

Dr. Richard E. Turner

Computational and Biological Learning Lab

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EDUCATION

University College London, London, UK

Ph.D. Gatsby Computational Neuroscience Unit, 2010

- Dissertation title: *Statistical models for natural sounds*
- Area: Theoretical neuroscience and machine learning
- Adviser: Dr. Maneesh Sahani

University of Cambridge, Cambridge, UK

Natural Sciences, Gonville and Caius College, M.Sci, B.A. Hons, 2003

- Specialism: Experimental and Theoretical Physics
- First Class Honours, placed 9th in the University

POSITIONS

Computational and Biological Learning Lab, University of Cambridge, UK

EPSRC Postdoctoral Research Fellow

2010 – present

Awarded a Postdoctoral Fellowship worth £230,000 over three years for a project entitled “Probabilistic Auditory Scene Analysis”. Researching the computational and neural basis of audition, and developing statistical signal processing methods.

Laboratory for Computational Vision, Center for Neural Science, NYU, USA

International Scholar

2010 – 2011

The middle year of my EPSRC Postdoctoral Fellowship was spent with Prof. Eero Simoncelli at New York University working on natural scene statistics, perception, and neural processing.

Centre for the Neural Basis of Hearing, University of Cambridge, UK

Research Assistant

2003 – 2004

Worked under Prof. Roy Patterson on the perception, neural processing, and statistical signatures of pitch, scale, and size information in sounds.

HONOURS AND AWARDS

Schwartz Foundation Travel Bursary, 2011

Best Student Paper Award, ICA Conference, 2007

PASCAL Conference & Workshop Attendance Bursary, 2007

Duncan Bruce Memorial Prize for Physics, 2003

Gonville and Caius College Senior Scholarship, 2001-2003

Gonville and Caius College Scholarship, 2001-2002

INVITED PRESENTATIONS

The separation of envelope and fine-structure for auditory research, University of Cambridge, 2012

Neural Information Processing Systems Spotlight, Granada, Spain, 2011

Computational Audition Workshop, Bremen, Germany, 2011

Center for Neural Science, New York University, USA, 2011

Computational Audition Workshop, Gatsby Unit, London, 2010

ICASSP, Dallas, USA, (with Maneesh Sahani) 2010

Frankfurt Institute of Advanced Study, Frankfurt, Germany, 2009

The Hearing Group, University of Cambridge, 2008

The Institute of Neuroscience, Newcastle University, 2008

Gordon Conference on Sensory Coding, Il Ciocco, Italy (in place of Maneesh Sahani), 2008

Inference and Estimation in Probabilistic Time-Series Models Workshop, Newton Institute, 2008

The Inference Group, Cavendish Laboratory, University of Cambridge, 2007 and 2008

Music, Brain and Cognition Workshop, NIPS, Whistler, 2007

7th International Conference on Independent Component Analysis and Signal Separation, 2007

Cortical Processing Meeting, Budapest, 2007 and 2010

Information Sciences, Engineering Department, University of Cambridge, 2007 and 2010

ADDITIONAL CONFERENCE ATTENDANCE	International Conference on Acoustics, Speech and Signal Processing, 2010, 2012 Computational and Systems Neuroscience, Salt Lake City, USA, 2007, 2008, 2010, 2011 Neural Information Processing Systems, Vancouver, Canada, 2004, 2005, 2006, 2007, 2011
REVIEWING	Reviewed for the Journal of Machine Learning Research, Machine Learning, Neural Information Processing Systems, International Conference on Acoustics Speech and Signal Processing, Artificial Intelligence and Statistics, International Conference on Machine Learning, and Computational and Systems Neuroscience.
MEETING AND WORKSHOP ORGANISATION	Founded the, “Essential Tools for Scientists” meeting for teaching skills including programing, document and reference management, and public speaking at the Center for Neural Science, New York University, 2011 Co-organised workshop, “Beyond Simple Cells: Probabilistic models for visual cortical processing”, Neural Information Processing Systems conference, Whistler, Canada, 2007 Organised 5 day workshop on “Advanced Probabilistic Techniques”, Gatsby Unit, London, 2007
TEACHING EXPERIENCE	University of Cambridge, UK <i>Lecturing</i> 2012 Course title: “Introduction to Neuroscience”, (with Prof. Daniel Wolpert). Advanced Course in Computational Neuroscience , Bądlewo, Poland <i>Lecturing</i> 2012 Teaching Applications of Generative Models in Neuroscience. University College London, UK <i>Teaching Assistant</i> 2005–2006 Unsupervised Learning Masters Course. Gonville and Caius College, University of Cambridge, UK <i>Supervisor</i> 2003 – 2004 Supervised undergraduate physics courses in Dynamics and Statistical Thermodynamics.
COLLABORATORS	Prof. Eero Simoncelli, Laboratory for Computational Vision, CNS, NYU, USA <i>Neurobiology of vision and audition; Natural scene statistics</i> Prof. Zoubin Ghahramani, Computational and Biological Learning Lab, University of Cambridge <i>Approximate inference</i> Dr. Maneesh Sahani, Gatsby Computational Neuroscience Unit, University College London, UK <i>Statistical signal processing for audio and brain imaging; Computational models of hearing; Natural scene statistics.</i> Dr. Bob Carlyon, MRC Cognition and Brain Sciences Unit, University of Cambridge, UK <i>Perception of auditory textures; Machine learning for cochlear implant users</i> Prof. Usha Goswami, Department of Experimental Psychology, University of Cambridge, UK <i>Speech perception and the statistics of natural sounds</i> Dr. Jörg Lücke, Frankfurt Institute for Advanced Study, Goethe-Universität, Germany <i>Computational models of visual processing</i> Prof. József Fiser, Fiser Lab, Brandeis University, Boston, USA <i>Neural coding of uncertainty</i> Prof. Roy Patterson, formerly Centre for the Neural Basis of Hearing, University of Cambridge <i>Auditory psychophysics; Speech perception</i>
INTERESTS	Ultimate Frisbee , member of the Great Britain team, European Champions 2003-2010.