

DOMINIC STANDAGE, Curriculum Vitae

Department of Physiology, Queen's University, Botterell Hall, Room 453, Kingston, Ontario, K7L 3N6, Canada
Tel (613) 533 3256 (w) - (613) 766 0921 (h)
Email standage@biomed.queensu.ca

DOB 1968.11.07

Citizenship Canadian / British

RESEARCH SUMMARY

My research addresses the neural mechanisms underlying cortical and hippocampal function. I use spiking-neuron and population-rate network models to simulate experiments on decision making, attention, executive control and memory. My current research addresses the neural representation of elapsed time and the modulation of cortical processing by this temporal coding. I have many years of experience in programming languages and platforms including Matlab, and work closely with experimentalists in Physiology and Psychology.

EDUCATION

DALHOUSIE UNIVERSITY, HALIFAX CANADA

Doctor of Philosophy, Computer Science, September 2003 – August 2007

Thesis title Mechanisms of short term and long term memory in cortex: neural fields and synaptic plasticity

UNIVERSITY OF WESTMINSTER, LONDON UK

Master of Science, Artificial Intelligence, October 1997- January 2001

Graduated with Distinction

Thesis title An electronic nose: a hybrid neural network architecture to classify bacteria from gas sensor data

DALHOUSIE UNIVERSITY, HALIFAX CANADA

Bachelor of Arts, Psychology, 1988-1991

BOOTH MEMORIAL HIGH SCHOOL, ST. JOHN'S CANADA

Graduated, 1983-1986

EMPLOYMENT HISTORY

QUEEN'S UNIVERSITY, CENTRE FOR NEUROSCIENCE STUDIES, KINGSTON CANADA

Postdoctoral research fellow, Canadian Institutes of Health Research Group in Sensory-Motor Processing /

Department of Physiology, November 2007 – present

Computational modelling of neural systems

DALHOUSIE UNIVERSITY, FACULTY OF COMPUTER SCIENCE, HALIFAX CANADA

Postdoctoral research fellow, Computational Neuroscience Group, September 2003 – November 2007

Research Assistant, Computational Neuroscience Group, September 2003 – August 2007

Teaching Assistant, September 2003 – August 2007

THOMSON SCIENTIFIC, LONDON UK

Business Systems Developer, March 2002 – August 2003

Technical specification and development of internal business systems, including global intranet applications and language translation systems

BLOOMS OF BRESSINGHAM LTD, BERKSHIRE UK

Senior Developer / Webmaster, May 2000 – March 2002

Specification, development and administration of all technical facets of online business, transactional processing and financial reporting. Management of contract developers and designers

REVOLUTION LTD, LONDON UK

Senior Programmer, September 1997 - May 2000

Software applications specification and development, management of in-house and contract developers, and client liaison

FREELANCE, LONDON UK

Software developer, September 1995 - September 1997

Software development for clients including the British School of Motoring, IPC Magazines, Inland Revenue UK, and Sony

PUBLICATIONS

BOOK CHAPTERS

Dominic Standage and Thomas Trappenberg, Cognitive Neuroscience, *The Cambridge Handbook of Cognitive Science*, Keith Frankish and William Ramsey (eds.), Cambridge University Press, *in press*

REFEREED JOURNAL PUBLICATIONS

Dominic Standage, Sajiya Jalil and Thomas Trappenberg, Computational consequences of experimentally derived spike-time and weight dependent plasticity rules, *Biological Cybernetics*, 96:615-623, 2007

Dominic I. Standage, Thomas P. Trappenberg and Raymond M. Klein, Modelling divided visual attention with a winner-take-all network, *Neural Networks*, 18, 5-6:620-627, 2005

Thomas P. Trappenberg and Dominic I. Standage, Multi-packet regions in stabilized continuous attractor networks, *Neurocomputing*, 65-66:617-622, 2005

MANUSCRIPTS IN REVIEW AND IN PREPARATION

Dominic Standage and Martin Paré, Working memory capability impairs decision making in a biophysical network model, *in review*

Dominic Standage and Michael C. Dorris, Gain modulation by an urgency signal controls the speed-accuracy trade-off in a network model of a cortical decision circuit, *in preparation*

David M. Milstein, Dominic Standage and Michael C. Dorris, Motor planning processes are influenced by the value and timing of potential actions, *in preparation*

REFEREED INTERNATIONAL CONFERENCE PROCEEDINGS

Dominic Standage and Thomas Trappenberg, The trouble with weight-dependent STDP, *Proceedings of the International Joint Conference on Neural Networks 2007*, 1359 - 1364

Dominic I. Standage, Thomas P. Trappenberg and Raymond M. Klein, A continuous attractor neural network model of divided visual attention, *Proceedings of the International Joint Conference on Neural Networks 2005*, 2897-2902

Dominic I. Standage and Thomas P. Trappenberg, Differences in the sub-threshold dynamics of leaky integrate-and-fire and Hodgkin-Huxley neuron models, *Proceedings of the International Joint Conference on Neural Networks 2005*, 396-399

NATIONAL AND INTERNATIONAL CONFERENCE ABSTRACTS

Dominic Standage and Martin Paré, A temporal signal provides flexible control of the speed and accuracy of decisions by gain modulation of circuit dynamics in a neural model of LIP, *Society for Neuroscience Meeting, Sfn 2009, Chicago, USA*

Dominic Standage and Martin Paré, A canonical cortical model predicts persistent mnemonic activity in area LIP is afferently driven, *Canadian Physiological Society Meeting, CPS 2009, Mont St. Anne, Canada*

Dominic Standage and Martin Paré, A network of spiking neurons makes slower, more accurate decisions under parameters that do not support working memory, *Society for Neuroscience Meeting, Sfn 2008, Washington, DC, USA*

Dominic Standage and Martin Paré, A network of spiking neurons predicts eye movement decisions in a visual discrimination task under impaired NMDA function, *Canadian Association for Neuroscience Meeting, Montreal, Canada*

Dominic Standage and Thomas Trappenberg, An efficient Ca^{2+} based plasticity rule with combined Ca^{2+} sources, *Proceedings of the Computational Neuroscience Meeting CNS*2007, Toronto, Canada*

Dominic Standage and Thomas Trappenberg, Probabilistic, weight-dependent STDP leads to rate-dependent synaptic fixed points, *Proceedings of the Computational Neuroscience Meeting CNS*2006, Baltimore, USA*

Dominic Standage, Sajiya Jalil and Thomas Trappenberg, A weight-dependent STDP rule leading to rate-dependent

synaptic fixed points, *Proceedings of the International Conference of Cognitive and Neural Systems, 2006, Boston, USA*

Thomas Trappenberg, Dominic Standage, Saijiya Jalil and Alan Fine, A new interpretation of spike-time dependent plasticity data and their computational consequences, *The International Symposium of the Groupe de recherche sur le système nerveux central et le Centre de recherche en sciences neurologiques, Université de Montreal, 2006*

Dominic I. Standage, Thomas P. Trappenberg and Raymond M. Klein, A topographic saliency map that accounts for divided visual attention, *Proceedings of the International Conference on Cognitive and Neural Systems, Boston, USA, 2005*

PROFESSIONAL ACTIVITIES

INVITED TALKS AND PRESENTATIONS

Gain modulation by the encoding of urgency controls the speed-accuracy trade-off in a network model of LIP, *Annual Retreat of the Canadian Action and Perception Network, Ingersol Canada, October 1 – 2, 2009*

Gain modulation by a signal encoding elapsed time controls the speed-accuracy trade-off in a network model of a decision circuit in LIP, *Queen's Centre for Neuroscience Studies, Neuroscience Research Day, September 24, 2009*

Working memory capability impairs decision making in a biophysical network model, *University of Montreal, Mathematical Neuroscience Group, March 24, 2009*

Neural field models of cortical microcircuits: neurons, neural populations and parametric issues, *Queen's Centre for Neuroscience Studies, Friday Fights, February 20, 2009*

TEACHING

Guest Lecturer, Queen's University, Centre for Neuroscience Studies, January 2010 - present
NSCI 850: Introduction to Modelling in Neuroscience (graduate)
LSCI 426/826: Current Concepts in Sensorymotor Neuroscience (undergraduate/graduate)

Teaching Assistant, Dalhousie University, Faculty of Computer Science, September 2003 – December 2006
Curriculum development, lecturing, teaching tutorials, marking assignments

REVIEWING

Brain Research, Frontiers in Computational Neuroscience, Computational and Systems Neuroscience

ADACEMIC AWARDS

2003 – 2007 Faculty of Graduate Studies Scholarship, Dalhousie University
2007 Travel Award, 16th Annual Computational Neuroscience Meeting *CNS*2007*, Toronto, Canada
2005 Travel Award, 9th International Conference on Cognitive and Neural Systems, Boston, USA

VOLUNTEER WORK

CATARAQUI CLIPPERS SOCCER CLUB

Head Coach U8 Girls, January 2010 - present

DALHOUSIE UNIVERSITY, FACULTY OF COMPUTER SCIENCE

Graduate student representative, Faculty Graduate Committee, September 2006 – June 2007

HALIFAX CITY SOCCER CLUB

Member of Board of Directors, December 2006 – November 2007

REFERENCES

Available on request