

Scott C. Lowe

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Nationality: British

Current position

Ph.D. candidate, Institute for Adaptive and Neural Computation, School of Informatics, University of Edinburgh.

Project: Analysis of experimental data from multi-electrode recordings in the visual cortex.

Supervised jointly by Dr Mark van Rossum, School of Informatics, University of Edinburgh; Prof. Stefano Panzeri, Italian Institute of Technology Center for Neuroscience and Cognitive Systems, Trento; and Prof. Alex Thiele, School of Psychology, Newcastle University.

Education

2011–2012 **MSc with Distinction**, in Neuroinformatics by Research, University of Edinburgh. (Average grade is 75.33%. For comparison, a Distinction at $\geq 70\%$ is approximately equivalent to $\geq 3.75/4$ US GPA.)

Neural Computation, Principles of Neuroscience, Probabilistic Modelling and Reasoning, Neural Information Processing, Computational Neuroscience of Vision, Neuroinformatics Research, Research Thesis (Neuroinformatics; Topic: *An information theoretic analysis of perceptual learning data from macaque V1 and V4*)

2007–2011 **MSci with First Class Honours**, in Natural Sciences (Mathematics and Physics), Durham University. (Overall grade is 73.37%. For comparison, a First Class at $\geq 70\%$ is approximately equivalent to $\geq 3.75/4$ US GPA.)

- Y1: Core Maths A, Core Maths B1, Foundations of Physics 1, Discovery Skills in Physics
- Y2: Complex Analysis, Linear Algebra, Analysis in Many Variables, Foundations of Physics 2, Thermal and Condensed Matter Physics
- Y3: Differential Geometry, Dynamical Systems, Continuum Mechanics, Foundations of Physics 3, Theoretical Physics
- Y4: Elliptic Functions, Mathematical Finance, Partial Differential Equations, Solitons, Project (Mathematics; Topic: *Artificial Neural Networks*)

Employment History

2015-06-01 to present	U. of Edinburgh, Edinburgh U.K.	Technical Research Assistant. Development of tools for analysis of calcium imaging data from mouse primary visual cortex with the Rochefort Lab, Centre for Integrative Physiology.
2010-07-05 to 2010-09-17	FlexTel Ltd, Sandbach, Cheshire U.K.	Web Technician. Programming in PHP for telecoms company. Designed and coded new website selling isolated consumer product. Developed market-leading algorithms to price telephone numbers patterns based on memorability of both numeric patterns and alphanumerical patterns http://www.flextel.com/numbers/ .
2009-08-31 to 2009-09-29	Dept. of Physics, Durham University, Durham U.K.	Physics Studentship. Programming in MATLAB to simulate Rydberg atoms and their interactions.

Grants, honors & awards

2015	Placed 57th out of 1049 in the National Data Science Bowl plankton species classification challenge, hosted by Kaggle.
2014	Placed 16th out of 504 in the American Epilepsy Society Seizure Prediction Challenge , hosted by Kaggle.
2013	Winner of “Most Viable Business Idea” award, Amazon Scotland Hackathon 2013 .
2011	Awarded a 4-year scholarship by the University of Edinburgh School of Informatics Doctoral Training Centre in Neuroinformatics, with funding from grants EP/F500385/1 and BB/F529254/1 from the UK Engineering and Physical Sciences Research Council (EPSRC), UK Biotechnology and Biological Sciences Research Council (BBSRC), and the UK Medical Research Council (MRC).

Publications & talks

JOURNAL ARTICLES

Michel Besserve, Scott C. Lowe, Nikos, K. Logothetis, Bernhard Schölkopf, Stefano Panzeri (2015, September), “Shifts of gamma phase across primary visual cortical sites reflect dynamic stimulus modulated information transfer”, *PLOS Biology*. DOI: [10.1371/journal.pbio.1002257](https://doi.org/10.1371/journal.pbio.1002257).

Scott C. Lowe, Daniel Zaldivar, Yusuke Murayama, Mark C. W. van Rossum, Nikos K. Logothetis, Stefano Panzeri (to be submitted), “Lamina and Frequency Distribution of Information in Primary Visual Cortex”.

Janelle M. P. Pakan*, Scott C. Lowe*, Evelyn Dylida, Sander W. Keemink, Nathalie L. Rochefort (in preparation), “Visual Stimulation Suppresses Differences Between Inhibitory Neurons in Mouse Primary Visual Cortex”.

Sander W. Keemink*, Scott C. Lowe*, Janelle M. P. Pakan, Mark C. W. van Rossum, Nathalie L. Rochefort (in preparation), “Undersampled ICA with Baseline-correction for Extraction of Calcium Imaging Signals”.

Scott C. Lowe, Xing Chen, Alex Thiele, Mark C. W. van Rossum, Stefano Panzeri (in preparation), “Changes in V1 and V4 encoding of visual contrast during perceptual learning”.

TALKS

Scott C. Lowe (2015, May), “What does LFP encode?”. Presented at the *CINPLA Workshop: “Inferring network activity from LFPs”*, University of Oslo, Oslo, Norway.

POSTER PRESENTATIONS

Lowe, Scott C, *et al.* (2015, April), “Cortical dynamics across V1 laminae generate independent frequency channels encoding visual information”. Presented at the *BNA2015: Festival of Neuroscience*, Edinburgh, UK. Poster Reference: [P2-C-029](#).

Lowe, Scott C, *et al.* (2014, November), “Different cortical layers in V1 encode different visual information in different frequency bands”. Presented at the *2014 Meeting of the Society for Neuroscience*, Washington DC, USA. Program No. [532.19](#).

Lowe, Scott C, *et al.* (2014, July), “Quantification of the Laminar and Frequency Structure of Information in Primary Visual Cortex”. Presented at the *9th FENS Forum of Neuroscience*, Milan, Italy. Abstract number [FENS-2860](#).

Lowe, Scott C, *et al.* (2014, July), “Quantification of the Laminar and Frequency Structure of Information in Primary Visual Cortex”. Presented at the *AREADNE 2014 session*, Santorini, Greece.

Lowe, Scott C, *et al.* (2013, November), “Decoding spiking activity in V4, but not V1, correlates with behaviour in perceptual learning”. Presented at the *2013 Meeting of the Society for Neuroscience*, San Diego, USA. Program No. [555.11](#).

Lowe, Scott C, *et al.* (2013, July), “Decoding spiking activity in V4, but not V1, correlates with behavioural performance in perceptual learning task”. Presented at the *Twenty Second Annual Computational Neuroscience Meeting: CNS*2013*, Paris, France. *BMC Neuroscience* 2013, **14**(Suppl 1):P385 [doi:10.1186/1471-2202-14-S1-P385](https://doi.org/10.1186/1471-2202-14-S1-P385).

THESES & DISSERTATIONS

Scott C. Lowe (2012), “An information theoretic analysis of perceptual learning data from macaque V1 and V4”. Master of Science by Research thesis, University of Edinburgh.

Scott C. Lowe (2011), “Artificial Neural Networks”. Master of Natural Sciences (Mathematics) dissertation, Durham University.