

Trevor Bekolay

tbekolay@gmail.com

EDUCATION

Doctor of Philosophy, Computer Science
University of Waterloo, Waterloo, ON,
expected September 2015
Member of the Computational Neuroscience Research Group
Cumulative GPA: 94.00

Master of Mathematics, Computer Science
University of Waterloo, Waterloo, ON,
graduated October 2011
Member of the Computational Neuroscience Research Group
Cumulative GPA: 91.50

Honours Bachelor of Computer Science, Co-op Option
University of Manitoba, Winnipeg, MB,
graduated May 2009
Minor in Asian Studies
Cumulative GPA: 4.28/4.5

AWARDS & SCHOLARSHIPS

<i>David R. Cheriton Grad. Scholarship</i> (CS, UWaterloo)	\$20,000	2012/09 – 2014/09
<i>Alexander Graham Bell CGS - Doctorate</i> (NSERC)	\$105,000	2012/09 – 2015/09
<i>President's Graduate Scholarship</i> (CS, UWaterloo)	\$30,000	2012/09 – 2015/09
<i>Ontario Graduate Scholarship</i> (Gov. of Ontario)	Declined	2012/09 – 2013/09
<i>Ontario Graduate Scholarship</i> (Gov. of Ontario)	\$15,000	2011/09 – 2012/09
<i>President's Graduate Scholarship</i> (CS, UWaterloo)	\$10,000	2011/09 – 2012/09
<i>OGS in Science and Technology</i> (Gov. of Ontario)	\$5,000	2011/01 – 2011/05
<i>Alexander Graham Bell CGS - Masters</i> (NSERC)	\$17,500	2009/09 – 2010/09
<i>President's Graduate Scholarship</i> (CS, UWaterloo)	\$10,000	2009/09 – 2010/09
<i>Distinguished TA Award</i> (CS, UWaterloo)	–	2010/09
<i>Excellence in Teaching Assistance Award</i> (UManitoba)	\$300	2008/09
<i>Shell FUEL Scholarship</i> (UManitoba)	\$3,750	2008/09 – 2009/04
<i>Undergraduate Student Research Award</i> (NSERC)	\$4,500	2008/05 – 2008/08
<i>Elizabeth Luginbuhl Memorial Award</i> (UManitoba)	\$2,250	2007/09 – 2008/09
<i>Undergraduate Student Research Award</i> (NSERC)	\$4,500	2007/05 – 2007/08
<i>Japan Student Services Scholarship</i> (Kokugakuin)	\$11,000	2005/08 – 2006/08

TEACHING EXPERIENCE

Sessional Instructor 3 terms

David R. Cheriton School of Computer Science, University of Waterloo

- CS230 - Introduction to Computers and Computer Systems Fall 2011
- CS116 - Introduction to Computer Science 2 Winter 2011

Department of Computer Science, University of Manitoba

- COMP1010 - Introductory Computer Science 1 Fall 2008

Tutorial/Lab Instructor 9 terms

David R. Cheriton School of Computer Science, University of Waterloo

- CS230 - Intro to Comp. & Comp. Systems Fall 2012, Fall 2011, Winter 2010
- CS115 - Introduction to Computer Science 1 Fall 2010

Department of Computer Science, University of Manitoba

- COMP2160 - Programming Practices Fall 2008, Fall 2007
- COMP2140 - Data Structures and Algorithms Winter 2008
- COMP1010 - Introductory Computer Science 1 Fall 2007
- COMP1260 - Introductory Computer Usage 1 Fall 2006

Marker 8 terms

David R. Cheriton School of Computer Science, University of Waterloo

- CS486/686 - Introduction to Artificial Intelligence Summer 2010
- CS135 - Designing Functional Programs Fall 2009

Department of Computer Science, University of Manitoba

- COMP3040 - Technical Communication in CS Winter 2009, Winter 2008
- COMP3620 - Professional Practice in Computer Science Winter 2009
- COMP2140 - Data Structures and Algorithms Winter 2008, Winter 2007
- COMP1010 - Introductory Computer Science 1 Fall 2006

**TEACHING
ACCREDITATION**

Certificate in University Teaching

In progress; expected completion in August, 2013.

Fundamentals of University Teaching

Completed in April, 2012.

**WORK
EXPERIENCE**

Staff Writer Winter 2010 - Summer 2011

How-To Geek, LLC, Herndon, VA

Science and Technology Editor 2008 - 2009

The Manitoban student newspaper, University of Manitoba

Research Assistant Winter 2008

Centres for Research in Youth, Science Teaching and Learning (CRYSTAL)

Research Assistant Winter 2007

Intelligent Reasoning, Critiquing, and Learning lab at the University of Alberta

MEMBERSHIPS

TeX Users Group. June 2012 - Present.

Society for Neuroscience. 2011.

**OTHER
ACTIVITIES**

Co-founder and co-chair of the Cheriton Review committee, University of Waterloo. 2011-2012.

TA Committee member of the CS-GSA, University of Waterloo. 2010-2012.

University of Ottawa Summer School in Computational Neuroscience. June 13-25, 2010.

**REFEREED
PUBLICATIONS**

- Eliasmith, C., **Bekolay, T.**, and Choo, X. (2013) *Biological cognition: Learning and memory*, in Eliasmith, C. "How to build a brain: A neural architecture for biological cognition." Oxford University Press.
- Eliasmith, C., Stewart, T.C., Choo, X., **Bekolay, T.**, DeWolf, T., Tang, C., Rasmussen, D. (2012) *A large-scale model of the functioning brain*.
Science 338:6111, 1202-1205. DOI: 10.1126/science.1225266
- Stewart, T.C., **Bekolay, T.**, Eliasmith, C. (2012) *Learning to select actions with spiking neurons in the Basal Ganglia*.
Frontiers in Neuroscience 6:2. DOI: 10.3389/fnins.2012.00002
- Stewart, T.C., **Bekolay, T.**, Eliasmith, C. (2011) *Neural representations of compositional structures: representing and manipulating vector spaces with spiking neurons*.
Connection Science 22, 145-153.

**POSTERS
PRESENTED**

- Bekolay, T.**, Liu, B., Eliasmith, C., Laubach, M. (2012) *A spiking neural model of strategy shifting in a simple reaction time task*
Society for Neuroscience, 2012, in New Orleans, LA.
- Bekolay, T.**, Eliasmith, C. (2011) *A general error-modulated STDP learning rule applied to reinforcement learning in the basal ganglia*.
Computational and Systems Neuroscience, 2011, in Salt Lake City, UT.
- Bekolay, T.**, Metz, D., Klassen, S., Martin, B., Mahaffy, P. (2008) *Creating interactive animations for teaching science*.
NSERC Undergraduate Poster Competition, 2008, in Winnipeg, MB.

**CONFERENCE
PRESENTATIONS**

- Bekolay, T.** (2013) *An efficient workflow for reproducible science*.
SciPy 2013, in Austin, TX.
- Bekolay, T.** (2013) *A comprehensive look at representing physical quantities in Python*.
SciPy 2013, in Austin, TX.
- Bekolay, T.** (2012) *Writing self-documenting scientific code using physical quantities*.
PyCon Canada 2012, in Toronto, ON.

**NON-REFEREED
PUBLICATIONS**

- Bekolay, T.** (2011) *Learning in large-scale spiking neural networks*.
Masters of Mathematics thesis, University of Waterloo.
- Bekolay, T.** (2010)
Learning nonlinear functions on vectors: examples and predictions.
Centre for Theoretical Neuroscience Technical Report CTN-TR-20101217-010.
- Bekolay, T.** (2010) *Automating the Nengo build process*.
Centre for Theoretical Neuroscience Technical Report CTN-TR-20100917-009.
- Bekolay, T.** (2010) *Using and extending plasticity rules in Nengo*.
Centre for Theoretical Neuroscience Technical Report CTN-TR-20100910-008.
- Bekolay, T.** (2010) *A general error-based spike-timing dependent learning rule for the Neural Engineering Framework*.
Centre for Theoretical Neuroscience Technical Report CTN-TR-20100803-006.

SOFTWARE

- Bekolay, T.** (2010 - Present) *Build manager and contributor to the Nengo neural simulator*. Released under a Mozilla public license.
- Bekolay, T.** (2013) *Contributions to the Matplotlib plotting library*. Released under a BSD license.

Bekolay, T. (2012) *Co-maintainer of the python-quantities library for physical quantities in Python.* Released under a BSD license.

Bekolay, T. (2012) *Maintainer of the JNumeric library for matrix operations in Jython.* Released under the Python license.

Bekolay, T. (2011) *Contributions to the PyBrain machine learning library.* Released under a BSD license.

Bekolay, T. Thue, D., Bulitko, V.. (2007) *Creator of Behaviour Tool for PaSSAGE.* Released under a BSD license.