

Hans Ludwig Melo

[CV]

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Education

- 2011 - **PhD Psychology - Collaborative Program in Neuroscience**
The University of Toronto, Canada.
Supervisors: Prof. Adam Anderson, Prof. William Cunningham
- 2009 - 2010 **MSc Cognitive and Decision Sciences (with Distinction)**
University College London, UK.
- 2008 - 2009 **MA Buddhist Studies (with Distinction)**
The University of Hong Kong, Hong Kong.
- 2002 - 2006 **BSc. Physics (3.66 GPA, Dean's List)**
Louisiana State University, USA.

Research Experience

- 2013- 2016 *Computational Affective Neuroscience Lab. University of Toronto.*
PhD Project
- Evidence Accumulation in Decision-Making.
 - Supervisor: Prof. William Cunningham
- 2011- 2013 *Attention and Cognition Lab, Dept. Psychology. University of Toronto.*
PhD Student
- Neurogenetics of Positivity and Resilience.
 - Supervisors: Prof. Adam Anderson, Prof. William Cunningham
- Spring 2011 *Institute of Cognitive Neuroscience, University College London.*
Co-Investigator
- The role of the hippocampus in decision-making.
 - Main investigator: Dharshan Kumaran, M.D. PhD.
- Fall 2010 *Wellcome Trust Centre for Neuroimaging, University College London.*
Co-Investigator
- Neuroeconomics research exploring the neural interactions between amygdala, striatum, and vm-PFC in decision-making.
 - Main investigators: Benedetto De Martino, PhD, Rosalyn Moran, PhD, Prof. Ray Dolan.
- 2009 - 2010 *University College London.*
Master's Project
- Using magnetoencephalography (MEG) to elucidate the neural underpinnings of loss in a gambling task.
 - Research Supervisor: Benedetto De Martino, PhD., Rosalyn Moran, PhD., Prof. Raymond Dolan
- 2003 - 2006 *Center for Computation and Technology, Louisiana State University.*
Research Student
- Research in numerical relativity directed to the study of black holes and gravity waves.
 - Research Advisor: Prof. Manuel Tiglio

Teaching Experience

2015 - 2016 *University of Toronto.*

Course Instructor

- Taught Cognitive Neuroscience (PSY493) to undergraduate students.
- Survey course of cognitive neuroscience, topics included cell physiology, vision, motor control, language, memory, decision-making, emotion.

2010 - 2015 *University of Toronto.*

Teaching Assistant

- TA for multiple courses including cognitive neuroscience (PSY493), statistics (PSY201), affective neuroscience (PSY494), mindfulness (PSY408), positive psychology (PSY336), introduction to psychology (PSY100)

Work Experience

2006 - 2010 *Holem Group, Inc.*

International Purchase Manager

- Extensive travel for assessment of potential suppliers and manufacturers of industrial equipment.
- Supervision of manufacturing and revision of contracts and business relations with suppliers.

2006 - 2008 *DimMachinery.com, CraneUniverse.com*

Web Master

- Web-Development/Maintenance and programming involving html, css, java, php.

2005 - 2006 *Auto Sports Intl, Baton Rouge, USA.*

Sales representative

- Part-time as a car sales-person.

Volunteer Experience

2016 *Hospice Toronto. Toronto, Canada.*

In-home Care Team Volunteer

- Assisting in providing emotional and practical support to home hospice clients, their families and friends. 3hrs/week

Summer 2010 *LMTC, MaeLa Refugee Camp, Thailand.*

Volunteer Teacher

- Teaching English and Science to Burmese refugees in Mae La refugee camp.

Summer 2009 *MOEI, Mae Sot, Thailand.*

Volunteer English Teacher

- Teaching English to Burmese refugees in Mae La refugee camp.
- Class of 29 students aged 18-24.

Honours, Awards, and Fellowships:

2016 Doctoral Completion Award

2015 Doctoral Completion Award

2012 Francisco J. Varela Research Award

2011 - 2015 Ontario Trillium Scholarship

2011 University of Toronto Fellowship

2011 - 2014 Cambridge Overseas Trust Scholarship (Declined)

2011 Fellowship - Institute of Cognitive Neuroscience, UCL

2010 Fellowship - Wellcome Trust Centre for Neuroimaging

2010 Distinction - Master's Thesis, University College London

2009 Distinction - Master's in Buddhist Studies, University of Hong Kong

2009 The University of Hong Kong Bursaries Award
2008 Tung Lin Kok Yuen Postgraduate Scholarship in Buddhist Studies
2002 - 2006 Dean's List – Louisiana State University
2002 - 2006 Louisiana TOPS Honors Award (Declined)

Other Education:

2014 Machine Learning, Coursera.
2012 Summer School in Computational Neuroscience. Cold Spring Harbor Asia.
2012 Mind and Life Summer Research Institute. Garrison Institute.
2012 ERP Bootcamp. Short course taught by Steven Luck. University of Toronto.
2011 Neuroimaging course: SPM8. University College London

Student Supervision:

2012 - 2013 Clara Ho – Undergraduate Research Thesis
2012 - 2013 Hira Aslam – Undergraduate Research Thesis
2012 - 2013 Bora Meraj – Undergraduate Research Thesis

Languages

- Fluency in English, Spanish, and Portuguese.
- Proficient in German and Chinese (Mandarin).

Computer Skills

- Statistics Software: SPSS, R
- Programming ability in Matlab, Python, Mathematica, Fortran, C++
- Parallel Programming: MPI, mpi4Py
- Neuroscience packages: FSL, AFNI, SPM8, cogent, psychtoolbox.
- Web programming skills in html, css, php, cgi, MySQL, java.

Extracurricular Activities

- Dedicated endurance athlete competing in running and triathlon races in various events ranging from 5k road races and marathons to full Ironman distances.
- Member of the University of Toronto Triathlon Club since 2014

Publications

Melo, H.L., Anderson, A., Cunningham, W. Proactive Preparatory Activity in Exploration: A Model-Based EEG Study. (*In Prep.*)

Melo, H.L., Anderson, A., Cunningham, W. Proactive Preparatory Activity in Exploration: A Model-Based fMRI Study. (*In Prep.*)

Melo, H.L., Koscik, TR., Vrantsidis, TH., Hathaway, G., Cunningham, W. (2016) Origins of emotional consciousness. Commentary on Morsella et al. *BBS* 39

Man, V., Nohlen, H. U. **Melo, H.L.**, Cunningham, W. A. (2016). Hierarchical Brain Systems Support Multiple Representations of Valence and Mixed Affect. *Emotion Review*.

Kumaran, D., **Melo, H.L.** (2013) Transitivity performance, relational hierarchy knowledge and awareness: Results of an instructional framing manipulation. *Hippocampus*; 23(12); 1259-1268

Kumaran, D., **Melo, H.L.**, Duzel, E. (2012) The Amygdala supports Learning and Representation of Social Hierarchies in Humans. *Neuron*; 76(3): 653-66

Melo, H.L., De Martino, B., Moran, R., Dolan, RJ. Elucidating the Neural Underpinnings of Loss Aversion: A magnetoencephalography study of the temporal dynamics of loss aversion. (Master's Thesis)

Chapters

Roese, N.J., **Melo, H.L.**, Vrontsidis, T., Cunningham, W. (*In Press*). Reward: A marketer's guide to the biological basis of pleasure. In M. Cerf & M. Garcia (Eds). *Consumer Neurosciences*. Cambridge, MA: MIT Press.

Melo, H.L., Anderson, A. (*Forthcoming*) The Neurogenetics of Resilience. In *Handbook of Positive Psychology*. Oxford University Press.

Melo, H.L., Anderson, A. (2016) The Function of Positive Emotions in Exploration. *Positive Neuroscience*. Eds. Joshua Greene, India Morrison, Martin Seligman. Oxford University Press.

Melo, H.L., Anderson, A. (2015) Imaging Genetics of Positive Psychology. In *Genetics of Psychological Well-being*. Ed. Michael Pluess. Oxford University Press.

Presentations

Melo, H., Muller, D.J., Cunningham, W. Anderson, A. Different Neural Mechanisms of Exploratory Behavior in Humans. Neuroeconomics Conference. Miami, FL. September 2015. (Talk)

Melo, H., Cunningham, W. Anderson, A. Positive Affect Enhances on Exploratory Behavior in Humans. 2015 Mind and Life SRI. Garrison, NY. June 2015. (Poster + Talk)

Melo, H., Muller, D.J., Cunningham, W. Anderson, A. Genetic Influences on Exploratory Behaviour in Humans. 2015 CNS Conference. San Francisco, CA. March 2015. (Poster)

Melo, H., Muller, D.J., Cunningham, W. Anderson, A. Genetic Influences on Exploratory Behaviour. Ebbinghaus Empire Data Blitz Talk. Toronto, ON. March 2015. (Talk)

Melo, H., Muller, D.J., Cunningham, W. Anderson, A. Genetic Influences on the Neural Mechanisms of Intertemporal Choice. International Imaging Genetics Conference. Irvine, CA. Jan 2015. (Poster)

Melo, H., Kouptsova, J., Muller, D.J., Cunningham, W. Anderson, A. Dopamine-Related Genetic Influences on Cognitive Flexibility. GLASS Talk. Toronto, ON. November 2014. (Talk)

Melo, H., Muller, D.J., Cunningham, W. Anderson, A. What can genes tell us about cognition? Dopamine-Related Genetic Influences on Intertemporal Choice. Ebbinghaus Empire Talk. Toronto, ON. October 2014. (Talk)

Melo, H., Muller, D.J., Cunningham, W. Anderson, A. Dopamine-Related Genetic Influences on Intertemporal Choice. 2014 Neuroeconomics Conference. Miami, FL. September 2014. (Poster)

Melo, H., Kouptsova, J., Muller, D.J., Cunningham, W. Anderson, A. Dopamine-Related Genetic Influences on Cognitive Flexibility. MICCAI. MIT. Cambridge, MA. September 2014. (Poster + Talk)

Kumaran, D., **Melo, H.L.**, Duzel, E. The emergence and representation of knowledge about social and non-social hierarchies. Society for Neuroscience's Annual Meeting, New Orleans, USA. Oct. 2012. (Poster)

Melo, H.L. Learning the Structure of the World: Using model-based reinforcement learning to elucidate higher learning structures. Tsinghua University, Beijing, China. July 2012. (Talk)

Kumaran, D., **Melo, H.L.**, Duzel, E. Transitive Inference Learning. Wellcome Trust Centre for Neuroimaging, University College London, UK. April 2011. (Project Presentation)

Melo, H.L., De Martino, B., Moran, R., Dolan, R.J. Neural Underpinnings of Loss Aversion: A study of the temporal dynamics of loss aversion. Department of Experimental Psychology, University of Oxford, UK. February 2011. Talk

Melo, H.L., De Martino, B., Dolan, R.J. Elucidating the Temporal Dynamics of Loss Aversion. Psychology and Language Sciences, University College London, UK. August 2010. (Talk)

De Martino, B., **Melo, H.L.**, Dolan, R.J. Elucidating the Temporal Dynamics of Loss Aversion. Wellcome Trust Centre for Neuroimaging University College London, UK. May 2010. (Project Presentation)

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