Matthew **Walker**

Software Developer

Toronto, ON, Canada

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Summary

Fresh graduate from the University of Toronto, 9+ years experience developing software in an academic setting. Loves Emacs, Linux, and Haskell. Programming language polyglot. Interested in developing software using cutting edge mathematical techniques for reliability and agility. Always up for a new challenge or solving a problem.

Skills

Languages	English
DevOps	AWS, Keter (Haskell)
Back-end	Yesod (Haskell), ElasticSearch, Postgres, NodeJS, REST APIs
Front-end	HTML5, React, Bootstrap, jQuery, LESS, SASS
Programming	Haskell, Javascript, Python, Rust, C/C++, Mathematica, Bash, MATLAB, LaTeX
Mathematics	Differential Geometry, Group Theory, Category Theory, Type Theory, Computational Complexity Theory, Computational Stability Theory
Physics	Quantum Information & Quantum Computing, Quantum Field Theory, General Relativity

Education

University of Toronto — *Toronto, Canada*

H.B.Sc. Specialist in Mathematics and Physics — *Sep. 2009-Apr. 2012; Jan. 2015-Aug. 2018*

Extracurricular Activity

University of Toronto – Physics Student Union (PhySU) — *Toronto, Canada*

Vice President – Academic Affairs — *Sep. 2017 - Apr. 2018*

- Organized and led undergraduate research seminars to enable peers to share their work and to ask questions.
- Organized and presented tutorials on programming and LaTeX document preparation.
- Generally advised peers on academic matters.

University of Toronto – Independent Learning in Science (Sanctioned Student Group) — *Toronto, Canada*

Co-founder and Co-president — *Maybe. 2017 - Aug. 2018*

- Lead discussions with peers on material not taught to undergraduates normally, including quantum information and quantum measurement theory.

Work Experience

University of Toronto – Atmospheric Physics – under Prof. K. Walker (no relation) — *Toronto, Canada*

NSERC CREATE Trainee Intern — *May. 2010 - Aug. 2010*

- Automated execution of spectral analysis for data collected by the PARIS-IR spectrometer.
- Traveled to Dalhousie University and set up the PARIS-IR spectrometer on site.

University of Toronto – under Prof. A. Steinberg — *Toronto, Canada*

PHY371Y1Y – Supervised Study in Physics (Course) – *Quantum Information and Measurement* — *Sep. 2015 - Apr. 2016*

- Studied quantum computing theory.
- Studied quantum information theory.
- Read research papers on the subjects of quantum discord, deterministic quantum computing with one qubit (DQC1), sharing entanglement without communicating non-separable states.
- Produced report and presentation to Prof. Steinberg and the Physics Dept. Undergraduate Chair on the topic of quantum discord.

University of Toronto – Chemical Physics Theory Group – under Prof. P. Brumer — *Toronto, Canada*

CQIQC Summer Studentship Award Recipient — *May 2016 - Aug. 2016*

- Learned the quantum Liouville formalism to investigate the Hilbert space structure of classical mechanics.
- Provided proofs for classical analogues of the no-cloning theorem and teleportation schemes in continuous variable systems.

University of Toronto – Chemical Physics Theory Group – under Prof. P. Brumer *Toronto, Canada*

CHM499Y1Y – Introduction to Chemistry Research (Course) *Sep. 2016 - Apr. 2017*

- Developed a novel theoretical test for entanglement of a wavefunction in continuous variable systems.

University of Toronto – Chemical Physics Theory Group – under Prof. P. Brumer *Toronto, Canada*

Paid Research Position *May 2017 - Aug. 2017*

- Extended above wavefunction test to study the dynamics of entanglement in continuous and discrete variable systems.
- Derived evolutionary equation for entanglement in general pure systems.

Open Source Contributions

Linux Kernel Open Source Project

Contributor *December 5, 2013*

- Added support for newer multitouch touchpads.
- See commit: 9cb80b965eaf7af1369f6e16f48a05fbaaccc021

gfx-rs Rust Bindless Graphics API Project

Contributor *Aug 2, 2018*

- Added support for dynamic uniform and storage buffers.
- See commit: 602f82effe807a8d42608feb045881e43db73cb2