Jacob Ritchie

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EDUCATION

University of Toronto September 2017 - January 2019 (expected)
Master of Science in Computer Science
GPA: 4.0/4.0
Supervisors: Daniel Wigdor and Fanny Chevalier

University of Toronto September 2012 - April 2017
Bachelor of Applied Science in Engineering Science
Major in Electrical and Computer Engineering, Minor in Robotics and Mechatronics
GPA: 3.94/4.0
Thesis Supervisor: Leon French

PUBLICATIONS

Conference Publication

C1. **Jacob Ritchie**, Daniel Wigdor, Fanny Chevalier. 2018. A Lie Reveals The Truth: Quasimodes for Task-Aligned Data Presentation. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*. **(In Submission.)**

Journal Publication

J1. **Jacob Ritchie**, Spiro Pantazatos, Leon French. 2018. Transcriptomic characterization of MRI contrast with focus on the T1-w/T2-w ratio in the cerebral cortex. *NeuroImage*. 174: 504-517. DOI: https://doi.org/10.1016/j.neuroimage.2018.03.027

Posters and Presentations

P3. Monica Granados, **Jacob Ritchie**, Constance O'Connor. 2018. Guide to Eating Ontario Fishes Mobile Application. In *Up North on Climate Conference 2018*. (Poster presented by first author.)

P2. **Jacob Ritchie**, Spiro Pantazatos, Leon French. 2017. Magnetic Resonance Imaging from the Transcriptomic Perspective. In *7th International Workshop on Pattern Recognition in Neuroimaging (PRNI 2017)*.

P1. **Jacob Ritchie**, Alex Mihailidis. 2013. Age-CAP: An Age-friendly Communities Assessment App. In *University of Toronto Undergraduate Engineering Research Day 2013*.

AWARDS AND HONORS

Ontario Graduate Scholarship, $10,000 CAD May 2018 - December 2018

Wooden Monkey Award for Best Graphics Course Project, University of Toronto December 2017

Wolfond Fellowship, University of Toronto, $13,334 CAD September 2017 - January 2019

Research Assistantship, University of Toronto, $27,500 CAD September 2017 - January 2019

NSERC CGS-M (Declined), $17,500 CAD September 2017 - August 2019

Engineering Science Award of Excellence, University of Toronto January 2017

Scholarship of Excellence in Research, EPFL, 5300 CHF May 2016 - August 2016

NSERC Industrial Undergraduate Research Award, $4500 CAD May 2014 - August 2014

Engineering Science Research Opportunity Fellowship, $3000 CAD May 2013 - August 2013

Dean's Honour List, University of Toronto September 2012 - April 2017

President's Entrance Scholarship, University of Toronto, $2000 CAD September 2012

PROFESSIONAL EXPERIENCE

Volunteer Software Developer July 2017 - April 2018
Open the North, Toronto, Canada

- Sole developer on a project using open government data to communicate safe levels of fish consumption (in the presence of mercury contamination) for Indigenous communities in Northern Ontario.
- Created a proof-of-concept application **(P3)** that secured funding from the Wildlife Conservation Society to hire a full developer team to complete the project.

Research Assistant May 2017 - August 2017
Computational Neurobiology Lab, Centre for Addiction and Mental Health, Toronto, Canada

- Performed the first genome-wide transcriptomic characterization of T1-w/T2-w MRI contrast **(P2, J1)**. Learned computational and statistical techniques for data-driven neuroscience.
- Used transfer learning to leverage OpenAI's state-of-the-art mLSTM sentiment model to detect suicidal intent from forum posts. Employed meta-learning using TPOT to perform automatic model selection.

Summer Research Intern May 2016 - August 2016
Applied Computing and Mechanics Lab, École Polytechnique Fédérale de Lausanne, Switzerland

- Worked with a Ph.D. student mentor to test a full-scale actuated tensegrity bridge structure.
- Applied machine learning to improve accuracy of nonlinear structural modeling. Used clustering techniques to identify structural damage based upon dynamic response to excitation.
- Wrote MATLAB code employing pathfinding algorithms to control structural actuation. Validated algorithm performance using the tensegrity structure.

Software Engineer (Professional Experience Year) May 2015 - April 2016
Intel Corporation Programmable Solutions Group (formerly Altera), San Jose, USA

- Developed C++ software tools for modeling signal routing in experimental 14nm FPGA semiconductor devices.
- Created a HTML5 application for visualization of signal routing connectivity on an integrated circuit 1 million logic elements in size, allowing for better analysis of complex connectivity problems.

Research Intern May 2014 - August 2014
Rocscience Inc., Toronto, Canada

- Developed knowledge of finite element analysis, computational rock mechanics and fluid mechanics and applied this to development of C++ software for scientific computing and computer-aided mining engineering design.

Summer Student May 2013 - August 2013
Intelligent Assistive Technology and Systems Lab, University of Toronto, Toronto, Canada

- Carried out a pilot study for a wearable sensor device and performed data analysis in MATLAB.
- Created a cross-platform HTML5 mobile application targeted at senior citizens, using universal design and usability criteria, for crowdsourced collection of accessibility data **(P1)**.

TEACHING EXPERIENCE

Teaching Assistant, University of Toronto

- **CSC318, Design of Interactive Computational Media (~100 students)** Spring 2018, Fall 2018
- **CSC108, Introduction to Computer Programming (~1000 students)** Fall 2017

ACADEMIC SERVICE

Student Volunteer, CHI 2018 2018

External Reviewer, InfoVis 2018 2018

External Reviewer, Graphics Interface 2018 2018

Representative, University of Toronto Graduate Students Union 2018

Organizer, University of Toronto HCI Reading Group 2017 - 2018

Case Competition Director, U. of T. Sustainable Engineers Association 2013 - 2014