

# Maram Assi

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## Education

<b>Queen's University</b>	<b>Kingston, ON, Canada</b>
Ph.D. in Computing	<b>2019 - now</b>
<ul style="list-style-type: none"><li>Advisor: Prof. Ying Zou</li><li>Awarded Government of Canada Vanier Graduate Scholarship \$150K (ranked 15/190 nationwide), CGPA 4.2/4.3</li><li>Research interest: Software Engineering, Software Analytics, Software Evolution, Data Mining and Machine Learning</li></ul>	
<b>Lebanese American University</b>	<b>Beirut, Lebanon</b>
M.S in Computer Science (CGPA 3.6/4)	<b>2014 - 2017</b>
B.S. in Computer Science (CGPA 3.9/4)	<b>2010 - 2014</b>

## Research Experience

<b>Queen's University</b>	<b>Kingston, ON, Canada</b>
Graduate Research Assistant	<b>2019 - now</b>
<ul style="list-style-type: none"><li>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</li><li>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</li><li>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</li><li>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</li></ul>	
<b>Lebanese American University</b>	<b>Beirut, Lebanon</b>
Graduate Research Assistant	<b>2014 - 2017</b>
<ul style="list-style-type: none"><li>Designed a GA algorithm to schedule household appliances (i.e., smart grids) to reduce monetary expenses by leveraging the Time of Use price model</li><li>Designed a solution using Genetic Algorithm (GA) and graph colouring method to solve the university course scheduling problem</li><li>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</li></ul>	

## Honors & Awards

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

## Professional Experience

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### Faculty of Engineering and Applied Science, Queen's University

Kingston, ON, Canada

Web Specialist

2019 - 2021

- 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

### Acteos Production SAL Offshore

Beirut, Lebanon

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

2016 - 2019

- 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

### Capital Banking Solutions SAL Offshore

Beirut, Lebanon

Software Developer (Banking Domain)

2014 - 2016

- 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

## Teaching Experience

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### Queen's University

Kingston, ON, Canada

Teaching Fellow (co-instructor)

2023 - now

- 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 undergraduate course (Winter 2021)
- 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)
- Delivered lab material, marked quizzes and exams for Fundamentals of Web Development undergraduate course (Fall 2019)

### 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

## Publications

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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 Transactions on Software Engineering and Methodology, 2023

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 Networking and Applications, 2023

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

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

Empirical Software Engineering, 2021

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

CONFERENCE PAPERS

**[4] Scheduling Household Appliances Using Genetic Algorithms**

International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies, 2022

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

**[3] A Survey of the Knapsack Problem**

International Arab Conference on Information Technology, 2018

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, 2018

Assi M., Halawi B., Haraty

**[1] A Systematic Review of Anonymous Communication Systems**

International Conference on Enterprise Information Systems, 2017

Haraty R., Assi M., Rahal I.

## **Presentations and Invited Talks**

<b>Oral presentation at the 46th Internal Conference on Software Engineering</b> , Lisbon, Portugal ( <i>forthcoming</i> )	<b>2024</b>
Predicting the Change Impact of Resolving Defects	
<b>Oral presentation at Consortium for Software Engineering Research</b> , McGill University, Montreal, Canada	<b>2023</b>
Predicting the Change Impact of Resolving Defects	
<b>Oral presentation at the 44th Internal Conference on Software Engineering</b> , Pittsburgh, PA, USA	<b>2022</b>
FeatCompare: Feature Comparison for Competing Mobile Apps Leveraging User Reviews	
<b>Special guest at the ACM Canadian Celebration of Women in Computing</b> , Toronto, Canada	<b>2022</b>
Women, Life, Freedom, Technology	
<b>Oral presentation at Consortium for Software Engineering Research</b> , (virtual)	<b>2021</b>
FeatCompare: Feature Comparison for Competing Mobile Apps Leveraging User Reviews	
<b>Oral presentation at the International Conference on Intelligent Information Systems</b> , Serbia, Belgrade	<b>2018</b>
Genetic algorithm analysis using the graph coloring method for solving the university timetable problem	
<b>Invited Keynote at the Lebanese University career panel</b> , Beirut, Lebanon	<b>2019</b>
Artificial Intelligence for Supply Chain Management	
<b>Oral presentation at the International Arab Conference on Information Technology</b> , Werdayneh, Lebanon	<b>2018</b>
A Survey of the Knapsack Problem	
<b>Oral presentation at the International Conference on Applied Research in Computer Science and Engineering</b> , Beirut, Lebanon	<b>2017</b>
Security Threats and Attacks on Tor	

## Leadership

<b>Nationwide elected student board member</b> , CS-Can   Info-Can	<b>2020 - 2023</b>
<ul style="list-style-type: none"> <li>• Chaired the Student and Post-doc advisory committee (11 members)</li> <li>• Designed a membership growth strategy and achieved a tenfold growth (50 to 600)</li> <li>• Developed engagement programs and activities fostering research for the Canadian computer science community at large</li> <li>• Met with the board members and Canadian institutions' computing department chairs to foster the students and postdocs</li> <li>• Prepared for the annual CS-CAN nationwide conference</li> </ul>	
<b>Computing Department Steward</b> , Teaching Fellow Union (PSAC 901)	<b>2020 - 2023</b>
<ul style="list-style-type: none"> <li>• Handled grievances and advocating for the rights of student employees</li> </ul>	
<b>President</b> , Queens' Graduate Computing Society	<b>2020 - 2022</b>
<ul style="list-style-type: none"> <li>• Led a team of 12 members to direct the operations of the GCS and drive impactful initiatives, including a monthly webinar series</li> <li>• Voiced the graduate students' concerns at the school council meeting, which resulted in an adjustment to the graduate funding (2.5%)</li> </ul>	
<b>Peer Facilitator</b> , Queen's Human Rights and Equity Office	<b>2020 - 2021</b>
<ul style="list-style-type: none"> <li>• Delivered training for 300+ student leaders about Equity, Diversity, and Inclusive Leadership</li> </ul>	
<b>Mentor</b> , Women in Engineering and Science (WiSE)	<b>2020 - 2021</b>
<ul style="list-style-type: none"> <li>• Provided guidance and support to empower women in engineering and science, fostering their professional development and promoting gender diversity in STEM fields</li> </ul>	
<b>Mentor</b> , LAU Alumni Mentoring Program	<b>2018 - 2019</b>
<ul style="list-style-type: none"> <li>• Offered advice and guidance related to senior students' career paths and overall professional development</li> </ul>	
<b>Founder of the GRAD MENTOR PROGRAM</b> , Queen's Faculty of Arts and Science	<b>2020</b>
<ul style="list-style-type: none"> <li>• Founded a peer advisor program that supports future Queen's students navigating Kingston and Queen's resources</li> </ul>	

## Academic Service

<b>Invited Transaction Reviewer</b>	
IEEE Transaction on Software Engineering	<b>2022, 2023</b>
<b>Conference Reviewer</b>	
IEEE/ACM International Conference on Software Engineering (ICSE)	<b>2024</b>
ACM Symposium on the Foundations of Software Engineering (FSE)	<b>2021, 2022, 2024</b>
IEEE/ACM International Conference on Automated Software Engineering (ASE)	<b>2020, 2022</b>
ACM Mining Software Repositories (MSR)	<b>2022</b>
<b>Conference Organization</b>	
ACM Mining Software Repositories (MSR), session chair	<b>2023</b>
CS-Can   Info-Can student conference, organizer member	<b>2023</b>
ACM Canadian Celebration of Women in Computing, organizer member	<b>2022</b>
Queen's CSearch Computing Student Research Conference, program chair	<b>2020</b>

## Skills

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