

Curriculum Vitae

EDUCATION

- 2005 - 2009 **University of Bristol**
 - PhD in Computational Neuroscience at the Department of Computer Science.
Thesis title: **The role of the basal ganglia in decision making and reinforcement learning.**
Supervisor: Dr. Rafal Bogacz.

RELEVANT EMPLOYMENT HISTORY

- February 2015-present, full-time **University of Trento - Postdoctoral research fellow in Neuroscience**
- January 2011-December 2014, full-time **California Institute of Technology - Postdoctoral Scholar in Neuroscience**
- June 2009-December 2010, full-time **Trinity College Dublin - PostDoctoral Research Assistant**
- 2000-2004 **Experimentarium**
 - **Guide (exhibition pilot)** Experimentarium is Denmark's leading science center. Main responsibility was to meet with the audience unscheduled and talk to them about any aspect of science that might interest them.
Other responsibilities include scheduled and semi-rehearsed presentations and shows.

SKILLS

- **fMRI** Designing and analysing both whole brain and high-resolution experiments with human subjects in an MRI scanner, using SPM8 for the analysis.
- **EEG** Designing and analysing EEG experiments, using EEGLAB for the analysis.
- **Presentation** Programming stimulus presentation and data acquiring setups in Presentation (Neurobehavioral Systems).
- **Psychtoolbox** Programming stimulus presentation and data acquiring setups in Psychtoolbox.
- **Cogent** Programming stimulus presentation and data acquiring setups in Cogent.
- **Matlab** Most of the simulations and analysis done during my PostDoc work and my PhD have been done in Matlab.
- **Java** All the programming during my MSc, and some core components of my PhD simulations were done in Java.
- **D3/JavaScript** I have recently started teaching myself D3 hoping to make my results more accessible. Preliminary examples on <http://olab.caltech.edu/members/larsen/fmri.html> and <http://olab.caltech.edu/members/larsen/choice.html>

PUBLICATIONS AND CONFERENCES

- **Journal publications**

- T. Larsen and S.T. Hansen. Evolving composite robot behaviour – a modular architecture. *Robot Motion and Control, 2005. RoMoCo'05. Proceedings of the Fifth International Workshop on. IEEE, 2005.*
- T. Larsen and R. Bogacz. Initiation and Termination of Integration in a Decision Process. *Neural Networks, 23(3), 2010.*
- T. Larsen, D. Leslie, E.R. Collins and R. Bogacz. Posterior weighted reinforcement learning with stimulus uncertainties. *Neural Computation, 22(5), 2010.*
- R. Bogacz and T. Larsen. Integration of Reinforcement Learning and Optimal Decision-Making Theories of the Basal Ganglia. *Neural Computation, 23(4), 2011.*
- T. Larsen and J.P. O'Doherty. Propagation of choice signals from lateral parietal to anterior medial prefrontal cortex during value-based decision-making in humans: Evidence from fMRI informed model-based EEG. *Philosophical Transactions of the Royal Society B, 369: 20130473, 2014.*
- W.M. Pauli, T. Larsen, S. Collette, J.M. Tyszka, B. Seymour, and J.P. O'Doherty. Distinct contributions of ventromedial and dorsolateral subregions of the human substantia nigra to appetitive and aversive learning. *Journal of Neuroscience, 35, 2015.*
- G. Fairchild, C.C. Hagan, J. Carlin, L. Passamonti, T. Larsen, J.P. O'Doherty, I.M. Goodyer, and A.J. Calder. Neural substrates of reward and avoidance learning in male adolescents with Conduct Disorder and healthy controls. *in preparation.*
- T. Larsen, A. Rahman, T.W. Fong and J.P. O'Doherty. Problem and pathological gamblers exhibit impaired neural computations during loss avoidance learning but not reward-learning. *in preparation*

- **Select conference contributions**

- T. Larsen and S. Hansen. Evolving Composite Robot Behaviour. Talk and paper in *RoMoCo '05. Proceedings of the Fifth International Workshop on Robot Motion and Control.*
- T. Larsen and R. Bogacz. Initiation and Termination of Integration in a Decision Process. *Poster at CCNC '07 in San Diego.*
- T. Larsen, D. Leslie, E.R. Collins and R. Bogacz. Optimal integration of biologically plausible decision making and reinforcement learning. *Talk at the Regional Meeting on Mathematics, Computation and Biology, HP Labs 2008.*
- T. Larsen and J.P. O'Doherty. Determining the temporal characteristics of decision signals in the Dorsomedial FrontalCortex using Model Based EEG. *Poster at Society for Neuroeconomics annual meeting in Miami 2012*
- T. Larsen, A. Rahman, T.W. Fong and J.P. O'Doherty. Problem and pathological gamblers exhibit impaired neural computations during loss avoidance learning but not reward-learning. *Poster at NCRG conference on gambling and addiction, Las Vegas 2013*
- T. Larsen, S. Palminteri, J.R. Vidal, M. Khamassi, M. Joffily, G. Coricelli. Context can induce seeking behaviour in punishment conditions. *Poster at Society for Neuroeconomics annual meeting in Miami 2015*

- **Community outreach**

- Classroom visit presentation at Pasadena High School

- Workshop presentation for the 2013 Siemens Competition in Math, Science & Technology
- Presentation and lab-tour for the Intel ISEF Award winners.

AWARDS

- 2004 **The Danish Society of Engineers**
 - Graduate Diploma for An Outstanding Execution of an IT-related Thesis.
- 2004 **The Danish Society of Computer Scientists**
 - Top 5 Danish Computer Science Master Thesis in 2004.