

Maram Assi

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Education

Queen's University

Ph.D. in Computing

- Awarded Government of Canada Vanier Graduate Scholarship \$150K (ranked 15/190 nationwide), CGPA 4.2/4.3

Kingston, Canada

2019 - 2024

Lebanese American University

M.S in Computer Science (CGPA 3.6/4)

B.S. in Computer Science (CGPA 3.9/4)

Beirut, Lebanon

2014 - 2017

2010 - 2014

Professional Experience

Université du Québec a Montréal

Assistant Professor

- Research interest: Software Engineering, Software Analytics, Software Evolution, Data Mining and Applied Machine Learning

Montréal, Canada

2024 - now

Queen's University

Graduate Research Assistant

- Leading the design and development of a data-driven approach utilizing Large Language Models (LLMs) to automate competitive user review analysis of mobile apps, offering developers actionable insights and recommendations for software product enhancement
- Conducted a longitudinal empirical study on DL frameworks code clone evolution leveraging time series techniques to investigate the cloning trends implications on the quality and trustworthiness of the DL frameworks
- Designed and implemented a novel approach, FeatCompare, that automatically mines and compares opinions from user reviews, leveraging ML and Natural Language Processing to streamline the process of developers enabling them to efficiently enhance their software products by gaining valuable insights from user feedback data
- Leveraged ML models to help developers predict the defect-fixing effort by including new features identified using state-of-the-art Topic Modelling. Our approach achieves 78% precision and 45% recall improvement and streamlines the defect-fixing process

Kingston, Canada

2019 - 2024

Faculty of Engineering and Applied Science, Queen's University

Web Specialist

- Implemented and maintained websites for the FEAS using the Cascade and WordPress platforms
- Redesigned the FEAS website, which led to increased user interaction and a reduction of the web technical issues

Kingston, Canada

2019 - 2021

Acteos Production SAL Offshore Beirut, Lebanon

Software Analyst and Senior Software Developer (Supply Chain Management Domain)

- Implemented a transport planning program that reduced the transport cost for French retailers by 30% (E. Leclerc)
- Optimized the load and itinerary algorithm in terms of distance and time, which reduced the transport flow by 20%+
- Designed and implemented an interface for the transport management system to mobile applications using Oracle PL/SQL that led to real-time tour progression monitoring

2016 - 2019

Capital Banking Solutions SAL Offshore

Software Developer (Banking Domain)

- Developed the client database, external and internal transfer modules using Oracle ADF framework and SQL Database
- Collaborated with product managers to restructure the user management module to meet customer needs, which led to an optimized user search and an enhanced user creation workflow

Beirut, Lebanon

2014 - 2016

Lebanese American University

Graduate Research Assistant

- Designed a GA algorithm to schedule household appliances (i.e., smart grids) to reduce monetary expenses by leveraging the Time of Use price model

Beirut, Lebanon

2014 - 2017

- Designed a solution using Genetic Algorithm (GA) and graph colouring method to solve the university course scheduling problem
- Proposed SDODV, a new smart and dynamic on-demand distance vector routing protocol for mobile ad hoc networks that leverages traditional Ad hoc On-Demand Distance Vector (AODV) and distributed reinforcement learning approach to increase the lifetime of a network by reducing energy consumption

Teaching Experience

Queen's University

Kingston, Canada

Teaching Fellow (co-instructor)

2023 - 2024

- Lecturing the Elements of Computing with Data Analytics to 500+ undergraduate students
- Preparing the weekly active learning activities

Enrichment Studies Unit Instructor

2020 - 2022

- Created Introduction to Web Development (Grades 7 - 8) and Introduction to Web Development (Grades 10-12) courses
- Delivered 5 hands-on online courses to a group of 15-20 Grade 7-8 and Grade 10-12 students

Teaching Assistant

2019 - 2022

- Marked assignments and exams for the Elements of Computing Science undergraduate course (Fall 2021)
- Marked assignments and exams for Computer Networks (Winter 2021) and Web Development (Fall 2019) undergraduate courses
- Designed, prepared and delivered lab material for the Elements of Data Analytics undergraduate course (Winter 2020)
- Marked assignments, final projects and exams for the Topics in Data Analytics graduate course (Fall 2020)

Lebanese American University

Beirut, Lebanon

Lecturer

2014 - 2016

- Prepared class material and delivered class lectures for the Computer Applications undergraduate course (Fall 2014 and Spring 2015)

Teaching Assistant

2014 - 2016

- Designed and delivered lab hands-on tutorials and assignments for Intro to Object-Oriented Programming (Java) and Object and Data Abstraction (Java) undergraduate courses

Honors & Awards

2023 - 2024	SIGSOFT grant to attend ICSE 2023 and ICSE 2024 , recipient	ACM Association
2023	ACM-W Scholarship Award , (1 of 29 recipients worldwide)	ACM Association
2023	Three-minute Thesis Competition , finalist (2nd place)	Queen's University
2022	School of Computing Ian A. Macleod Award , recipient	Queen's University
2022	Travel Grant Award to attend ICSE 2022 , recipient	ACM Association
2021	SGPS International Student Leader Award , recipient	Queen's University
2021	SGS Award in Leadership, Innovation, and Community Engagement (1 of 5 recipients)	Queen's University
2021 - 2024	Vanier Graduate Canada Scholarship, NSERC , recipient	Government of Canada
2021	Graduate Research Fellowship , recipient	Queen's University
2014	Graduate Merit Scholarship for Outstanding Students , recipient	Lebanese American University
2011	Honor Scholarship Award for undergraduate students , recipient	Lebanese American University
2010	Entrance Scholarship for new students , recipient	Lebanese American University
2003 - 2009	PepsiCo International's Tomooh Scholarship for school students , recipient	PepsiCo International

Publications

UNDER REVIEW

[9] LLM-Cure: LLM-based Competitor User Review Analysis for Feature Enhancement

Assi M., Hassan S., Zou Y.

JOURNAL PAPERS

[8] Unraveling Code Clone Dynamics in Deep Learning Frameworks

Submitted to ACM Transactions on Software Engineering and Methodology – ref.# TOSEM-2024-0106

Assi M., Hassan S., Zou Y.

[7] Predicting the Change Impact of Resolving Defects by Leveraging the Topics of Issue Reports in Open Source Software Systems

ACM Trans. Softw. Eng. Methodol. 32, 6, Article 141 (November 2023), 34 pages. <https://doi.org/10.1145/3593802>

Assi M., Hassan S., Georgiou S., Zou Y.

[6] SDODV: A smart and adaptive on-demand distance vector routing protocol for MANETs

Peer-to-Peer Netw. Appl. 16, 2325–2348 (2023). <https://doi.org/10.1007/s12083-023-01530-9>

Kaddoura S., Haraty R., Al Jahdal S, Assi M.

[5] FeatCompare: Feature Comparison for Competing Mobile Apps Leveraging User Reviews

Empir Software Eng 26, 94 (2021). <https://doi.org/10.1007/s10664-021-09988-y>

Assi M., Hassan S., Tian Y., Zou Y.

CONFERENCE PAPERS

[4] Scheduling Household Appliances Using Genetic Algorithms

IEEE International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies (3ICT), Sakheer, Bahrain, 2022, pp. 1-6, doi: 10.1109/3ICT56508.2022.9990060.

Assi M., Haraty R., Thoumi S., Kaddoura S., Belal N.

[3] A Survey of the Knapsack Problem

IEEE International Arab Conference on Information Technology (ACIT), Werdanye, Lebanon, 2018, pp. 1-6, doi:10.1109/ACIT.2018.8672677

Assi M., Haraty R.

[2] Genetic Algorithm Analysis Using the Graph Coloring Method for Solving the University Timetable Problem

International Conference on Knowledge-Based and Intelligent Information & Engineering Systems, Procedia Computer Science, Volume 126, 2018, Pages 899-906, ISSN 1877-0509, <https://doi.org/10.1016/j.procs.2018.08.024>.

Assi M., Halawi B., Haraty

[1] A Systematic Review of Anonymous Communication Systems

International Conference on Enterprise Information Systems (2017). 211-220. 10.5220/0006216802110220.

Haraty R., Assi M., Rahal I.

Presentations and Invited Talks

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| Oral presentation at the Software Engineering at Montréal , Montréal, Canada
Machine-Learning Driven Guidance for Software Maintenance
Date: November 29, 2024 | 2024 |
| Oral presentation at the 46th Internal Conference on Software Engineering , Lisbon, Portugal
Predicting the Change Impact of Resolving Defects
Date: April 17, 2024, Session: Evolution 1, Track: Journal-first | 2024 |
| Oral presentation at Consortium for Software Engineering Research , McGill University, Montreal, Canada
Predicting the Change Impact of Resolving Defects
Date: June 7, 2023, Session: Code Quality, Track: Research Talks | 2023 |
| Oral presentation at the 44th Internal Conference on Software Engineering , Pittsburgh, PA, USA
FeatCompare: Feature Comparison for Competing Mobile Apps Leveraging User Reviews
Date: May 11, 2022, Session: Mobile Applications 2, Track: Journal-first | 2022 |
| Special guest at the ACM Canadian Celebration of Women in Computing , Toronto, Canada
Women, Life, Freedom, Technology
Date: October 22, 2022, Session: Event introductory speech – women in Computing empowerment | 2022 |
| Oral presentation at Consortium for Software Engineering Research , (virtual)
FeatCompare: Feature Comparison for Competing Mobile Apps Leveraging User Reviews
Date: May 14, 2021, Session: Human Aspects part 2, Track: Research Talks | 2021 |
| Oral presentation at the International Conference on Intelligent Information Systems , Serbia, Belgrade
Genetic algorithm analysis using the graph coloring method for solving the university timetable problem
Date: September 4, 2018, Session: Applications in Data Analytics and Software Development, Invited session | 2018 |

- Invited Keynote at the Lebanese University**, Beirut, Lebanon **2019**
 Artificial Intelligence for Supply Chain Management
 Date: November 26, 2018, Session: Career Panel
- Oral presentation at the International Arab Conference on Information Technology**, Werdayneh, Lebanon **2018**
 A Survey of the Knapsack Problem
 Date: November 28, 2018, Session: Web Application and Software Engineering
- Oral presentation at the International Conference on Applied Research in Computer Science**, Beirut, Lebanon **2017**
 Security Threats and Attacks on Tor
 Date: June 23, 2017

Leadership

- Nationwide elected student board member**, CS-Can | Info-Can **2020 - 2023**
- Chaired the Student and Post-doc advisory committee (11 members)
 - Designed a membership growth strategy and achieved a tenfold growth (50 to 600)
 - Developed engagement programs and activities fostering research for the Canadian computer science community at large
 - Met with the board members and Canadian institutions' computing department chairs to foster the students and postdocs
 - Prepared for the annual CS-CAN nationwide conference
- Computing Department Steward**, Teaching Fellow Union (PSAC 901) **2020 - 2023**
- Handled grievances and advocating for the rights of student employees
- President**, Queens' Graduate Computing Society **2020 - 2022**
- Led a team of 12 members to direct the operations of the GCS and drive impactful initiatives, including a monthly webinar series
 - Voiced the graduate students' concerns at the school council meeting, which resulted in an adjustment to the graduate funding (2.5%)
- Peer Facilitator**, Queen's Human Rights and Equity Office **2020 - 2021**
- Delivered training for 300+ student leaders about Equity, Diversity, and Inclusive Leadership
- Mentor**, Women in Engineering and Science (WiSE) **2020 - 2021**
- Provided guidance and support to empower women in engineering and science, fostering their professional development and promoting gender diversity in STEM fields
- Mentor**, LAU Alumni Mentoring Program **2018 - 2019**
- Offered advice and guidance related to senior students' career paths and overall professional development
- Founder of the GRAD MENTOR PROGRAM**, Queen's Faculty of Arts and Science **2020**
- Founded a peer advisor program that supports future Queen's students navigating Kingston and Queen's resources

Academic Service

- Conference Reviewer**
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| IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER) | 2025 |
| IEEE/ACM International Conference on Program Comprehension | 2025 |
| IEEE/ACM International Conference on Software Engineering (ICSE) | 2024 |
| ACM Symposium on the Foundations of Software Engineering (FSE) | 2021, 2022, 2024 |
| IEEE/ACM International Conference on Automated Software Engineering (ASE) | 2020, 2022 |
| ACM Mining Software Repositories (MSR) | 2022 |
- Invited Transaction Reviewer**
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| IEEE Transaction on Software Engineering | 2022, 2023 |
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Conference Organization

ACM Mining Software Repositories (MSR), session chair	2023
CS-Can Info-Can student conference, organizer member	2023
ACM Canadian Celebration of Women in Computing, organizer member	2022
Queen's CSearch Computing Student Research Conference, program chair	2020

Skills

Programming Languages	Python, R, Java, Oracle SQL, PL/SQL
Web development	WordPress, HTML5, CSS3, JavaScript, PHP
Tools	Jira, SQL developer, GitHub, SVN, Oracle ADF, PLSQL developer
Languages	Full proficiency in English, French and Arabic