

William Callaghan

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<http://willcallaghan.ca/>

OVERVIEW	My research focuses on how input from humans and machine learning algorithms influence the reliability and accuracy of time-series data analysis, particularly in the medical domain. I am also interested in how we can model and analyze systems utilizing graphs.	
EDUCATION	M.Math Candidate	2015 - Present
	University of Waterloo, Waterloo, Ontario, Canada Computer Science Advisor: Edith Law	
	Honors Bachelor of Science	2015
	University of Western Ontario, London, Ontario, Canada Honors Specialization in Computer Science Major in Microbiology and Immunology Thesis Supervisor: Mark Daley	
AWARDS & HONOURS	Math Domestic Graduate Student Award — UWaterloo	2015-2017
	Math Graduate Experience Award — UWaterloo	2015
	Western Scholarship of Distinction — Western	2010
	Raytheon Canada Scholarship — Raytheon Canada	2010
WORKSHOP PAPERS	Resolvable vs. Irresolvable Ambiguity: A New Hybrid Framework for Dealing with Uncertain Ground Truth. Schaekermann, M., Law, E., Williams, A. C., & Callaghan, W. Workshop on Human-Centered Machine Learning at CHI'16 . San Jose, CA.	
	The Big Picture: Preserving Context in the Decomposition of Complex Expert Tasks. Williams, A. C., Bradshaw, J., Schaekermann, M., Tse, T., Callaghan, W., & Law, E. Workshop on Microproductivity at CHI'16 . San Jose, CA.	
INVITED TALKS	Fighting Cybercrime: A Joint Task Force of Real Time Data and Human Analytics. Callaghan, W. Databricks Spark Summit East Conference 2017 . Boston, MA.	
WORK EXPERIENCE	Software Developer (Part-Time)	January 2017 - August 2017
	Data Analytics	
	Project Lead: Network Scan Analytics (May 2017 - August 2017) eSentire Inc., Cambridge, Ontario, Canada	
	Software Developer Intern, Data Analytics	May 2016 - December 2016
	Project: Engine for Performing Complex Queries on Large Datasets with Mission Critical Response Times eSentire Inc., Cambridge, Ontario, Canada	

Graduate Research Assistant 2015 - Present
University of Waterloo, Waterloo, Ontario, Canada

Teaching Assistant 2015 - Present
University of Waterloo, Waterloo, Ontario, Canada

Software Developer (Contract) May 2015 - September 2015
Product: Deep Packet Inspection Tools
Product: Platform for Targeted Retrospective Analysis of Network Traffic
eSentire Inc., Cambridge, Ontario, Canada

QA Developer Intern May 2014 - August 2014
Product: Web Automation Framework
Pelmorex Media Inc., The Weather Network, Oakville, Ontario, Canada

Technology Manager May 2013 - August 2013
Engineering Outreach, University of Waterloo, Waterloo, Ontario, Canada

**SELECTED
PROJECTS**

HeartBeat
Framework to combine machine and human intelligence for the scalable and accurate analysis of human clinical phonocardiograms. This is an active research project in the Human-Computer Interaction CrowdLab at the University of Waterloo, led by professor Edith Law.

Modelling Influence in Social Networks
Researched and proposed a new model for learning the most influential agent in a social network. This was done as a final project for 'Advanced Topics in Artificial Intelligence: Trust and Online Social Networks' course at the University of Waterloo.

Using Kalman Filtering and Lasso Regularization to Generate Brain Networks
Researched and proposed a new method of constructing functional brain networks as diagnostic markers for neurological disease from fMRI data. This was the topic of my Bachelor's thesis at the University of Western Ontario.

**TECHNICAL
SKILLS**

Programming Languages: Java, Scala, Python, C
Knowledge/Experience: Apache Spark, Relational & NoSQL Databases (Cassandra), Apache Kafka, RESTful API Development, Git, SBT, Jenkins, Docker