Laurence Tudor Hunt

Current Positions

2022- Associate Professor of Experimental Psychology, University of Oxford
2022- Tutorial Fellow in Psychology, St John's College, Oxford
2018- Sir Henry Dale Fellow and Principal Investigator, University of Oxford
Cognitive Computational Neuroscience Group

Research Summary

My research addresses the neural mechanisms by which we make decisions. To gain insight into these mechanisms, I use computational models that make precise predictions of behavioural and neural data. I test these predictions using a range of techniques in both humans and animals, and translate this knowledge into paradigms relevant to psychiatry.

Education and Training

2013-17 Sir Henry Wellcome Postdoctoral Fellow, University College London
2007-12 DPhil in Neuroscience, Department of Experimental Psychology, Oxford
2006-07 MSc in Neuroscience, Wadham College, Oxford
2003-06 BA in Medical and Veterinary Sciences, Jesus College, Cambridge

Current/Recent Research Funding (PI/Co-I Only)

2022-27 BBSRC sLoLa grant **(~£4.3M** collaborative award, with Profs. Steve Kennerley, Jill O'Reilly, Matthew Rushworth (lead applicant), Mark Stokes**)**
2018-23 Wellcome/Royal Society Henry Dale Fellowship **(£919,348)**
2017-19 NARSAD Young Investigator Award **($70,000)**
2014-17 Sir Henry Wellcome Fellowship Enhancement **(£200,000)**
2013-17 Sir Henry Wellcome Postdoctoral Fellowship **(£250,000)**

Selected Awards/Honours

2020 FENS EJN Young Investigator Prize[1]
2017 NARSAD Young Investigator Award
2010 Keeley Senior Scholarship, Wadham College, Oxford

Key Publications/Preprints (Total citations: 3891; h-index = 21; i10-index = 28[2])

1. **Hunt LT,** Daw ND, Kaanders P, MacIver MA, Mugan U, Procyk E, Redish AD, Russo E, Scholl J, Stachenfeld K, Wilson CRE, Kolling N. Formalising planning and information search in naturalistic decision-making. **Nature Neuroscience**, 2021; 24: 1051-1064.
2. Kaanders P, Nili H, O'Reilly JX, **Hunt LT**. Medial frontal cortex activity predicts information sampling in economic choice. **J Neurosci,** 2021, 41(40): 8403-8413.
3. Hassall CD, Harley J, Kolling N, **Hunt LT**. Temporal scaling of human scalp-recorded potentials during interval estimation. **bioRxiv,** 2021, doi: 10.1101/2020.12.11.421180.
4. Cavanagh SE, Lam NH, Murray JD*, **Hunt LT***, Kennerley SW*. A circuit mechanism for decision-making biases and NMDA receptor hypofunction. **eLife**, 2020; 9, e53664.
5. **Hunt LT***, Malalasekera WMN*, de Berker AO, Miranda B, Farmer SF, Behrens TE, Kennerley SW. Triple dissociation of attention and decision computations across prefrontal cortex. **Nature Neuroscience,** 2018; 21, 1271-81.
6. **Hunt LT,** Rutledge RB, Malalasekera WMN, Kennerley SW, Dolan RJ. Approach induced biases in human information sampling. **PLOS Biology**, 2016; 14(11), e2000638.
7. **Hunt LT,** Behrens TE, Hosokawa T, Wallis JD, Kennerley SW. Capturing the temporal evolution of choice across prefrontal cortex. **eLife** 2015; 10.7554/eLife.11945
8. **Hunt LT**, Dolan RJ, Behrens TEJ. Hierarchical competitions subserving multi-attribute choice. **Nature Neuroscience**, 2014; 17(11), 1613–22.
9. **Hunt LT,** Kolling N, Soltani A, Woolrich MW, Rushworth MFS, Behrens TEJ. Mechanisms underlying cortical activity during value-guided choice. **Nature Neuroscience**, 2012 Jan 8;15(3):470-6
10. Behrens TE*, **Hunt LT***, Woolrich MW, Rushworth MF. Associative learning of social value. **Nature** 2008 Nov 13; 456: 245-249

* denotes joint first/last authorship

For full publication list, visit http://tinyurl.com/LHPubList

[1] Awarded to a European researcher under 35, for outstanding scientific contributions in any field of neuroscience
[2] Google Scholar citation indices, accessed 4th July 2022

Publicly Shared Datasets (selection; all data collected are now shared by default)

- Behaviour from "Approach-induced biases in human information sampling" (32,445 human subjects, >3 million decisions). DataDryad, https://doi.org/10.5061/dryad.nb41c
- Single unit recordings from "Triple dissociation of attention and decision computations across prefrontal cortex". CRCNS, https://crcns.org/data-sets/pfc/pfc-7
- Neuroimaging data from "Hierarchical competitions subserving multi-attribute choice", NeuroVault, https://neurovault.org/collections/122/

Invited Talks (highlights; typically 6-8/year)

- Schwartz Research Seminar, New York University, 2022
- Lake Arrowhead Meeting on Reward and Decision Making, California, 2022
- CCN Seminar, Hamburg, 2022
- T&C Chen Social and Decision Neuroscience Online Seminar, Caltech, 2021
- Symposium on Biology of Decision-Making, 2021
- FENS Forum (FENS-EJN Prize Keynote Lecture), 2020
- Society for Neuroeconomics, Dublin, 2019 (Keynote)
- Cosyne Workshop, "Decisions in Temporally Extended Environments", Lisbon, 2019
- 7th Symposium on Motivational and Cognitive Control, Berlin, 2018
- Brain Conference, "Computational Neuroscience and Prediction", Copenhagen, 2018

For example of recent invited talk, visit https://www.youtube.com/watch?v=MZpiRdZHHiY

Teaching and Outreach

2021-	Stipendiary lecturer in Psychology, Lady Margaret Hall. Delivered tutorials in Probability and Statistics, Neurophysiology (Prelims); Behavioural Neuroscience (Part I); "How to Build a Brain from Scratch" (Part II); conducted undergraduate admissions interviews.
2021-	Member of organising committee, MSc Neuroscience, Oxford.
2019-	Lecturer on "Open Science and Reproducibility", and "Introduction to Computational Neuroscience", WIN Graduate Programme
2018-21	Examiner, MSc Neuroscience, Oxford (Chair of examiners, 2020-21)
2017-18	Non-stipendiary lecturer in Experimental Psychology, St John's College, Oxford. Delivered Prelims tutorials in Perception, Psychobiology, Cognitive Psychology; Part II Biomedical Science tutorials in cognitive neuroscience; conducted undergraduate admissions interviews.
2017-20	EP/PPL FHS (Part II) Block Practical in "Cognitive and computational models of learning and decision-making" (with Miriam Klein-Flügge, Nils Kolling, Jacqueline Scholl). Ran parallel course on WIN Graduate Programme (see https://git.fmrib.ox.ac.uk/open-science/computational-models-course).
2015-16	Tutor at The Brilliant Club, a non-profit organisation that trains and places postdocs to deliver university-style tutorials to high-achieving pupils at schools with low participation in higher education.
2013-	Lecturer on MSc Neuroscience (Oxford), MSc Integrated/Therapeutic Neuroscience (Oxford), MSc Clinical Neuroscience (UCL), MSc Clinical Neurology (UCL) courses

Supervision and Examination of Students/Postdocs

My group currently consists of myself, 3 postdoctoral fellows and 3 DPhil students. The majority of my postdocs and students have obtained independent funding via fellowships or studentships. Former postdocs/students include: Yu Takagi (now assistant professor at Osaka University), Maria Ruesseler (now employed at pharmaceutical company UCB), and Sean Cavanagh (won 2019 Jon Driver Prize for best Neuroscience PhD at UCL, now trainee doctor). I have supervised 15 MSc and undergraduate project students. I have examined 5 PhD theses.

Professional Service/Public Engagement

2022-	Organizing committee, Cognitive Computational Neuroscience conference, https://ccneuro.org/
2019-22	UKRI-BBSRC Expert Working Group on Neuroscience and Behaviour
2016-18	Executive committee, *Science is Vital*. Coordinated a joint submission from >1,600 Early Career Researchers to the Science and Technology Select Committee concerning the impact of Brexit.
2015-17	One of eight scientists behind *The Great Brain Experiment,* a Wellcome Trust funded smartphone app. Downloaded by >110,000 users. Featured in The Guardian, The Wall Street Journal, BBC One.