Dr. Fehmi Jaafar

Correspondence language: English

Contact Information

The primary information is denoted by (*)

Address

Primary Affiliation (*)

CRIM – Computer Research Institute of Montréal
101 – 405, avenue Ogilvy, Montréal (Québec)
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Dr. Fehmi Jaafar

Language Skills

Language	Read	Write	Speak	Understand	Peer Review
French	Yes	Yes	Yes	Yes	Yes
English	Yes	Yes	Yes	Yes	Yes
Arabic	Yes	Yes	Yes	Yes	Yes

Degrees

- 2016/8 Post-doctorate, Software Engineering and Cybersecurity, École Polytechnique de Montréal Supervisors: Gabriela Nicolescu, 2015/10 - 2016/08

- 2015/4 Post-doctorate, Computer Sciences and Cybersecurity, Queen's University at Kingston Supervisors: Mohammad Zulkernine, 2014/01 - 2015/04

- 2013/12 Doctorate, Computer Sciences, Université de Montréal Supervisors: Sylvie Hamel, 2009/09 – 2013/12

- 2009/6 Master's Thesis, Computer sciences, Université de Tunis Supervisors: Rim Fayez, 2007/09 – 2009/06

- 2007/6 Bachelor of Engineering, Computer Engineering, Université de Tunis

User Profile

Research Specializations: Cyber Security, Software engineering, Internet of Things, Software Quality

Employment

2017/10 **Researcher**
Computer Research Institute of Montréal.
Tenure Status: Tenure Track
- Translate Computer Sciences knowledge in order to make IT organizations more effective and competitive through the development of innovative technology. Propose methodologies to demystify and gain access to leading-edge technology. Develop research in diverse areas such as Cybersecurity, data science and machine learning.

2016/8 **Adjunct Professor**
Department of Information Systems Security and Assurance, Faculty of Management, Concordia University of Edmonton.
Tenure Status: Non-Tenure Track
- Conduct research and experiments to advance knowledge in Computer Science, Software Engineering and Information Security. Supervise graduate students. Publish original research and analysis in international conferences and academic journals. Teach courses in Computer Science and Information Security. Work with colleagues to develop the curriculum for the Master degree and certificate programs at Concordia University of

Edmonton. Serve on academic committees that review and recommend policies.

2015/3 - 2016/8 **Research Scientist**
Research and Development, Ubitrak Inc.

2014/4 - 2015/4 **Software Developer Analyst**
OMP Music
The creation of a new nomenclature and teaching system that makes the process of learning, playing, and teaching music much easier and faster using Big Data Analytic.

2010/1 - 2013/12 **Teaching assistant**
Computer Science and Operations Research, Université de Montréal
Part-time, Term
Tenure Status: Non Tenure Track
Preparing labs and assignments, oral presentation of material, responding to questions, providing learning tasks, getting students to work in groups

2011/9 - 2011/12 **Lecturer**
Department of Computer Engineering, École Polytechnique de Montréal
Full-time, Sessional, Lecturer
Tenure Status: Non Tenure Track
Lecturer for INF3410: Requirements Specification and Systems Analysis (undergraduate course)

2006/1 - 2007/6 **IT Analyst/Developer**
Le Campus Numérique francophone de Tunis, Agence universitaire de la Francophonie

Research Funding History

Awarded [n=9]

2017/4 - 2018/3
Principal Applicant

The Cyber Security Cooperation Program, Grant

Funding Sources:
The Canadian Government - Concordia University of Edmonton
The Cyber Security Cooperation Program
Total Funding - 20,000
Portion of Funding Received - 20,000
Funding Competitive?: Yes

2015/10 - 2017/10
Principal Applicant

Research Scholarship in Computer Security, Fellowship

Funding Sources:
Mathematics of Information Technology and Complex Systems (MITACS)
Elevate
Total Funding - 120,000
Portion of Funding Received - 60,000
Funding Competitive?: Yes

2017/5 - 2018/8
Principal Applicant

STEP program - Research Analysis, Grant

Funding Sources:
Government of Canada and Government of Alberta
STEP Canada-Alberta Grant
Total Funding - 20,000
Portion of Funding Received - 20,000
Funding Competitive?: Yes

2014/11 - 2015/2
Co-applicant

Research Scholarship in Web and Mobile Computing, Scholarship

Funding Sources: Mathematics of Information Technology and Complex Systems

Accelerate
Total Funding - 90,000
Portion of Funding Received - 15,000
Funding Competitive?: Yes

2012/9 - 2013/9
Principal Applicant

Doctoral Scholarship, Scholarship

Funding Sources:
Faculté des études supérieures de l'Université de Montréal
Doctoral Scholarship
Total Funding - 12,000
Funding Competitive?: Yes

2009/9 - 2013/9
Principal Applicant

Excellence Scholarship, Scholarship

Funding Sources:
Ministry of Higher Education, Scientific Research and Technology, Tunisia
Excellence Scholarship in Computer Science
Total Funding - 50,000
Portion of Funding Received - 50,000
Funding Competitive?: Yes

2009/9 - 2013/8
Principal Applicant

Doctoral Foreign Scholarship, Scholarship

Funding Sources:
Faculté des études supérieures de l'Université de Montréal
Doctoral Foreign Scholarship
Total Funding - 50,000
Funding Competitive?: Yes

2012/12 - 2013/1
Collaborator

Research and development Grants, Grant

Funding Sources:
Agence Québec Wallonie Bruxelles pour la jeunesse (AQWBJ)
Research and development Grants
Total Funding - 20,000
Portion of Funding Received - 5,000
Funding Competitive?: Yes

2018/2 - 2018/12
Principal Applicant

Passeport innovation, Grant

Funding Sources:
Le Ministère de l'Économie, de la Science et de l'Innovation
and an Industrial Partner
Total Funding - 75,000
Funding Competitive?: Yes

Student Supervision

Master's Thesis [n=16]

2017/9 - 2018/6
Principal Supervisor

Babajide Adegoke (Completed), Concordia University of Edmonton
Thesis/Project Title: Exploring the use of pre-shared key in the authentication process of LTE base stations
Present Position: IT Support

2017/7 - 2018/4
Principal Supervisor

Samip Dhakal (In Progress), Concordia University of Edmonton
Thesis/Project Title: Blockchain for authentication in IoT
Present Position: IT and Banking Professional

2017/7 - 2016/9 Co-Supervisor	Harjot Kaur LNU (Completed), Concordia University of Edmonton Thesis/Project Title: Unauthorized Data Leakage from an Organisation through Web Browser Fingerprinting Vulnerability Present Position: Information Security Consultant
2017/6 - 2017/1 Principal Supervisor	Walter Isharufe (Completed), Concordia University of Edmonton Thesis/Project Title: Study of Security Issues in Platform-as-a-Service (PaaS) Cloud Model Present Position: Information Security Senior Consultant, NTT DATA Services
2017/5 - 2018/6 Principal Supervisor	Caesar Jude Clemente (Completed), Concordia University of Edmonton Thesis/Project Title: Solving Software Insecurity Present Position: Lecturer, Concordia University of Edmonton
2017/4 - 2016/9 Co-Supervisor	Ruchi Mishr (Completed), Concordia University of Edmonton Thesis/Project Title: Behavioural Study of Malwares Impacting Financial Institutions and Clients Present Position: Senior Security Analyst, Scotiabank
2017/4 - 2016/9 Co-Supervisor	Gurjot Balraj Singh (Completed), Concordia University of Edmonton Thesis/Project Title: Analysis of Overhead Caused by Security Mechanisms in IaaS Cloud Present Position: Information Security Senior Consultant, NTT DATA Services
2017/1 - 2017/7 Principal Supervisor	Damanjeet Kaur (Completed), Concordia University of Edmonton Thesis/Project Title: Taxonomy of Android Vulnerabilities. Present Position: Software Analyst
2017/1 - 2017/12 Co-Supervisor	Pratibha Singh LNU (Completed), Concordia University of Edmonton Thesis/Project Title: Enhancing Bio-metric Security with Combinatoric Multi-Fingerprint Authentication Strategies Present Position: Graduate student, Concordia University of Edmonton
2017/1 - 2017/9 Principal Supervisor	Tunde Yekini (Completed), Concordia University of Edmonton Thesis/Project Title: Study of Trust at Device Level of the Internet of Things Architecture Present Position: Security analyst
2017/1 - 2017/7 Principal Supervisor	Jasmeen Kaur Babrah (Completed), Concordia University of Edmonton Thesis/Project Title: In-Depth Experimental Analysis of Behavior of Crypto-Ransomware Present Position: Security Consultant
2017/1 - 2017/12 Principal Supervisor	Pooja Prasad (In Progress), Concordia University of Edmonton Thesis/Project Title: Securing Cyber Physical System in Health Care Environment Present Position: Lecturer, Concordia University of Edmonton
2017/1 - 2017/12 Co-Supervisor	Mayank Ashwinkumar Jaiswal (Completed), Concordia University of Edmonton Thesis/Project Title: System Call Analysis of Malware Application on Android Platform Present Position: Graduate student, Concordia University of Edmonton
2017/1 - 2017/6 Principal Supervisor	Gagandeep Singh LNU (Completed), Concordia Universiy of Edmonton Thesis/Project Title: An Analysis of Android Malware Behavior Present Position: Software Analyst
2016/9 - 2017/12 Co-Supervisor	Manjinder Singh LNU (Completed), Concordia University of Edmonton Student Degree Expected Date: 2017/12 Thesis/Project Title: Analyzing overhead from security and administrative functions in virtual environment Present Position: Graduate student

2014/12 - 2015/12 Academic Advisor	Maryam Davari (Completed), Queen's University Thesis/Project Title: Classifying and Predicting Software Security Vulnerabilities Based on Reproducibility Present Position: Research assistant

Doctorate [n=2]

2017/1 - 2014/1 Academic Advisor	Darine Ameyed (Completed), École de technologie supérieure Thesis/Project Title: Modélisation et spécification formelle de contexte et sa prédiction dans les systèmes diffus : une approche basée sur la logique temporelle et le modèle stochastique. Present Position: Postdoctoral researcher in Synchromedia Lab, École de Technologie Supérieure at Montreal
2014/6 - 2015/6 Academic Advisor	Md Shahrear Iqbal (In Progress), Queen's University Thesis/Project Title: Smartphone Security and Privacy Present Position: Ph. D. student

Event Administration

2017/1 - 2017/6	Organizer, The Annual Information Security and Assurance Research Event at Concordia University of Edmonton, Workshop, 2017/6 - 2017/6
2011/1 - 2011/6	Local Arrangement, The Canadian Summer School on Practical Analysis of Software Engineering Data at Polytechnique Montreal, Seminar, 2011/6 - 2011/6

Editorial Activities

2017/1 - 2017/10	Reviewer, MPSKMean Model to Form Attribute Based Clusters to Extract Multiple Pattern in Seasonal Data, Journal
2014/7 - 2015/3	Reviewer, Finding fault with fault injection: an empirical exploration of distortion in fault injection experiments, Journal
2014/6 - 2014/12	Reviewer, Technology independent honeynet description language, Conference Abstract
2014/1 - 2014/6	Reviewer, Integrating the Modelica DSL into a Platform for Model-based Tool Interoperability, Conference Abstract
2014/1 - 2014/4	Reviewer, Fast Discovery of VM-Sensitive Divergence Points with Basic Block Comparison, Conference Abstract

Industrial Experiences and Technology Translation

2015/1 - 2016/8	Project Manager and Researcher, Technology, Product, Process, Service Improvement/ Development Group/Organization/Business Serviced: Ubitrak Inc. Target Stakeholder: Industry/Business (>500 employees) Outcome / Deliverable: Search Results Real Time Detection of Privilege Escalation by an Attacker References / Citations / Web Sites: Fehmi Jaafar, Gabriela Nicolescu, Christian Richard: A Systematic Approach for Privilege Escalation Prevention. QRS Companion 2016: 101-108

2014/7 - 2015/3 Consultant, Consulting for Industry
Target Stakeholder: General Public
Outcome / Deliverable: The creation of a new nomenclature and teaching system that makes the process of learning, playing, and teaching music much easier and faster using Big Data Analytic.

2014/6 - 2015/3 Researcher, R&D Collaboration with Industry
Target Stakeholder: General Public
Outcome / Deliverable: Click Fraud Detection & Protection Tool
References / Citations / Web Sites: Iqbal, Md Shahrear, et al. "Fcfraud: Fighting click- fraud from the user side." High Assurance Systems Engineering (HASE), 2016 IEEE 17th International Symposium on. IEEE, 2016.

International Collaboration Activities

2012/11 - 2013/2 Visiting Researcher, Belgium
Creating a long term collaboration between Montreal University in Canada and Université Catholique de Louvain in Belgium to develop new approaches for software quality analysis.

Presentations

1. (2013). Static Relationships with Design Patterns. First Workshop on Patterns Promotion and Anti-patterns Prevention (PPAP), Italy
2. (2013). Clones and Co-changes: a systematical review. The REsearch Laboratory on software Evolution And Software Development technology Event (RELEASeD), Belgium

Publications

Journal Articles

1. Fehmi Jaafar, Angela Lozano, Kim Mens, and Yann-Gael Gueheneuc. (2017). Analyzing Software Evolution and Quality by Extracting Asynchrony Change-patterns. Journal of Systems and Software.
2. Mohammad Shahrear Iqbal, Fehmi Jaafar, Mohammad Zulkernine, and Yuan Gu.(2017). Protecting internet users from becoming victimized attackers of click-fraud. Journal of Software : Evolution and Process.
3. Yann-Gael Gueheneuc, Sylvie Hamel, Foutse Khomh, and Mohammad Zulkernine. (2016). Evaluating the Impact of Design Pattern and Anti-pattern Dependencies on Faults and Changes.Journal of Empirical Software Engineering.
4. Angela Lozano, Fehmi Jaafar, Kim Mens, and Yann-Gael Gueheneuc. (2014). Clones and Macro co-changes.Journal of Electronic Communications of the European Association of Software Science and Technology.

5. Fehmi Jaafar, Yann-Gael Gueheneuc, Giuliano Antoniol, and Sylvie Hamel.(2014). Detecting Asynchrony and Dephase Change Patterns by Mining Software Repositories. Journal of Software : Evolution and Process.

Conference Publications

1. Gagandeep Singh, Fehmi Jaafar, Pavol Zavarsky. (2018). An Analysis of Android Malware Behavior. IEEE International Workshop on Information Assurance, Lisbon, Portugal.
   Conference Date: 2018/07

2. Caesar Jude Clemente, Fehmi Jaafar, and Yasir Malik. (2018). Is Predicting Software Security Bugs using Deep Learning Better than the Traditional Machine Learning Algorithms? IEEE International Conference on Software Quality, Reliability, and Security, Lisbon, Portugal.
   Conference Date: 2018/07

3. Pooja Rajendra Prasad, Sergey Butakov, and Fehmi Jaafar. (2018). Information Security Considerations for Wireless Infusion Pumps. IEEE International Workshop on Safety and Security in Cyber-Physical Systems, Lisbon, Portugal.
   Conference Date: 2018/07

4. Gurjot Balraj Singh, Fehmi Jaafar, and Sergey Butakov. (2018) Analysis of Overhead Caused by Security Mechanisms in IaaS Cloud. IEEE International Conference on Control, Decision and Information Technologies, CoDIT, Thessaloniki, Greece.
   Conference Date: 2018/04

5. Jasmeen Kaur, Fehmi Jaafar, and Pavol Zavarsky. (2018). Experimental Analysis of Behavior of Crypto Ransomware. The Thirteenth International Conference on Systems, ICONS, Athens, Greece.
   Conference Date: 2018/04

6. Mayank Jaiswal, Yasir Malik, and Fehmi Jaafar. (2018). Android Gaming Malware Detection Using System Call Behaviour Analysis. The IEEE International Symposium on Digital Forensic and Security, ISDFS, Antalya, Turkey.
   Conference Date: 2018/03

7. Manjinder Singh, Sergey Butakov and Fehmi Jaafar. (2018). Analyzing Overhead from Security and Administrative Functions in Virtual Environment. The IEEE 2018 International Conference on Platform Technology and Service, PlatCon, South Korea.
   Conference Date: 2018/01

8. Fehmi Jaafar. (2017). An Integrated Architecture for IoT Fingerprinting. IEEE QRS Companion 2016. IEEE International Conference on Software Quality, Reliability and Security, Prague, Czech Republic
   Conference Date: 2017/7

9. Harjot Kaur, Pavol Zavarsky, and Fehmi Jaafar. (2017). Unauthorized Data Leakage from an Organisation through Web Browser Fingerprinting Vulnerability. The IEEE World Congress on Internet Security, London, United Kingdom
   Conference Date: 2017/12

10. Fehmi Jaafar, Angela Lozano, Yann-Gael Gueheneuc, and Kim Mens. (2017). On the Analysis of Co-Occurrence of Anti-Patterns and Clones. IEEE International Conference on Software Quality, Reliability and Security, Prague, Czech Republic
    Conference Date: 2017/7

11. Fehmi Jaafar, Gabriela Nicolescu, and Christian Richard. (2016). A Systematic Approach For Privilege Escalation Prevention. IEEE International Conference on Software Quality, Reliability and Security, Companion, Vienna, Austria
    Conference Date: 2016/8

12. Md Shahrear Iqbal, Fehmi Jaafar, Mohammad Zulkernine, and Yuan Gu. (2016). Fighting Click-Fraud from

User Side. IEEE High Assurance Systems Engineering Symposium., Orlando, United States Conference Date: 2016/1

13. Darine Ameyed, Fehmi Jaafar, and Jaouhar Fattahi. (2015). A Slow Read attack Using Cloud. The International Conference on Electronics, Computers and Artificial Intelligence, Bucharest, Romania
14. Anti-pattern Mutations and Fault-proneness.(2014). Anti-pattern Mutations and Fault-proneness.The 14th International Conference on Quality Software., Dallas, United States
15. Fehmi Jaafar, Salima Hassaine, Yann-Gael Gueheneuc, Sylvie Hamel, and Bram Adams.(2013). On the Relationship Between Program Evolution and Fault-proneness. European Conference on Software Maintenance and Reengineering., Genova, Italy
16. Nasir Ali, Fehmi Jaafar, and Ahmed E. Hassan. (2013). Leveraging Historical Co-Change Information for Requirements Traceability. The Working Conference on Reverse Engineering., Koblenz-Landau, Germany
17. Fehmi Jaafar, Yann-Gael Gueheneuc, Sylvie Hamel, and Foutse Khomh.(2013). Mining the Relationship Between Anti-patterns Dependencies and Fault-proneness. Working Conference on Reverse Engineering, Koblenz-Landau, Germany
18. Fehmi Jaafar. (2012). On the analysis of evolution of software artefacts and programs.The IEEE International Conference on Software Engineering,
19. Fehmi Jaafar, Yann-Gael Gueheneuc, Giuliano Antoniol, and Sylvie Hamel. (2011). An Exploratory Study of Macro Co-changes.The Working Conference on Reverse Engineering, Ireland