Vincent Russo

United States: Citizen
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Education

- Ph.D. Computer Science, University of Waterloo 2017.
  Advisors: Michelle Mosca and John Watrous
- M.Sc. Computer Science, Wayne State University 2011.
- B.Sc. Computer Science, Wayne State University 2010.

Experience

- *Security Quality Assurance Developer – ISARA: Sep 2012 – Feb 2017*,

  –Developed correctness testing suite for internally produced cryptographic protocols
- *Graduate Researcher – University of Waterloo: Sep 2012 – Feb 2017*,

  –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.
- *Data Engineer, Consultant – SkyWatch: Sep 2016 – Oct 2016*,

  –Developed back-end data acquisition and processing service using Python, MySQL, and AWS resulting in an API service.
- *Software Engineer, Intern – Raytheon BBN Technologies: 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: 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: 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: 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.

Publications

Refereed Journal Publications and Preprints

1. Vincent Russo, John Watrous "Extended nonlocal games from quantum-classical games", *arXiv preprint: 1709.01837*, (2017).

2. Nathaniel Johnston, Rajat Mittal, Vincent Russo, John Watrous "Extended nonlocal games and monogamy-of-entanglement games", *Proceedings of the Royal Society A: Mathematical, Physical, and Engineering Sciences, 472:20160003*, (2016).

3. Somshubhro Bandypadhyay, Alessandro Cosentino, Nathaniel Johnston, Vincent Russo, John Watrous, Nengkun Yu, "Limitations on separable measurements from cone programming", *IEEE Transactions on Information Theory, (Volume:61, Issue: 6)*, (2015).

4. Srinivasan Arunachalam, Nathaniel Johnston, and Vincent Russo, "Is absolute separability determined by the partial transpose?", *Quantum Information & Computation*, 15(7& 8):0694-0720, (2015).

5. David Gosset, Vadym Kliuchnikov, Michele Mosca, and Vincent Russo, "An algorithm for the T-count", *Quantum Information & Computation*, Volume 14 Issue 15-16, Pages 1261-1276, (2014).

6. Alessandro Cosentino and Vincent Russo, "Small sets of locally indistinguishable orthogonal maximally entangled states", *Quantum Information & Computation*, Volume 14 Issue 13-14, Pages 1098-1106, (2014).

7. Srinivasan Arunachalam, Abel Molina, and Vincent Russo, "Quantum hedging in two-round prover-verifier interactions", *arXiv preprint:1310.7954*, (2013).

8. Jason Mick, Eyad Hailat, Vincent Russo, Kamel Rushaidat, Loren Schwiebert, Jeffrey Potoff, "GPU-accelerated Gibbs ensemble Monte Carlo simulations of Lennard-Jonesium", *Computer Physics Communications*, (2013).

9. Eyad Hailat, Jason Mick, Vincent Russo, Kamel Rushaidat, Loren Schwiebert, Jeffrey Potoff "Parallel Monte Carlo simulation for the canonical ensemble on the GPU", *Journal of Parallel and Distributed Computing* (2012)

10. Vincent Russo, Loren Schwiebert, "Beatty sequences, Fibonacci sequences, and the Golden Ratio", *Fibonacci Quarterly* **49**, 151–154 (2011)

Proceedings

1. Jason Mick, Jeffrey Potoff, Eyad Hailat, Vincent Russo, Loren Schwiebert, "GPUs for Lennard-Jones and Gibbs Ensemble Monte Carlo particle simulations", *GPU Technology Conference (GTC)*, Spring 2012

2. Jason Mick, Jeffrey Potoff, Eyad Hailat, Vincent Russo, Kamel Rushaidat, Loren Schwiebert, "GPU accelerated configurational bias Monte Carlo simulations of linear alkanes", *American Institute for Chemical Engineering (AIChE)*, (2012).

3. Jason Mick, Jeffrey Potoff, Eyad Hailat, Vincent Russo, Kamel Rushaidat, Loren Schwiebert, "Optimization of a Lennard-Jones particle Monte Carlo GPU-code", *American Institute for Chemical Engineering (AIChE)*, (2012).

4. Jason Mick, Jeffrey Potoff, Eyad Hailat, Vincent Russo, Kamel Rushaidat, Loren Schwiebert, "GPU MCMC developments: CBMC nonpolar molecules, verlet lists, and architectural optimizations", *American Institute for Chemical Engineering (AIChE)*, (2012).

5. Jason Mick, Jeffrey Potoff, Eyad Hailat, Vincent Russo, Loren Schwiebert, "GPU accelerated Monte Carlo simulations in the Gibbs and canonical ensembles", *American Institute for Chemical Engineering (AIChE)*, (2011).

Theses

- Vincent Russo, "Extended nonlocal games", *University of Waterloo*, (2017).

Technical Reports

- Vincent Russo, "Solar Wind Anomalies as Detected by the Fast Imaging Plasma Spectrometer", *University of Michigan*, Space Physics Lab, (2010).

Presentations

- *"Extended nonlocal games and monogamy-of-entanglement games"*, poster session, QIP 2015.
- *"Limitations of Separable Measurements from Cone Programming"*, poster session QIP 2014.
- *"Quantum Hedging in Two-round Prover-verifier Interactions"*, poster session, QIP 2013.
- *"Small Sets of Locally Indistinguishable Orthogonal Maximally Entangled States"*, poster session, QIP 2013.
- *"An Algorithm for the T-count"*, poster session, QIP 2013.
- *"GPU MCMC Developments: CBMC Nonpolar Molecules, Verlet Lists, and Architectural Optimizations"*, AIChE, 2012.
- *"GPU-Based Monte Carlo Simulations For Canonical and Gibbs Ensembles"*, NVIDIA GTC, 2012.

Workshops

- *Quantum Optimization Workshop*, 2014, University of Toronto - Fields Institute.
- *Quantum Key Distribution Summer Workshop*, 2011, University of Waterloo - Institute for Quantum Computing.

Technical Skills

Language / Development Proficiency

- Languages: C/C++/C#, F#, R, Java, Python, Fortran, MATLAB, Mathematica, Maple, Haskell, IDL, LaTeX
- Operating Systems: Unix/Linux, Windows.

Honors & Awards

- *International Doctoral Student Award*, University of Waterloo, 2012.
- *Mathematics Graduate Experience Award*, University of Waterloo, 2012.
- *Institute for Quantum Computing Entrance Award*, University of Waterloo, 2012.

- *David R. Cheriton Graduate Scholarship*, University of Waterloo, 2012.
- *Graduate Professional Scholarship*, Wayne State University, 2011 (Full year tuition scholarship)
- *IT Communities of Practice Award*, General Motors, 2010
- *IT Communities of Practice Award*, National Science Foundation, 2009

Teaching Experience

- CS 343 *Concurrent and Parallel Programming*, TA, 2015-2016.
- CS 436 *Networks and Distributed Computer Systems*, TA, 2015.
- CS 240 *Data Structures and Data Management*, TA, 2014.
- CS 343 *Concurrent and Parallel Programming*, TA, 2013-2014.
- CS 137 *Programming Principles*, TA, Fall 2012.
- CSC 1501 *Discrete Mathematics*, GTA, Winter 2012.
- CSC 1000 *Introduction to Computer Science*, GTA, Winter 2012.
- CSC 2101 *Data Structures and Algorithms*, GTA, Fall 2011.
- CSC 1101, *Problem Solving and Programming*, GTA Winter 2011.
- Intern Researcher, Space Physics Research Lab, University of Michigan 2010.
- Tutor, *All computer science and mathematics undergraduate courses*, Fall 2009-2012.
- Researcher, Department of Computer Science Wayne State University, 2008–2012.