Systems and Computer Engineering
Carleton University
1125 Colonel By Drive
Ottawa, ON K1S 5B6

Carleton UNIVERSITY

Canada's Capital University

September 6, 2018

Open Position: M.A.Sc. Candidate
Validating the Effectiveness of Security Design Patterns

Dr. Jason Jaskolka of the Department of Systems and Computer Engineering at Carleton University is actively looking for a graduate student at the Master's level to work on a funded research project entitled *Validating the Effectiveness of Security Design Patterns* starting in January 2019.

Project Description

Modern software systems consist of many distributed and interacting components that rely on extensive communication to perform their functionality. As these systems grow larger and more complex, they invariably become more susceptible to an array of security threats. Security should therefore be considered at early stages of development. The current approach of having security retrofitted or "bolted-on" to the software systems that we build is not sufficient. Instead, we must take into account the critical security requirements for these systems and design them so that security is "baked-in." Security design patterns have been proposed for mitigating security threats at early stages of software design. However, approaches for verifying and validating that using a security design pattern mitigates a particular threat, or class of threats, and improves system security, do not currently exist.

The proposed research project aims to close this gap in the research by developing approaches for: (1) detecting security threats targeting communication channels in the architectural design of distributed software systems, and (2) analyzing, verifying, and validating the effectiveness of security design patterns for mitigating detected security threats and improving system security at design-time.

Desired Skills/Qualifications

Ideal candidates will have a strong background and interest in software design and design patterns, and formal specification and verification using fundamental tools such as first-order logic. A Bachelor's degree in software engineering or computer science is preferred.

Further Information

For more information about Graduate Studies at Carleton University and the Department of Systems and Computer Engineering, please visit: https://carleton.ca/sce/graduate-studies/. For more information about applying for Graduate Studies at Carleton University, please visit: https://graduate.carleton.ca/apply-online/. For more information about funding for Graduate Studies, please visit: https://graduate.carleton.ca/financial-assistance/admissions-funding/.

Contact

Interested applicants are asked to please contact:

Jason Jaskolka, Ph.D
Systems and Computer Engineering | Carleton University
Canal Building 6206 | 1125 Colonel By Drive | Ottawa, ON K1S 5B6
📞 +1 (613) 520-2600 Ext. 1873
✉ jaskolka@sce.carleton.ca
🌐 http://sce.carleton.ca/faculty/jaskolka/
in https://www.linkedin.com/in/jason-jaskolka-160ab434/
🐦 @JasonJaskolka