Vincent Russo

vincentrusso1@gmail.com | 734.707.7078
Waterloo, ON

LinkedIn: https://ca.linkedin.com/in/vrusso11
Github: https://github.com/vprusso
Webpage: http://vprusso.github.io/

Experience

- **Graduate Researcher – University of Waterloo**, Waterloo, ON — Sep 2012 – Dec 2016 (anticipated)

  – Contributor to *QETLAB*; a software package used to study theoretical aspects of quantum computing. Software has been cited in numerous scientific publications.

  – Published 10 papers in peer reviewed journals and open-sourced all software used in these papers.

- **Software Engineer, Intern – Raytheon BBN Technologies**, Cambridge, MA — May 2012 – Sep 2012

  – Contributed to the development of *QuaFL*; a statically typed domain specific language to study quantum computing using Python.

  – Coordinated management of software projects between three teams in different countries.

- **Research Assistant – Wayne State University**, Detroit, MI — Nov 2010 – Jan 2012

  – Contributed to development of *GOMC*; a GPU-driven open-source Monte Carlo simulation engine written in C++ that uses the CUDA library. Our software yields a 29 times faster implementation than an optimized serial CPU-driven code.

- **Software Engineer – Wayne State University**, Detroit, MI — Nov 2010 – Nov 2011

  – Developed a web client in PHP and Python to interface with mobile devices that tracked and stored data from several hundred patients in a MySQL database. Software has been cited in peer-reviewed work.

- **Software Engineer, Intern – University of Michigan**, Ann Arbor, MI — May 2010 – Sep 2010

  – Processed several hundred gigabytes of data sent back from spacecraft. Used IDL, C++, and Python to perform analysis and data visualization for internal reports.

  – Solved an issue unresolved by NASA engineers by analyzing anomalous data sent back from spacecraft. Presented an oral and written report of work to department.

Education

- **University of Waterloo** — Sep 2012 – Dec 2016 (anticipated)

  PhD, Computer Science

- **Wayne State University** — Sep 2010 – Aug 2011

  MSc, Computer Science

- **Wayne State University** — Sep 2007 – Aug 2010

  BSc, Computer Science

Technical Skills

- **Languages:** Python, C/C++, Matlab, Java, MySQL, PHP, R, JavaScript*, Haskell* (*some experience)
- **Tools:** NumPy, SciPy, Scikit-Learn, Pandas, Matplotlib, Regex, LaTeX, Django, bash, git

---

Independent Projects

- Developed Android applications in Java totalling over 1,500 downloads from the Google Playstore.
- Contributed code for symbolic manipulation of quantum mechanical operators to SymPy.
- Built an Android application for a NASA sponsored event that uses machine learning and visual recognition tools to study climate change.
- Host and write my own blog using Jekyll. Posts on programming and machine learning.
- Developed various software projects as a freelance developer.

Additional Experience

- Machine Learning Foundations – certificate earned - (Coursera E-learning).
- Stanford: Statistical Learning – with distinction - (Stanford Online).
- Intro to Machine Learning and Intro to Data Science – audit - (Udacity E-learning).
- Served as teaching assistant for courses based on Algorithms and Data Structures, Discrete Mathematics and Python Programming.

Awards

- Recipient of David R. Cheriton Graduate Scholarship in computer science (Award amount: $10,000).
- Recipient of the National Science Foundation's IT Communities of Practice Award in computer science.

Publications

- "Extended nonlocal games and monogamy-of-entanglement games", *Proceedings of the Royal Society A: Mathematical, Physical, and Engineering Sciences, 472:20160003*, Nathaniel Johnston, Rajat Mittal, Vincent Russo, John Watrous, (2016).
- "Limitations of separable measurements from cone programming", *IEEE Transactions on Information Theory*, (Volume:61, Issue:6), Somshubhro Bandypadhyay, Alessandro Cosentino, Nathaniel Johnston, Vincent Russo, John Watrous, Nengkun Yu, (2015).
- "Is absolute separability determined by the partial transpose?", *Quantum Information & Computation*, 15(7& 8):0694-0720, Srinivasan Arunachalam, Nathaniel Johnston, Vincent Russo, (2015).
- "An algorithm for the T-count", *Quantum Information & Computation*, Volume 14 Issue 15-16, Pages 1261-1276, David Gosset, Vadym Kliuchnikov, Michele Mosca, Vincent Russo, (2014).
- "Small sets of locally indistinguishable orthogonal maximally entangled states", *Quantum Information & Computation*, Volume 14 Issue 13-14, Pages 1098-1106, Alessandro Cosentino, Vincent Russo, (2014).
- "Quantum hedging in two-round prover-verifier interactions", *arXiv preprint:1310:7954*, Srinivasan Arunachalam, Abel Molina, Vincent Russo, (2013).
- "GPU-accelerated Gibbs ensemble Monte Carlo simulations of Lennard-Jonesium", *Computer Physics Communications*, Volume 184, Issue 12, Pages 2662-2669, Jason Mick, Eyad Hailat, Vincent Russo, Kamel Rushaidat, Loren Schwiebert, Jeffrey Potoff, (2013).
- "Parallel Monte Carlo simulation for the canonical ensemble on the GPU", Volume 29, Issue 4, *Journal of Parallel and Distributed Computing*, Eyad Hailat, Jason Mick, Vincent Russo, Kamel Rushaidat, Loren Schwiebert, Jeffrey Potoff, (2012).
- "Beatty sequences, Fibonacci sequences, and the Golden Ratio", *Fibonacci Quarterly*, Volume 49, Pages 151-154, Vincent Russo, Loren Schwiebert, (2011).

Proceedings

- "GPU for Lennard-Jones and Gibbs ensemble Monte Carlo particle simulations", *GPU Technology Conference (GTC)*, Jason Mick, Jeffrey Potoff, Eyad Hailat, Vincent Russo, Loren Schwiebert, (2012).
- "GPU accelerated configurational bias Monte Carlo simulations of linear alkanes", Jason Mick, Jeffrey Potoff, Eyad Hailat, Vincent Russo, Kamel Rushaidat, Loren Schwiebert, *American Institute of Chemical Engineering (AIChE), (2012).*
- "Optimization of a Lennard-Jones particle Monte Carlo GPU-code", Jason Mick, Jeffrey Potoff, Eyad Hailat, Vincent Russo, Kamel Rushaidat, Loren Schwiebert, *American Institute of Chemical Engineering (AIChE), (2012).*
- "GPU MCMC developments: CBMC nonpolar molecules, verlet lists, and architectural optimizations", Jason Mick, Jeffrey Potoff, Eyad Hailat, Vincent Russo, Kamel Rushaidat, Loren Schwiebert, *American Institute of Chemical Engineering (AIChE), (2012).*
- "GPU accelerated Monte Carlo simulations in the Gibbs and canonical ensembles", *American Institute of Chemical Engineering (AIChE), Jason Mick, Jeffrey Potoff, Eyad Hailat, Vincent Russo, Loren Schwiebert, (2011).*

Presentations

- "Extended nonlocal from quantum-classical games", *University of Waterloo, Institute for Quantum Computing seminar*, (2016).
- "Extended nonlocal games and monogamy-of-entanglement games", *Quantum Information Processing (QIP)*, (2015).
- "Limitations of separable measurements from cone programming", *Quantum Information Processing (QIP)*, (2014).
- "Quantum hedging in two-round prover-verifier interactions", *Quantum Information Processing (QIP)*, (2013).
- "Small sets of locally indistinguishable orthogonal maximally entangled states", *Quantum Information Processing (QIP)*, (2013).
- "An algorithm for the T-count", *Quantum Information Processing (QIP)*, (2013).
- "GPU MCMC developments: CBMC nonpolar molecules, verlet lists, and architectural optimizations", *American Institute of Chemical Engineering (AIChE)*, (2012).
- "GPU-based Monte Carlo simulations for canonical and Gibbs ensembles", *NVIDIA, GTC*, (2012).