



Jonathan Shahren

Curriculum Vitae

*Masters of Applied Science
Computer Engineering*

Education

- 2014–Now **Masters of Applied Science**, *The University of Waterloo*, Waterloo.
Specialized in Computer Security and Machine Learning in the department of Electrical and Computer Engineering. Supervisor: Professor Mahesh Tripunitara
- 2009–2014 **Bachelor of Applied Science**, *The University of Waterloo*, Waterloo.
Specialized in Computer Engineering

Publications

- June 2015 **Mohawk+T: Efficient Analysis of Administrative Temporal Based Access Control (ATRBAC) Policies**, *SACMAT 2015*, Best Runner-up Award.
Providing complexity class for the Safety Problem for ATRBAC. ATRBAC-safety is PSPACE-complete, which is interesting because it is no harder than ARBAC-safety.
<http://dx.doi.org/10.1145/2752952.2752966>

Fourth Year Design Project (FYDP)

- Title *Spartan Voting System*
- Supervisor Professor Mahesh Tripunitara
- Description A secure online voting system that relies upon a novel distributed framework to ensure the validity of the cast ballots.
- Keywords Computer Security, Distributed System, Embedded Systems, Privacy

Experience

Vocational

- Sep - Dec 2013 **Machine Learning**, THALMIC LABS INC., Kitchener, Canada.
Machine Learning research and development for the Myo gesture controlled device.

Job Details:

- Researched machine learning techniques applied to streaming temporal information (focus: SVM)
- Performance driven environment with respect to machine learning accuracy
- Research into unconventional feature generation; designed data recording backend

Sep - Dec 2012 **Software Engineer**, DEMONWARE INC., Vancouver, Canada.
Call Of Duty Online marketplace development and design.

Job Details:

- Engineering design for high performance and big data
- Report written on techniques to load test black-box systems
- Agile development within a Python stack

Jan - Apr 2012 **Machine Learning Researcher**, DEPARTMENT OF NATIONAL DEFENCE, Ottawa, Canada.

Machine Learning research applied to Multi-Criteria Decision Analysis (MCDA) problems.

Job Details:

- Online Machine Learning class from Stanford University
- Co-author of Technical Note describing MatLab GUI and interactive Plots; Technical Report concerning the research into applying Machine Learning to MCDA (CapDiM+)
- Presented project for many researchers, including DND CORA's Section Head

May - Aug 2011 **Advance Compression Researcher**, BLACKBERRY FORMERLY RIM, Waterloo, Canada.
Optimized JPEG Algorithm for small circuit design.

Job Details:

- Compared textual based lossless compression algorithms for use in network protocols
- Worked in Black-Boxed environment
- Independently learned knowledge related to the work: media compression algorithms, compression concepts, Huffman encoding, ...

Sep - Dec 2010 **BlackBerry Prototype Mobile Applications Developer**, BLACKBERRY FORMERLY RIM, Waterloo, Canada.

A very creative term where the co-ops created the application ideas and then built the prototypes.

Jan - Aug 2010 **Certification Project Coordinator**, BLACKBERRY FORMERLY RIM, Waterloo, Canada.
Designed systems to convert human jobs into automated tasks.

Computer skills

Languages

Experienced C#, PERL/CGI, BASH

Advanced C/C++, JAVA, PHP, PYTHON, MATLAB, SQL, HTML5/JS/CSS

Concepts

Basic Compression, Genetic Algorithms, Artificial Intelligence

Intermediate Encryption, Networking, Reverse Engineering, Big Data

Advanced Computer Security, Database Optimization, Machine Learning, Distributed/Cloud Computing

Interests

- Fencing
- Composing Music (Guitar & Electronic)
- Reading (Favourite: Fifth Business)
- Rock Climbing
- Writing (Novel, Short, and Poetry)
- Photography