

Lama Moukahal

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PHD CANDIDATE

I am a Ph.D. candidate at Queen's University, Canada, to complete my Ph.D. requirements by Dec 2021. I received my B.Sc. (2012) and MS (2015) degrees in Computer Science from the Lebanese American University. Currently, I am working for my Ph.D. in the Queen's Reliable Software Technology (QRST) research group in the School of Computing. My current research focuses on developing secure vehicle software systems and software testing. Besides my academic experience, I have six years of industrial experience working in software development.

EDUCATION

Queen's University, Canada

- Ph.D. candidate in Cybersecurity. GPA: 4.3/4.3

Sep 2018 – Present

Lebanese American University, Lebanon

Sep 2012 – Feb 2015

- M.S. in Computer Science. GPA: 3.6/4.0

Sep 2012 – Feb 2015

- B.S. in Computer Science. GPA: 3.4/4.0

Sep 2009 – Jun 2012

RESEARCH EXPERIENCE

Queen's University, Canada

Research Assistant

Sep 2018 – Present

Project leader: Dr. Mohammad Zulkernine (Professor, Graduate Chair, and Canada Research Chair in Software Dependability)

- Conduct comprehensive analysis to perceive existing software engineering processes in the context of Connected Autonomous Vehicles.
- Build security vulnerability metrics for connected vehicles that aim to assist software testers during the development life cycle.
- Develop a novel security testing method to identify vulnerabilities within vehicle software systems.
- Design a security decay assessment framework for vehicle software systems.

Lebanese American University, Lebanon

Research Assistant

Sep 2012 – Jan 2015

Project leaders: Dr. Ramzi Haraty and Nashat Mansour

- Contributed to the research that is held by the department of Computer Science and Mathematics, which included the following areas: Software engineering, software reliability testing, and bioinformatics and comparative protein structuring.

TEACHING EXPERIENCE

Queen's University, Canada

Teaching Assistant

Sep 2018 – Present

- Selected as teaching assistant for Computers Applications and Implications (Fall 2018), Database Management Systems (Winter 2019), Formal Methods in Software Engineering (Fall 2019, Fall 2021), Operating System (Winter 2020), and Digital Societies (Fall 2020, Winter 2021, Summer 2021) courses.

Lama Moukahal

Lebanese American University, Lebanon

Instructor

Sep 2014 – April 2015

- Designed and delivered the Computer Applications course for computer science and business students.
- Taught and facilitated the Object and Data Abstraction lab for computer science students.

Teaching Assistant

Sep 2011 – Feb 2014

- Selected as teaching assistant for Introduction to Object Oriented Programming and Object and Data Abstraction courses.

LEADERSHIP AND TEAMWORK

Graduate Computing Society | Queen's University, Canada

Graduate Committee Officer

Sep 2020 – Present

- Attend meetings of the School of Computing Graduate Committee.
- Present graduate students' opinions and best interests in the school and actively aim to improve the graduate program for the students.

School of Computing | Queen's University, Canada

Hackathon Organizer

July 2021 – Aug 2021

- Worked with a team to organize a programming hackathon for high school students, including driving registrations, ideating, and creating prototypes.
- Designed the hackathon website.

Google Explore CSR | Queen's University, Canada

Workshop Presenter and Organizer

Dec 2020 – Jan 2021

- Designed and delivered a workshop on cybersecurity in the Google Explore CSR Cybersecurity for Women Event.
- Helped in organizing the event and preparing cybersecurity case competition for the participants.

INDUSTRIAL EXPERIENCE

Irdeto, Canada

May 2020 – Sep 2020

Research and Development Intern

- Research and review cybersecurity assurance methods in the automotive industry.
- Propose, develop, and validate new security enhancement methods for vehicle software systems.
- Document our research findings.

Centre de Traitement Monétique, Lebanon

May 2015 – Sep 2018

(CTM offers in house-built solutions for the banking industry)

Senior Software Developer

- Develop hosts to route and process ATM and POS transactions and to exchange messages between multinational financial services.
- Integrate and secure electronic payment systems into banks' applications.

Lama Moukahal

AM Bank, Lebanon

Nov 2012 – May 2015

(AM Bank is a major bank in Lebanon)

Software Developer

- Design and develop projects related to the core banking system.
- Work on the design and implementation of the data warehouse to meet the enterprise's needs.

PUBLICATIONS

- Moukahal, L. J., Elsayed, M. A., & Zulkernine, M. (2020). Vehicle Software Engineering (VSE): Research and Practice. *IEEE Internet of Things Journal*, 7(10), 10137-10149.
- Moukahal, L., & Zulkernine, M. (2019, July). Security Vulnerability Metrics for Connected Vehicles. In *2019 IEEE 19th International Conference on Software Quality, Reliability and Security Companion (QRS-C)* (pp. 17-23).
- Haraty, R. A., Mansour, N., Moukahal, L., & Khalil, I. (2016). Regression test cases prioritization using clustering and code change relevance. *International Journal of Software Engineering and Knowledge Engineering*, 26(05), 733-768.

Accepted

- Moukahal, L. J., Zulkernine, M., & Soukup, M. (2021). Vulnerability-Oriented Fuzz Testing for Connected Autonomous Vehicle Systems. *IEEE Transactions on Reliability (ToR)*.
- Moukahal, L. J., Zulkernine, M., & Soukup, M. (2021). Towards a Secure Software Lifecycle for Autonomous Vehicles. *The 32nd International Symposium on Software Reliability Engineering (ISSRE)*.

Submitted

- Moukahal, L. J., Zulkernine, M., & Soukup, M. (2021). AVSDA: Autonomous Vehicle Security Decay Assessment. *The 16th International Conference on Risks and Security of Internet and Systems (CRISIS)* [Under Review].

AWARDS

- Best Presentation Award, CSearch conference, 2019.
- Best Capstone Project, Lebanese American University, 2012.
- Graduated with honor (Dean's list), Lebanese American University, 2012.

SKILLS

- **Programming Languages:** JAVA, JavaScript, C#, C, C++.
- **Databases:** Microsoft SQL, Oracle SQL, SQLite, MySQL.
- **Language Skills:** Fluent in English and Arabic. Intermediate in French.

CERTIFICATIONS

- **Mitacs Time Management**, 2020.
- **Working Together:** Ontario Human Right Code and Accessibility for Ontarians With Disabilities Act, 2020.