Making Robust AI Systems with Intelligent, Explainable Fault Localization
Role	Principal Investigator
Amount	$97,619 USD

💰 SCHOLARSHIPS (9)

[9] **[2016] NSERC Industry Engage Grant**: Awarded by NSERC for industry collaboration with *Vendasta Technologies*, Saskatoon, Canada. Grant value: $6,300, $700/month for 9 months. Duration: March 2016–November 2016. ↗

[8] **[2014–2017] International Dean's Scholarship**: Awarded by University of Saskatchewan for PhD in Computer Science/Software Engineering. Scholarship amount: **$66,000** ($22,000/year for 3 years). Duration: September 2014–August 2017. ↗

[7] **[2017–2018] SK Innovation & Opportunity Scholarship**: Awarded by University of Saskatchewan, for research and academic excellence in the ongoing PhD program. Scholarship amount: $20,000/year for 1 year. Duration: September 2017– August 2018. ↗

[6] **[2016–2018] Faculty Scholarship:** Awarded by the Department of Computer Science, University of Saskatchewan for the research excellence in the ongoing PhD program as top ups. Scholarship amount: ≈ $8,000.

[5] **[2018–2019] Faculty Scholarship:** Awarded by the Department of Computer Science, University of Saskatchewan for the research excellence in the ongoing PhD program. Scholarship amount: $23,000/year.

[4] **[2012–2014] Faculty Scholarship & Graduate Teaching Fellowship**: Awarded by the Department of Computer Science, University of Saskatchewan for the Masters program. Scholarship amount: $17,500/year for 2 years. ↗

[3] **[2006–2009] Dean's Merit List Scholarship**: Awarded by Khulna University during 2006 to 2009. I scored the 1st position in all four academic years of B.Sc in CSE.

[2] **[2005–2007] Merit List Scholarship**: Awarded by Government Education Board (Jessore) during 2005 to 2007 for excellence in 2003 HSC exam.

[1] **[2001–2002] Merit List Scholarship**: Awarded by Government Education Board (Jessore) during 2001 to 2002 for excellence in 2001 SSC exam.

💼 EMPLOYMENT HISTORY (6)

Associate Professor, Dalhousie University ↗

Duration	July 2025 –
Responsibilities	Tenured and promoted to Associate Professor position in the Faculty of Computer Science. Masud's job responsibilities include (a) expanding his existing research program by securing research grants, supervising graduate and undergraduate students, (b) teaching undergraduate and graduate level courses, and (c) delivering administrative service.

Assistant Professor, Dalhousie University ↗

Duration   July 2020 – June 2025

Responsibilities   Appointed as a tenure-track Assistant Professor in the Faculty of Computer Science. Masud's job responsibilities include (a) establishing an independent research program by securing research grants, supervising graduate and undergraduate students, (b) teaching undergraduate and graduate level courses, and (c) delivering administrative service.

Postdoctoral Fellow, Polytechnique Montreal ↗

Duration   October 2019 – June 2020

Responsibilities   Appointed as a Postdoctoral Fellow in the SWAT laboratory led by Prof. Dr. Foutse Khomh. Masud was accounted for research and development, co-supervising graduate students, and writing research grant proposals.

Lecturer, Khulna University ↗

Duration   November 2009 – August 2012

Responsibilities   Appointed as a full-time faculty member in the Department of Computer Science and Engineering, Khulna University. Masud was accounted for (a) teaching undergraduate classes, curricular innovation, course planning, course evaluation, conducting exams and publishing grades, (b) conducting research, supervising student theses, (c) conducting academic projects, organizing student contests, leading students in the regional/national level contests, and (d) conducting administrative affairs including admission test management, departmental purchase inspection, and student orientation.

Graduate Research & Teaching Assistant, University of Saskatchewan ↗

Duration   September 2012 – September 2019

Responsibilities   Appointed as a graduate research & teaching assistant in the Department of Computer Science from 2012 to 2019. Masud was accounted for graduate research & development, leading tutorials of *CMPT 370: Intermediate Software Engineering*, and for marking three other undergraduate courses.

Software Developer, NOCHALLENGE TECHNOLOGY LLC ↗

Duration   May 2009 – July 2012

Responsibilities   Appointed as a junior software developer, and later promoted as the *lead software developer* due to outstanding development, problem-solving and leadership skills. Masud was accounted for (a) developing professional e-commerce applications for buying and selling real estate and businesses, (b) handling client communications from overseas, (c) leading multiple mid-level software projects, and (d) hiring and training junior developers.

📢 MEDIA MENTIONS & PUBLICITY (9)

- Futurum Careers, Page 56.
- EASE 2025- Paper in spotlight.
- Imagine – Celebrating 75 Years, CGPS, University of Saskatchewan, Page 16.
- Partnership with Metabob Inc. through Mitacs Accelerate Program
- DAL News: Recognizing the Rich Diversity of DAL Research
- Department of Computer Science, University of Saskatchewan
- Department of Computer Science, University of Saskatchewan
- University of Saskatchewan
- Stack Overflow Blog, SDTimes, and I-Programmer.

[14] IEEE Transactions on Software Engineering (TSE)
Reviewer since   April 2020
Reviewed   07

[13] ACM Transactions on Software Engineering and Methodology (TOSEM)
Reviewer since   March 2020
Reviewed   23

[12] Empirical Software Engineering Journal (EMSE)
Reviewer since   December 2018
Reviewed   20
Guest editor   Serving as a Guest Editor for EMSE Special Issue for SANER 2025

[11] Journal of Systems and Software (JSS)
Reviewer since   January 2019
Reviewed   36
Award   JSS Distinguished Reviewer 2022*

[10] IEEE Transactions on Service Computing (TSC)
Reviewer since   November 2021
Reviewed   02

[9] IEEE Transactions on Dependable and Secure Computing (TDSC)
Reviewer since   January 2021
Reviewed   01

[8] IEEE Transactions on Reliability (TR)
Reviewer since   February 2021
Reviewed   02

[7] Information and Software Technology (IST)
Reviewer since   August 2019
Reviewed   10

[6] Journal of Software Evolution & Process (JSME)
Reviewer since   May 2020
Reviewed   06

[5] Software Quality Journal (SQJ)
Reviewer since   January 2020
Reviewed   02

[4] Journal of Software: Practice and Experience (SPE)
Reviewer since   August 2020
Reviewed   01

[3] Journal of Web Engineering (JWE)
Reviewer since   June 2021
Reviewed   01

[2] Journal of Automated Software Engineering (AUSE)
Reviewer since   January 2020
Reviewed   02

[1] Science of Computer Programming (SCP)
Reviewer since   September 2024
Reviewed   02

♺ PC/OC MEMBER (56)

Please check Dr. Rahman's 👤 service profile for an updated list of services and leaderships.

[2026]

[56] **Proceedings Chair:** International Conference on Program Comprehension (ICPC 2026)

[55] *PC Member:* International Conference on Software Analysis, Evolution, and Reengineering (SANER 2026), Limassol, Cyprus

[54] *PC Member:* International Conference on Mining Software Repositories (MSR 2026)

[53] *PC Member:* International Conference on Program Comprehension (ICPC 2026)

[2025]

[52] **PC Co-Chair:** International Conference on Software Analysis, Evolution, and Reengineering (SANER 2025), Montreal, Canada.

[51] *PC Member:* The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (**ESEC/FSE** 2025) (Research Track)

[50] *PC Member:* International Conference on Mining Software Repositories (MSR 2025) (Research Track)

[49] *PC Member:* International Working Conference on Source Code Analysis and Manipulation (SCAM 2025) (Research Track)

[48] *Judge:* ACM Student Research Competition (Grand Finale)

[47] *PC Member:* International Conference on Program Comprehension (ICPC 2025) (ERA Track)

[46] *PC Member:* International Conference on Automated Software Engineering (**ASE** 2025) (Research Track)

[45] *PC Member:* International Conference on Automated Software Engineering (**ASE** 2025) (NIER Track)

[2024]

[44] *PC Member:* International Working Conference on Source Code Analysis and Manipulation (SCAM 2024) (NIER Track)

[43] *Judge:* ACM Student Research Competition (Grand Finale)

[42] *PC Member:* International Conference on the Foundations of Software Engineering (**FSE** 2024) (Research Track)

[41] *PC Member:* International Conference on the Foundations of Software Engineering (**FSE** 2024) (Artifact Evaluation Track)

[40] *PC Member:* International Conference on Software Analysis, Evolution and Reengineering (SANER 2024) (Research Track)

[39] *PC Member:* International Conference on Software Engineering (**ICSE** 2024) (Tool Demonstration Track)

[38] *PC Member:* International Conference on Mining Software Repositories (MSR 2024) (Research Track)

[37] *PC Member:* International Conference on Program Comprehension (ICPC 2024) (ERA Track)

[36] *PC Member:* International Conference on Automated Software Engineering (**ASE** 2024) (Research Track)

[35] *PC Member:* International Conference on Automated Software Engineering (**ASE** 2024) (Artifact Evaluation Track)

[34] *PC Member:* International Conference on Automated Software Engineering (**ASE** 2024) (NIER Track)

[2023]

[33] *PC Member:* International Conference on Automated Software Engineering (**ASE** 2023) (NIER Track)

[32] *PC Member:* The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (**ESEC/FSE** 2023) (Artifact Evaluation Track)

[31] *PC Member:* The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (**ESEC/FSE** 2023) (Student Research Competition Track)

[30] *PC Member:* International Working Conference on Source Code Analysis and Manipulation (SCAM 2023) (NIER Track)

[29] *PC Member:* International Conference on Software Maintenance and Evolution (ICSME 2023) (NIER Track)

[28] *Judge:* ACM Student Research Competition (Grand Finale)

[27] *PC Member:* International Conference on Mining Software Repositories (MSR 2023) (Research Track)

[2022]

[26] **Track Co-chair:** 15th Innovations in Software Engineering Conference (ISEC 2022) (SRC Track)

[25] *Judge:* ACM Student Research Competition (SRC 2022) (Grand Finale)

[24] *PC Member:* The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (**ESEC/FSE** 2022) (Artifact Evaluation Track)

[23] *PC Member:* International Conference on Automated Software Engineering (**ASE** 2022) (AE Track)

[22] *PC Member:* International Conference on Program Comprehension (ICPC 2022) (ERA Track)

[21] *PC Member:* International Conference on Program Comprehension (ICPC 2022) (RENE Track)

[20] *PC Member:* International Working Conference on Source Code Analysis & Manipulation (SCAM 2022) (Research Track)

[19] *PC Member:* International Conference on Mining Software Repositories (MSR 2022) (Research Track)

[18] *PC Member:* International Conference on Mining Software Repositories (MSR 2022) (Tool & Data Showcase Track)

[17] *PC Member:* International Conference on Mining Software Repositories (MSR 2022) (Shadow PC Track)

[16] **Publicity & Social Media Co-Chair:** International Conference on Mining Software Repositories (MSR 2022)

[15] *PC Member:* International Conference on Technical Debt (TechDebt 2022) (Research Track)

[14] *PC Member:* 15th Innovations in Software Engineering Conference (ISEC 2022) (Doctoral Symposium Track)

[2021]

[13] *PC Member:* The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (**ESEC/FSE** 2021) (Artifact Evaluation Track)

[12] *PC Member:* The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (**ESEC/FSE** 2021) (Student Research Competition Track)

[11] *PC Member:* International Conference on Automated Software Engineering (**ASE** 2021) (AE Track)

[10] *PC Member:* International Working Conference on Mining Software Repositories (MSR 2021)
(Research Track) (MSR Distinguished Reviewer*)

[9] *PC Member:* International Conference on Mining Software Repositories (MSR 2021)
(Data Showcase Track)

[8] **Virtualization Co-Chair:** International Conference on Mining Software Repositories (MSR 2021)

[7] *PC Member:* International Conference onSoftware Analysis, Evolution and Reengineering (SANER
2021) (Tool Demo Track)

[6] *PC Member:* International Conference on Program Comprehension (ICPC 2021) (Replication Track)

[2018–2020]

[5] *PC Member:* International Conference on Automated Software Engineering (**ASE** 2020)
(Late Breaking Result Track)

[4] **Proceedings Chair:** International Conference on Source Code Analysis and Manipulation (SCAM
2020)

[3] *PC Member:* International Conference on Program Comprehension (ICPC 2019) (RENE Track)

[2] **Web Chair:** International Conference on Source Code Analysis and Manipulation (SCAM 2019)

[1] **Web & Publicity Chair**: International Conference on Program Comprehension (ICPC 2018)

Sub-Reviewer (2013–2019)

- International Conference on Software Engineering (**ICSE**) [Sub-reviewer]
- International Conference on Automated Software Engineering (**ASE**) [Sub-reviewer]
- International Conference on Software Maintenance and Evolution (**ICSME**) [Sub-reviewer]
- International Conference on Software Maintenance (**ICSM**) [Sub-reviewer]
- International Conference on Software Analysis, Evolution, and Reengineering (SANER) [Sub-reviewer]
- International Working Conference on Reverse Engineering (WCRE) [Sub-reviewer]
- International Working Conference on Mining Software Repositories (**MSR**) [Sub-reviewer]
- International Working Conference on Source Code Analysis and Manipulation (SCAM) [Sub-reviewer]
- International Conference on Computer Science and Software Engineering (CASCON) [Sub-reviewer]

🤝 COLLABORATIONS (10)

[10] Metabob Inc., Mountain View, CA, USA ↗
Duration 2021 – 2024
Collaborator Avinash Gopal, Ben Reaves
Outcome Mitacs Accelerate International Grant, ICSE x 1, and ICSME x 1

[9] Drinkable Water Solutions, Canada ↗
Duration May 2024 – July 2024
Outcome Code and design review of Drinkable's Codebase

[8] Mozilla Firefox, UK
Duration   2020 – 2023, 2025 – Current
Collaborator Marco Castelluccio
Outcome   ICSME x 1 and EMSE x 1

[7] DALTrac, Dalhousie University ↗
Duration   2021 – Current
Collaborator Prof. Dr. Ahsan Habib
Outcome   Climate Action & Awareness Fund, NSERC Alliance Grant, and SCAM x 1

[6] Polytechnique Montreal ↗
Duration   2019 – Current
Collaborator Prof. Dr. Foutse Khomh
Outcome   MSR x 2, ICSME x 1, SANER x 1, EMSE x 2, and FSE x 1

[5] Singapore Management University, Singapore ↗
Duration   2016 – 2019
Collaborator David Lo
Outcome   SANER x 1, EMSE x 1 and ICSE x 1 (tool)

[4] Federal University of Uberlandia, Brazil ↗
Duration   2018 – 2021
Collaborator Marcelo Maia
Outcome   ICPC x 1, EMSE x 1, and JSS x 1

[3] Osaka University, Japan ↗
Duration   2016 – 2017
Collaborator Raula G. Kula
Outcome   MSR x 1

[2] Vendasta Technologies, SK, Canada ↗
Duration   2015 – 2016
Collaborator Jason Collins, Jesse Redl
Outcome   ICSE x 1 and ASE x 1 (tool)

[1] Queen's University, Canada ↗
Duration   2013 – 2015
Collaborator Iman Keivanloo
Outcome   SCAM x 1

🎓 HQP TRAINING (22)

Current Students

[15] Sigma Jahan (PhD)
Duration   Winter 2022 – Current
Interests   Reliable AI, Fault localization & diagnosis, Deep learning bugs, Explainable AI, Fairness bugs, Bug report management, and Duplicate bug detection.
Thesis   Improved understanding, detection, and diagnosis of faults in Deep Neural Networks (tentative) (**PhD Proposal** defended)
Completion April 2026 (Expected)
Publications **ICSE*** 2026 x 1, **ICSE*** 2025 x 1, **FSE*** 2025 x 1, SANER 2023 x 1, and EMSE x 1
Awards   **Dalhousie OpenThinker Award** (2024), **Best Teaching Assistant Award** (2023), Faculty Impact Award 2024, and ACM CAPS Awards

[14] Mehil Shah (PhD)

Duration	Winter 2023 – Current
Co-advisor	Dr. Foutse Khomh, Polytechnique Montreal
Interests	Software debugging, Bug reproduction, Deep learning bugs, Agentic AI, Explainable AI, and Generative AI.
Thesis	Automated reproduction of deep learning bugs (tentative) (**RAD** completed)
Publications	**ICSE*** 2026 (Under Revision) x 1, **ICSE* 2025** x 1, **FSE*** 2025 x 1, and EMSE x 2
Awards	**Best Presentation Award** (CSER 2025), ACM CAPS Award, and ICSE Student Volunteering Award (2025)

[13] Asif Samir (PhD)

Duration	Fall 2022 – Current
Interests	Software debugging, Bug localization, Query reformulation, Information Retrieval, Large Language Models, and Agentic AI
Thesis	Automated localization of software bugs using Agentic AI (tentative) (**RAD** completed)
Publications	ICPC 2025 x 1 and JSS (Under Revision) x 1
Awards	ACM CAPS Award, **Best Poster Award** (CSER 2025), Dalhousie Travel Award, and Upper Bound Talent Bursary 2025

[12] Usmi Mukherjee (PhD)

Duration	Winter 2024 – Current
Co-advisor	Dr. Ahsan Habib, Dalhousie University
Interests	Bug report improvement, natural language processing, Information Retrieval, Generative AI, Reinforcement Learning, Agent-Based Simulations, and Simulation Modeling
Publications	EASE 2025 x 1, JSS x 1, and TRBAM 2026 x 1

Graduated & Past Students

[11] Parvez Mahbub (MCS)

Duration	Fall 2021 – Summer 2023
Thesis	Comprehending Software Bugs Leveraging Code Structures with Neural Language Models
Publications	**ICSE*** 2023 x 1, ICSME 2023 x 2, MSR 2023 x 1, SANER 2024 x 1, and **ICSE*** 2025 x 1
Award	MITACS Accelerate International Scholarship
Position	Machine Learning Engineer, **Siemens Canada**, Saskatoon, SK, Canada.

[10] Ohiduzzaman Shuvo (MCS)

Duration	Fall 2021 – Summer 2023
Thesis	Improving Modern Code Review Leveraging Contextual and Structural Information from Source Code
Publications	ICSME 2023 x 2 and **ICSE*** 2023 x 1
Position	IT Application System Analyst, **City of Red Deer**, AB, Canada.

[9] Usmi Mukherjee (MCS)

Duration	Winter 2022 – Fall 2023
Thesis	Complementing Deficient Bug Reports with Missing Information Leveraging Neural Text Generation
Publications	EASE 2025 x 1, JSS x 1, and TRBAM 2026 x 1
Position	PhD student, Dalhousie University

[8] Riasat Mahbub (MCS)

Duration	Fall 2023 – Summer 2025
Co-advisor	Dr. Ahsan Habib, Dalhousie University
Thesis	Understanding Code Smells and Refactoring Practices in Simulation Modelling Systems - A Comprehensive Study
Publications	SCAM 2024 x 1, TRBAM 2026 x 1, and JSS (Under Review) x 1

[7] Lareina Yang (BCS (Honors))

Duration	Spring 2023 – Winter 2024
Thesis	Search Term Identification for Concept Location Leveraging Word Relations
Grade	**A+**
Position	*Cornell Tech* Master's Graduate, Software Developer, **ReelData AI**, Halifax, Canada

[6] Callum MacNeil (BCS (Honors))

Duration	Fall 2022 – Fall 2023
Thesis	A Systematic Review of Automated Program Repair using Large Language Models
Grade	**A**
Position	Fresh Master's Graduate, Dalhousie University

[5] Shihui Gao (BCS (Honors))

Duration	Spring 2022 – Fall 2023
Thesis	Code Search in the IDE with Query Reformulation
Grade	**A-**
Position	Data analyst, **Emergency Medical Care Inc.**, Halifax, Canada

[4] Md Nizamuddin (BSc)

Duration	Spring 2024–Summer 2024
Project	Making Bug Reports Readable with Intelligent Bots
Award	Mitacs GRI Award 2024

[3] Wendi Wanyan (BCS)

Duration	Spring 2025 – Summer 2025
Project	Making Software Crash Reports Explainable with Intelligent Bots
Award	Mitacs GRI Award 2025

[2] Jitansh Arora (BCS)

Duration	Fall 2024
Interests	Code reviews and Generative AI

[1] Abdul Samad (BCS)

Duration	Winter 2025
Interests	Software debugging, Query difficulty analysis, and Generative AI

Learn more about Dr. Rahman's research team at Dalhousie University – **RAISE Lab**

Past Mentees

[7] Biruk Asmare Muse (PhD)

Duration	Fall 2019–Summer 2020
Affiliation	Polytechnique Montreal
Publications	MSR 2020 x 1
Employment	Postdoctoral Fellow, University of Ottawa.

[6] Hadhemi Jebnoun (MSc)

Duration	Fall 2019–Summer 2020
Affiliation	Polytechnique Montreal
Publications	MSR 2020 x 1
Employment	Senior Data Engineer, Data Science Inc., Montreal.

[5] Mahmood Vahedi (MSc)

Duration	Fall 2019–Summer 2020
Affiliation	Polytechnique Montreal
Publications	SANER 2021 x 1

[4] Saikat Mondal (MSc + PhD)

Duration	Spring 2018–Current
Affiliation	University of Saskatchewan
Publications	MSR x 2, EMSE x 1, SANER x 1, and ISEC x 1
Awards	Graduate Thesis Award 2021, Keith Geddes Award, and GSA STEM Award.

[3] Rodrigo Fernandes (PhD)

Duration	Fall 2018– Fall 2021
Affiliation	University of Saskatchewan, Federal University of Uberlandia
Publications	ICPC 2019 x 1, EMSE 2020 x 1, and JSS 2021 x 1
Employment	Senior Software Engineering, Federal University of Uberlandia

[2] Amit Mondal (MSc)

Duration	2015 – 2016
Affiliation	University of Saskatchewan
Publications	SEKE 2016 x 1
Employment	Associate Professor, Khulna University.

[1] Shamima Yeasmin (MSc + PhD)

Duration	2021 – Current
Affiliation	University of Saskatchewan
Publications	EMSE 2021 x 1 and ICPC 2025 x 1

🎤 TALKS, POSTERS, & DEMOS (49)

[49] M. Masudur Rahman. 2024, *"On the Prevalence, Evolution, and Impact of Code Smells in Simulation Modelling Software"*, SCAM, Flagstaff, USA.

[48] Sigma Jahan, Mehil Shah, and M. Masudur Rahman. 2024, *"Poster: Towards Understanding the Challenges of Bug Localization in Deep Learning Systems"*, SEMLA, Montreal, Canada.

[47] Mehil Shah, M. Masudur Rahman, and Foutse Khomh. 2024, *"Poster: Towards Enhancing the Reproducibility of Deep Learning Bugs: An Empirical Study"*, SEMLA, Montreal, Canada.

[46] M. Masudur Rahman. 2024, *"Predicting Line-Level Defects by Capturing Code Contexts with Hierarchical Transformers"*, SANER, Rovaniemi, Finland.

[45] M. Masudur Rahman. 2024, *"Can We Identify Stack Overflow Questions Requiring Code Snippets? Investigating the Cause & Effect of Missing Code Snippets"*, SANER, Rovaniemi, Finland.

[44] M. Masudur Rahman. 2023, *"Bugsplainer: Leveraging Code Structures to Explain Software Bugs with Neural Machine Translation"*, ICSME, Bogota, Colombia.

[43] M. Masudur Rahman. 2022, *"The Forgotten Role of Search Queries in IR-based Bug Localization: An Empirical Study"*, ICSE, Pittsburgh, USA (Virtual).

[42] M. Masudur Rahman. 2020, *"Finding Bugs and Features in the Software Code with Better Search Queries"*, **New Faculty Talk**, Consortium for Software Engineering Research, Canada (Virtual)

[41] M. Masudur Rahman. 2020, *"Why are Some Bugs Non-Reproducible? An Empirical Investigation using Data Fusion"*, ICSME, Adelaide, Australia (Virtual).

[40] M. Masudur Rahman. 2020, *"BugDoctor: Finding Bugs and Features in the Software Code with Better Search Queries"*, **Tenure-Track Faculty Seminar**, University of Calgary, Calgary, AB, Canada. (Online Seminar)

[39] M. Masudur Rahman. 2020, *"BugDoctor: Detecting Bugs and Features in Software Code with Context-Aware and Semantics-Driven Query Reformulation"*, **Tenure-Track Faculty Seminar**, Dalhousie University, Halifax, NS, Canada. (Online Seminar)

[38] M. Masudur Rahman. 2020, *"BugDoctor: Detecting Bugs and Features in Software Code with Context-Aware and Semantics-Driven Query Reformulation"*, **Tenure-Track Faculty Seminar**, Queen's University, Kingston, ON, Canada.

[37] M. Masudur Rahman. 2020, *"BugDoctor: Detecting Bugs and Features in Software Code with Context-Aware and Semantics-Driven Query Reformulation"*, **Tenure-Track Faculty Seminar**, Rochester Institute of Technology (RIT), Rochester, NY, USA.

[36] M. Masudur Rahman. 2020, *"BugDoctor: Detecting Bugs and Features in Software Code with Context-Aware and Semantics-Driven Query Reformulation"*, **Tenure-Track Faculty Seminar**, Miami University, Oxford, OH, USA.

[35] M. Masudur Rahman. 2019, *"Supporting Source Code Search with Context-Aware and Semantics-Driven Query Reformulation"*, Thesis Defence, University of Saskatchewan, Canada.

[34] M. Masudur Rahman. 2019, *"Supporting Code Search with Context-Aware, Analytics-Driven, Effective Query Reformulation"*, Doctoral Symposium, ICSE 2019, Montreal, Canada.

[33] M. Masudur Rahman. 2019, *"Using version control systems in everyday activities and how to make a better presentation"*, **Guest Lecture**, Software Research Lab, University of Saskatchewan, Canada.

[32] M. Masudur Rahman. 2019, *"Improving Bug Localization with Context-Aware, Analytics-Driven Query Reformulation"*, **Tenure-Track Faculty Seminar**, York University, Toronto, Ontario, Canada.

[31] M. Masudur Rahman. 2019, *"Improving Bug Localization with Context-Aware, Analytics-Driven, Effective Query Reformulation"*, **Tenure-Track Faculty Seminar**, University of Manitoba, Winnipeg, Canada.

[30] M. Masudur Rahman. 2018, *"Improving IR-Based Bug Localization with Context-Aware Query Reformulation"*, ESEC/FSE, FL, USA.

[29] M. Masudur Rahman. 2018, *"Partial Reproduction of Bug Localization Results from BugLocator, BLUiR and AmaLgam+"*, ROSE Festival, ESEC/FSE, FL, USA.

[28] M. Masudur Rahman. 2018, *"Effective Reformulation of Query for Code Search using Crowdsourced Knowledge and Extra-Large Data Analytics"*, ICSME, Madrid, Spain.

[27] M. Masudur Rahman. 2018, *"NLP2API: Query Reformulation for Code Search using Crowdsourced Knowledge and Extra-Large Data Analytics"* [Artifact], ICSME, Madrid, Spain.

[26] M. Masudur Rahman and Chanchal K. Roy. 2018, *"Poster: Improving Bug Localization with Report Quality Dynamics and Query Reformulation"*, ICSE, Gothenburg, Sweden.

[25] M. Masudur Rahman. 2017, *"Improved Query Reformulation for Concept Location using CodeRank and Document Structures"*, ASE, Urbana, IL, USA

[24] M. Masudur Rahman. 2017, *"Improved Query Reformulation for Concept Location using CodeRank and Document Structures"* [Poster], ResearchFest, University of Saskatchewan.

[23] M. Masudur Rahman and Chanchal K. Roy. 2017, *"Towards automated supports for code reviews using reviewer recommendation and review quality modelling"*, 56th CREST Open Workshop (COW), **University College London**, UK. [Invited Talk]

[22] M. Masudur Rahman, Chanchal K. Roy and David Lo. 2017, *"RACK: Code Search in the IDE using Crowdsourced Knowledge"* [Demo], ICSE, Buenos Aires, Argentina .

[21] M. Masudur Rahman, Chanchal K. Roy and R. G. Kula. 2017, *"Predicting Usefulness of Code Review Comments using Textual Features and Developer Experience"*, MSR, Buenos Aires, Argentina.

[20] M. Masudur Rahman and Chanchal K. Roy. 2017, *"Impact of Continuous Integration on Code Reviews"*, MSR, Buenos Aires, Argentina.

[19] M. Masudur Rahman and Chanchal K. Roy. 2017, *"STRICT: Information Retrieval Based Search Term Identification for Concept Location"*, SANER, Klagenfurt, Austria.

[18] M. Masudur Rahman. 2016, *"CORRECT: Code Reviewer Recommendation in GitHub Based on Cross-Project and Technology Experience"*, ICSE, Austin, TX, USA

[17] M. Masudur Rahman. 2016, *"CORRECT: Code Reviewer Recommendation at GitHub for Vendasta Technologies"* [Demo+Poster], ASE, Singapore

[16] M. Masudur Rahman. 2016, *"CORRECT: Code Reviewer Recommendation at GitHub for Vendasta Technologies"* [Demo], Technology Meeting, Vendasta Technologies, Saskatoon, Canada.

[15] M. Masudur Rahman. 2016, *"QUICKAR: Automatic Query Reformulation for Concept Location Using Crowdsourced Knowledge"*, ASE, Singapore

[14] M. Masudur Rahman. 2016, *"RACK: Automatic API Recommendation using Crowdsourced Knowledge"*, SANER, Osaka, Japan

[13] M. Masudur Rahman. 2015, *"Recommending Insightful Comments for Source Code using Crowdsourced Knowledge"*, CSER, Markham, Canada

[12] M. Masudur Rahman. 2015, *"Recommending Relevant Sections from a Webpage about Programming Errors and Exceptions"*, CASCON, Markham, Canada.

[11] M. Masudur Rahman and Chanchal K. Roy. 2015, *"Recommending Insightful Comments for Source Code using Crowdsourced Knowledge*, SCAM, Bremen, Germany.

[10] M. Masudur Rahman and Chanchal K. Roy. 2015, *"An Insight into the Unresolved Questions at Stack Overflow"*, MSR, Florence, Italy.

[9] M. Masudur Rahman. 2015, *"CORRECT: Code Reviewer Recommendation in GitHub Based on Cross-Project and Technology Experience"*, Technology Meeting, Vendasta Technologies.

[8] M. Masudur Rahman. 2015, *"TextRank Based Search Term Identification for Software Change Tasks"*, SANER, Montreal, Canada

[7] M. Masudur Rahman. 2014, *"SurfClipse: Context-Aware Meta Search in the IDE"* [Demo + Poster], ICSME, Victoria, Canada

[6] M. Masudur Rahman. 2014, *"On the Use of Context in Recommending Exception Handling Code Examples"*, SCAM, Victoria, Canada

[5] M. Masudur Rahman and Chanchal K. Roy. 2014, *"Towards a Context-Aware Meta Search Engine for IDE-Based Recommendation about Programming Errors and Exceptions"*, CSMR-WCRE, Antwerp, Belgium.

[4] M. Masudur Rahman and Chanchal K. Roy. 2014, *"An Insight into the Pull Requests of GitHub"*, MSR, Hyderabad, India.

[3] M. Masudur Rahman. 2013, *"An IDE-Based Context-Aware Meta Search Engine"*, WCRE, University of Koblenz-Landau, Koblenz, Germany.

[2] M. Masudur Rahman. 2018, *"Supporting Software Change Tasks using Automated Query Reformulations"*, **Guest Lecture**, CMPT 470/816: Advanced Software Engineering, University of Saskatchewan, Canada.

[1] M. Masudur Rahman. 2013, *"Semantic Network Based API Usage Pattern Extraction and Learning"*, Graduate Symposium, University of Saskatchewan, Canada.

⚒ DEVELOPED SOFTWARE TOOLS & PROTOTYPES (17)

[17] RepGen debugging-automation
Overview   An Agentic AI-based solution for reproducing faults in deep learning models.
Availability   Replication package (To appear)
Publications   **ICSE 2026** (Under Revision)

[16] DEFault debugging-automation
Overview   A machine learning-based, hierarchical method for detecting and diagnosing faults in deep learning models.
Availability   Replication package ↗
Publications   **ICSE 2025**

[15] BRAIN debugging-automation
Overview   A novel, Information Retrieval-based technique for localizing software bugs leveraging Intelligent Relevance Feedback.
Availability   Replication package ↗
Publications   ICPC 2025

[14] Bugsplainer debugging-automation
Overview   A fine-tuned CodeT5 model for explaining faulty source code in natural language.
Availability   Prototype ↗, replication package ↗, and YouTube demo ▶
Publications   **ICSE 2023** and ICSME 2023
Adoption   Adopted by **Metabob Inc.** in their customer-facing products on code reviews.

[13] Bugsplorer debugging-automation
Overview   A line-level defect prediction model using hierarchical transformers.
Availability   Replication package ↗
Publications   SANER 2024

[12] BugMentor debugging-automation
Overview   An LLM-based technique to automatically answer follow-up questions from bug reports.
Availability   Replication package ↗
Publications   JSS 2025

[11] BLIZZARD debugging-automation
Overview   A novel technique for localizing software bugs with context-aware query reformulations.
Availability   Prototype ↗, replication package ↗
Publications   **ESEC/FSE 2018**

[10] ACER debugging-automation
Overview   A novel technique for localizing software bugs leveraging document structures and graph-based query reformulation.
Availability   Replication package ↗
Publications   **ASE 2017**

[9] STRICT debugging-automation
Overview   A novel technique for localizing software bugs leveraging Information Retrieval and graph-based query reformulation.
Availability   Replication package ↗
Publications   SANER 2017

[8] TechTube `search-automation`

Overview   A novel technique for detecting the most relevant sections from YouTube videos.

Availability   Replication package ↗

Publications   SANER 2021

[7] CROKAGE `search-automation`

Overview   A novel technique for detecting relevant code examples with human-written explanation.

Availability   Replication package ↗ and **Live demo** ↗

Publications   ICPC 2019, EMSE 2020, and JSS 2021. Featured at **Stack Overflow Blog** ↗.

[6] RACK `search-automation`

Overview   A novel technique for code search leveraging crowd knowledge in query reformulations.

Availability   Replication package ↗ and YouTube demo ▶

Publications   SANER 2016, **ICSE 2017**, and EMSE 2019

[5] NLP2API `search-automation`

Overview   A novel technique for code search leveraging crowd knowledge in query reformulations.

Availability   Replication package ↗

Publications   ICSME 2018

[4] RevCom `review-automation`

Overview   A lightweight code comment provider using structured information retrieval.

Availability   Replication package ↗

Publications   ICSME 2023

[3] CORRECT `review-automation`

Overview   A novel technique for code reviewer reocmmendation using cross-project & specialized technology experience.

Availability   Replication package ↗ and YouTube demo ▶

Publications   **ICSE 2016** and **ASE 2016**

Adoption   Tested by software practitioners from **Vendasta Technology** ↗

[2] RevHelper `review-automation`

Overview   A novel technique for predicting the usefulness of code review comments.

Availability   Replication package ↗

Publications   MSR 2017

[1] CodeInsight `review-automation`

Overview   A novel technique for recommending code review comments leveraging Stack Overflow discussions.

Availability   Replication package ↗

Publications   SCAM 2015

⚙ TOOL & TECHNOLOGY EXPERIENCE

- **Software Development:** Agile, eXtreme Programming, Prototyping, Test-Driven Development, Refactoring, Clean Code, SOLID principles, Design patterns, Maven, Gradle, GitLab Continuous Integration, JUnit, Espresso framework, UI Automator, Android framework, and Mocking.

- **IDE:** Eclipse, PyCharm, IntelliJ, Android Studio, Visual Studio, VS Code, Cursor, Windsurf, and Jupyter Notebook.

- **Software Maintenance:** JavaParser, Apache Lucene, Jsoup, PMD, FindBugs, SonarLint, CheckStyle, ArgoUML, and Doxygen.

- **Software Version Control**: Git, GitHub, GitLab, and BitBucket.

- **Code Reviews & Continuous Integration:** Gerrit, Travis CI, and GitHub Pull Request.

- **Big Data Technologies:** Apache Spark 2.2, Hadoop 2.7, and Yarn cluster.

- **Machine Learning & Data Mining:** Gensim, FastText, Word2Vec, WEKA, R, MATLAB, Scikit-learn, Decision Trees, RandomForest, CART, Logistic Regression, Naive Bayes, Bayes Net, Linear Regression, Resampling, Bagging, Boosting, Stacking, and Ensemble Learning.

- **Explainable AI:** SHAP, LIME, and Captum.

- **Deep Learning & LLM:** PyTorch, Keras, TensorFlow, LSTM, CNN, GNN, Siamese, BERT, CodeT5, Encoder-Decoder, Autoencoder, Cross-Encoder, Transformers, T5, and GAN.

- **Reinforcement Learning**: Gymnasium, Stable baselines, and TorchRL.

- **Agentic AI:** OpenAI SDK, RAG, LangChain, LangGraph, LangSmith, AutoGen, Semantic Kernel, CrewAI, and AgentOps.

- **Code Search & Information Retrieval:** Faiss, Lucene, Indri, Lemur, PageRank, and K-Core.

- **Natural Language Processing:** Stanford CoreNLP, Mallet, spaCy, POS tagging, Sentiment analysis, Term weighting, Text summarization, and Semantic similarity analysis.

- **Statistics & Data Modelling:** R, Probability distributions, Random sampling, Confidence interval, Central tendency, Data centrality, and Statistical tests.

- **Simulation Modelling:** AgentPy and ModSimPy.

- **Reporting & Prototyping:** LaTeX, and Pencil.

- **Programming Languages:** Java (Standard + Android), C#, Python, and C/C++.

- **Research Collaboration:** Overleaf, Slack, and GitHub Issues.

📖 TEACHING

[Dalhousie University]

[18] **Winter 2025/CSCI 3130 - Software Engineering**: Enrollment 136, SLEQ: **3.98/5.00**.

[17] **Fall 2024/CSCI 3130 - Software Engineering**: Enrollment 121, SLEQ: **4.11/5.00**.

[16] **Winter 2024/CSCI 3130 - Software Engineering**: Enrollment 134, SLEQ: **4.04/5.00**.

[15] **Winter 2024/CSCI 6308 - Software Maintenance & Evolution**: Enrollment 03, SLEQ: *4.86/5.00

[14] **Fall 2023/CSCI 3130 - Software Engineering**: Enrollment 93, SLEQ: **3.68/5.00**.

[13] **Winter 2023/CSCI 3130 - Software Engineering**: Enrollment 142, SLEQ: **3.93/5.00**.

[12] **Winter 2023/CSCI 6308 - Software Maintenance & Evolution**: Enrollment 11, SLEQ: *4.57/5.00

[11] **Fall 2022/CSCI 3130 - Software Engineering**: Enrollment 130, SLEQ: **4.03/5.00**.

[10] **Winter 2022/CSCI 3130 - Software Engineering**: Enrollment 103, SLEQ: **4.30/5.00**.

[9] **Winter 2022/CSCI 6308 - Software Maintenance & Evolution**: Enrollment 23, SLEQ: *4.51/5.00

[8] **Fall 2021/CSCI 3130 - Software Engineering**: Enrollment 103, SRI: 4.05/5.00

[7] **Winter 2021/CSCI 3130 - Software Engineering**: Enrollment 130, SRI: ***4.54/5.00**

[6] **Fall 2020/CSCI 3130 - Software Engineering**: Enrollment 107, SRI: 3.42/5.00

Please check Masud's *teaching page* ↗ for updated syllabus and detailed evaluations from students.

[University of Saskatchewan]

[5] Fall 2017/CMPT 370 - Software Engineering: Enrollment 100

[Khulna University]

[4] Software Engineering (CSE 3101)

[3] Information System Analysis and Design (CSE 3203)

[2] Microprocessor and Interfacing (CSE 3111)

[1] Object-Oriented Programming (CSE 1201)

✎ COURSE CURRICULUM DESIGN

[2] CSCI 6308: Software Maintenance & Evolution

Overview   Developed software products often need to be modified to address concerns from their customers, testers, and users (e.g., software bugs, feature requests, performance regression). Activities addressing these concerns are called software maintenance and evolution. The maintenance and evolution involve various challenging activities such as bug resolution, feature enhancement, reverse engineering, traceability link recovery, code reuse, mining software repositories, and the quality control mechanisms such as code review and refactoring. This course will not only discuss these important concepts but also introduce the students to the state-of-the-art tools and technologies supporting these activities.

Role   Development

Syllabus   Please check here ↗

[1] CSCI 3130: Software Engineering

Overview   The course examines the process of software development, from initial planning through implementation and maintenance. A brief survey of available tools and techniques will be presented covering the topics of analysis, planning, estimating, project management, design, testing, and evaluation. Particular emphasis will be given to organizing and planning, team participation and management, top-down design and structure charts, system and information flow diagrams, walk-throughs and peer review, and testing and quality control.

Role   Redesign

Syllabus   Please check here ↗

👤 LEADERSHIPS & SERVICES

[Dalhousie University]

[48] (2025) Chair: MCS defence of Gautam Shetty, Computer Science, Dalhousie University.

[47] (2025) Examiner: PhD RAD defence of Mootez Saad, Computer Science, Dalhousie University.

[46] (2025) Examiner: PhD RAD defence of Xuemin Yu, Computer Science, Dalhousie University.

[45] (2025) Examiner: MCS thesis defence of Indranil Palit, Computer Science, Dalhousie University.

[44] (2024) Reviewer: Mitacs Accelerate Entrepreneur.

[43] (2024) Chair: MCS thesis defence of Syed M. Husain, Computer Science, Dalhousie University.

[42] (2024) Examiner: MCS thesis defence of Manpreet Singh, Computer Science, Dalhousie University.

[41] (2024) Examiner: MCS thesis defence of Yixiao Yuan, Computer Science, Dalhousie University.

[40] (2024) Member: Senate Review Committee, Faculty of Computer Science, Dalhousie University.

[39] (2024) Judge: Dalhousie AI Symposium

[38] (2024) Reviewer: Mitacs Business Strategy Internship.

[37] (2024) Examiner: PhD RAD defence of Hera Arif, Computer Science, Dalhousie University.

[36] (2024) Member, Open search committee, Faculty of Computer Science, Dalhousie University.

[35] (2024) Co-organizer, CART Hackathon, Dalhousie University. Learn more about CART Hackathon.

[34] (2024) Member: Course curriculum committee, Faculty of Computer Science, Dalhousie University.

[33] (2023) Examiner: PhD proposal defence of Asil Naqvi, Computer Science, Dalhousie University.

[32] (2023) Examiner: MCS thesis defence of Himesh Nandani, Computer Science, Dalhousie University.

[31] (2023) Member: Discussion panel, Artificial Intelligence and Data Act, Bill C27, Canada.

[30] (2023) Chair: MSc thesis defence of Emeka Nwagu, Computer Science, Dalhousie University.

[29] (2023) Reviewer: Mitacs Business Strategy Internship.

[28] (2023) Member: Open search committee, Faculty of Computer Science, Dalhousie University.

[27] (2023) Member: Course curriculum committee, Faculty of Computer Science, Dalhousie University.

[26] (2023) Examiner: PhD RAD defence of Sheida Majouni, Computer Science, Dalhousie University.

[25] (2022) Chair: MSc thesis defence of Ronit Desai, Computer Science, Dalhousie University.

[24] (2022) ECR Panelist: NSERC Discovery Grant Session 2022, Dalhousie University.

[23] (2022) Presenter: HereWeCode: FCS research showcase, Dalhousie University.

[22] (2022) Reviewer: Mitacs Accelerate program (Entrepreneur).

[21] (2022) Examiner: PhD Proposal defence of Md R. H. Rakib, Computer Science, Dalhousie University.

[20] (2022) Examiner: PhD RAD defence of Jaber Rad, Computer Science, Dalhousie University.

[19] (2022) Chair: MSc thesis defence of Mohamed Muzamil, Computer Science, Dalhousie University.

[18] (2022) Chair: MSc thesis defence of Sayeh Sarkarhosseini, Computer Science, Dalhousie University.

[17] (2021) Member: Course curriculum committee, Faculty of Computer Science, Dalhousie University.

[16] (2021) Member: Faculty search committee (Instructor of Professional Practice), Faculty of Computer Science, Dalhousie University.

[15] (2021) Member: Dean's Award of Excellence committee, Computer Science, Dalhousie University.

[14] (2021) Chair: MSc thesis defence of Jiarong Cui, Computer Science, Dalhousie University.

[13] (2021) Chair: MSc thesis defence of Fatemeh Rahimi, Computer Science, Dalhousie University.

[12] (2021) Chair: MSc thesis defence of Rakshit Varu, Computer Science, Dalhousie University.

[11] (2021) External Reviewer: Scholarships and Killam Fellowships, Dalhousie University.

[10] (2020) Member: Course curriculum committee, Faculty of Computer Science, Dalhousie University.

[9] (2020) Member: Open search committee, Faculty of Computer Science, Dalhousie University.

[Earlier Services & Leaderships]

[8] (2018 – 2019) Webmaster, IEEE Canada North Saskatchewan Chapter.

[7] (2014 – 2016) Vice President Internal, Computer Science Graduate Course Council, U of S.

[6] (2010–2012) Student Contest Organizer & Mentor, Khulna University.

[5] (2010–2012) Lead Application System Engineer, NOCHALLENGE TECHNOLOGY LLC.

[4] (2005–2006) Publication Secretary, CLUSTER, Khulna University.

[3] (2002–2003) House Cultural Prefect, Jhenidah Cadet College.

[2] (2004) Leadership Contest Winner, ISSB, Bangladesh Army.

[1] (2000) Television Debate Winner.

[Professional Membership]

- IEEE Professional Membership
- ACM SIGSOFT Membership

👥 COMMUNITY ENGAGEMENT

[5] CART Hackathon

Overview	Co-organized a two-day long hackathon with Prof. Dr. Ahsan Habib from School of Planning, Dalhousie University. About 50 students from multiple departments of Dalhousie University participated in the hackathon. They competed in developing innovative software solutions to tackle the emerging challenges of climate change (e.g., smart travel).
Year	2024
Role	Co-organizer, Planner, and Judge

[4] Dalhousie AI Symposium

Overview	An annual, university-wide AI symposium to connect academician, students, and professionals from the industry. It focuses on the opportunities and challenges of emerging AI technologies, especially Generative AI.
Year	2024
Role	Judge (poster)

[3] Bill C27: Artificial Intelligence and Data Act

Overview	A panel discussion between the faculty members of Computer Science and the Canadian government officials. The panel focused on the completeness, viability, and downside of the Bill C27.
Year	2023
Role	Panelist

[2] HereWeCode

Overview	A collaborative tech-positive movement led by the Faculty of Computer Science that seeks to drive the evolution of digital innovation between different sectors in Nova Scotia including ocean, business, industry, and government.
Year	2022
Role	Presenter

[1] Industry-Academia Meetup

Overview	Regular meet ups between academician, especially CS faculty members, and the industry professionals from Atlantic Canada.
Year	2023-Current
Role	Participant

🎙 INDUSTRY EXPERIENCE

Programming, Software, and Technologies

- **Web Application Programming:** ASP.net, AJAX, MVC, PHP, Coolite, Ext.NET, Javascript, CSS, JQuery, JQueryUI, XHTML, XML.

- **Database Programming:** PL/SQL, Microsoft SQL Server, Oracle 9, MySQL, MS Access, JDBC, ODBC

- **Technical Software Skills:** MS Visual Studio.NET, Net Beans, Pencil, JCreator, FileZilla, BugZilla, TortoiseHg, Crystal Report, ULead Studio, PhotoShop, Dreamweaver, WordPress, NotePad++, DotNetNuke, Joomla, and Plesk.

- **Professional Working experience:** JCarousel, Lightbox, JQuery Map, Google Map, Fusion Map, Google Data API, Payment Integration (Paypal), Finance API Integration (Yahoo!), DirectXCapture, Social Web Integration, Email Marketing, SpryAsset, Zoom Map, E-Commerce development and Management, and HTML Scraping

Professional Projects

- **[2012] PicIssu**: A web-based software issue tracking system that automatically collects screenshots of issue locations from the UI. It provides a flexible dashboard with various features for issue management and empowers both the clients and the maintenance developers. *Technology*: ASP.net C#, Javascript, JQuery, CSS, DirectXCapture, and MSSQL Server.

- **[2011] MarketLinkBD:** An accounting software system that manages and automates several tasks of multi-level marketing in Bangladesh. *Technology:* C#, MSSQL, Javascript, Multi-level marketing algorithm.

- **[2010] BizWhack**: An e-commerce application for buying and selling of businesses, real estates and franchises online. It allows a seller to create advertisements for his/her items using site-provided tools. BizWhack also allows the buyers to look for their desired businesses or franchises through an efficient search mechanism. As a full-featured e-commerce application, it supports online payment using Paypal. *Technology*: ASP.net C#, Javascript, JQuery, CSS, Paypal API integration, Google Data APIs, and MSSQL Server.

- **[2011] CrabTree Screener**: A desktop application that scraps Yahoo! finance pages, and mines stock quote information (e.g., Keyword Statistics, Cash Flow and Analyst Estimates) for hundreds of stocks. *Technology*: C#, Socket, JSoup, XML, Finance API, and Excel API.

- **[2010] Interactive Golf Course**: An interactive map application for exploring golf courses at Arizona, USA. It visualizes each par and hole of the field and helps the golfers in advanced game planning. *Technology*: ASP .net C#, CSS, Javascript, JQuery and XML.

More details about these completed projects can be found in the company's **portfolio page**.

⬣ PROFESSIONAL REFERENCES

(1) Dr. Chanchal K. Roy

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(2) Dr. Foutse Khomh

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(3) Dr. Denys Poshyvanyk

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(4) Dr. David Lo

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