Matthew Apps, PhD.

Department of Experimental Psychology, University of Oxford
Email: matthew.apps@psy.ox.ac.uk; www.mattapps.co.uk

My research examines the neurobiological mechanisms underlying motivation and reward processing. How does our brain decide what is worth doing and how do we understand similar decisions made by other people? I use combination of techniques including fMRI, diffusion-weighted imaging, computational modelling, pharmacology and brain stimulation to examine how the brain evaluates the costs and benefits of behaviours, and how similar evaluations of other people are processed during social interactions. I use these approaches to understand variability in motivation and social abilities in healthy individuals as well as in neurological (e.g. Parkinson's disease) and psychiatric conditions (e.g Autism Spectrum Disorders).

Education and Employment History

2015-2018:	**BBSRC Anniversary Future Leader Fellow (Principal Investigator, Oxford)** Topic: *A Biological Framework for Understanding and Modulating Apathy in Healthy People*
2014-2016:	**Somerville College Fulford Junior Research Fellow**
2013-2015: *with Prof. Masud Husain*	**Postdoctoral Research Associate (University of Oxford)** Topic: *Apathy, motivation and effort-based decision-making*
2011-2013: *with Prof. Manos Tsakiris*	**Postdoctoral Research Fellow (Royal Holloway, Uni. Of London [RHUL])** Topic: *Computational modelling of self-other distinction*
2008-2011: *with Prof. Narender Ramnani*	**PhD. in Cognitive Neuroscience (ESRC scholarship; RHUL)** Topic: *Value processing during social interactions*
2007-2008:	**MSc. Research Methods in Psychology (ESRC funded, Reading University)** *Grade: Distinction (1st in cohort)*
2004-2007:	**BSc. Psychology** (RHUL) *Grade: 1st Class Honours (3rd in cohort)*

Grants

Research Grants:

- BBSRC AFL Fellowship (Principal Investigator) ~£295,000
- ESRC 1+3 open competition MSc. and PhD Studentship (2007-2011) ~£70,000

Travel Grants:

- Organization for Human Brain Mapping trainee award (2009, 2015) - $2700
- Guarantors of Brain travel grant (2009, 2011, 2013) - £2400
- BPS postdoctoral travel award (2014) - £350
- EPS Grindlay grant (2013) - £500

Awards

- European Society for Cognitive and Affective Neuroscience *Young Scientist Award* (2016)
- Society for Neuroscience *Professional Development Award* (2016)
- Fulford Junior Research Fellowship at Somerville College, Oxford (2014-2016)
- OHBM trainee award (2009, 2015)
- Guardian Research of the Week (2015)
- Jack Westaway prize for best undergraduate project (2007)

Selected Responsibilities

- Organiser of Neuroscience Seminar Series (2015-)
- Organiser of Motivation and Decision-Making workshop (2015)
- Grant reviewing: *BBSRC, National Science Foundation, US, Czech National Science Foundation*
- Journal reviewing: *Current Biology, Journal of Neuroscience, Cerebral Cortex, Neuroscience and Biobehavioural Reviews, Neuroimage, Neuroimage: Clinical, Cortex, Frontiers, Journal of Experimental Psychology: General, PLoS One, SCAN, Scientific Reports, Psychiatry Research: neuroimaging, Brain Research*

Selected Invited Oral Presentations

- London Judgement and Decision-Making seminar series (forthcoming 2016)
- Control Processes Conference, San Diego (forthcoming 2016)
- Oxford autumn school in cognitive neuroscience seminar (2016)
- ESCAN 2016 meeting, Porto, Young Scientist Award Lecture (2016)
- Social and Affective Neuroscience Society symposium talk (2016)
- Neuroscience department, ETH Zurich (2015)
- Neuroimaging group, IOPPN, King's College London (2015)
- Experimental Psychology department seminar, Ghent University (2015)
- Developmental Risk and Resilience Unit, UCL (2015)
- Psychology Departmental seminar, Roehampton University (2014)
- Decision-making and action seminar, Department of Experimental Psychology, University of Oxford (2013)
- Experimental Psychology Society meeting, London (2013)
- Institute of Neuroscience seminar, Trinity College, Dublin (2012)
- Symposia talk, Annual meeting of the Organization for Human Brain Mapping (2009)

Selected Media/Public engagement

- *NatureJobs event.* Panel discussion on success in academia (2016)
- UNIQ A' level school visit hosting (2016)
- Professional twitter account (>1700 followers incl. scientists and general public)
- Invited blog on the conversation website: https://theconversation.com/what-goes-on-in-teachers-brains-as-they-help-students-to-learn-37672
- Guardian Research of the Week: http://www.theguardian.com/teacher-network/2015/feb/20/scientists-teachers-brains-work-weekly-news-review
- Study reported on BBC news: http://www.bbc.co.uk/news/education-31503265
- Study reported in the Times newspaper and the Times online: http://www.thetimes.co.uk/tto/science/article3921675.ece
- Report in Men's Health US: http://www.menshealth.com/best-life/remember-faces
- Comment in Nature news section: doi:10.1038/nature.2012.1211
- Studies also reported in: La Scienza, O Globo, Le Figaro, Psypost, ScienceDaily, HealthCanal
- Public demonstrator at British Neuroscience Society Festival of Neuroscience
- Royal Holloway open day demonstrator, 2009-2011

Teaching / Supervision

PhD students:

- Tanja Mueller (current DPhil candidate - *main supervisor,* Oxford)
- Dr. Campbell Le Heron (3rd year Dphil, *Co-supervisor,* Oxford)

Selected past MSc students:

- Dr. Robin Green (MSc student at RHUL. Now a fellow at University of Leicester)
- Dr. Vivien Ainley (MSc student at RHUL. Now a postdoc at Royal Holloway)
- Dr. Erman Misirlisoy, (MSc Student at RHUL; PhD awarded from UCL; now Lead Scientist at Peak)
- Laura Grima (MSc student at Oxford, now a PhD student at University of Oxford)

- Psychology, Biomedical sciences and Medical undergraduate student projects (>10)

***Postgraduate and undergraduate teaching*:**

- Teaching and learning training courses (2016)
- 'Learning in the Brain: Dopamine, Reward and Reinforcement', 2nd year Brain and Behaviour Lecture, Psychology BSc. (2011-2014)
- 'The Primate Brain: Structural Anatomy', Lecture, Human Neuroscience MSc. (2010)
- 'The Social Brain', Lecture, Human Neuroscience MSc. (2010)
- 'Social Neuroscience Techniques', Lecture, Applied Social Psychology MSc. (2010)
- MSc./BSc. Neuroanatomy practical (3rd year, post-mortem tissue demonstration; 2009-2012)
- 'How to use Linux and MATLAB' tutorial (2010)
- 'Preprocessing and General Linear Model Analysis in SPM' tutorial, 3rd year (2010)
- 'Dynamic Causal Modelling for fMRI: Theory and Practice' tutorial, 3rd year (2010)
- Statistics Tuition, 2nd Year Undergraduate statistical theory and SPSS training (2007-2008)

Publications
Under Review

Apps, M.A.J.**, Chong, T-J. T.**, Blake, A., Giehl, K., Grima, L., & Husain, M. (under revision). Neural mechanisms of subjective motivation of effort costs. ***** *equal contributors*

Apps, M.A.J., & Ramnani, N. (under revision). Medial prefrontal contributions to subjective and normative economic decision-making.

Ang., Y., Lockwood, P.L., Muhammed, K., **Apps, M.A.J.,** Husain, M., (under review). Distinct subtypes of apathy in healthy people: introducing the apathy-motivation index.

2016

Apps, M.A.J, Rushworth, M.F.S., Chang, S.W.C. (2016). The anterior cingulate gyrus and social cognition: tracking the motivation of others. *Neuron.* ***IF = 15.77;*** *Altmetric: 83 – top 2% of all papers.*

Balsters, J.H., **Apps, M.A.J.,** Bolis, D., Lehner, R., Gallagher, l., & Wenderoth, N. (in press). Social prediction error deficits in the autism spectrum. *Brain*

Lockwood, P.L., **Apps M.A.J.**, Valton, V., Roiser, J., & Viding, E. (2016). Neurocomputational mechanisms of prosocial learning. *Proceedings of the National Academy of Sciences.* ***IF = 9.42;*** *Altmetric: 305 – top 1% of all papers*

Ainley, V., **Apps, M.A.J.,** Fotopolou, A., & Tsakiris, M. (in press) 'Bodily Precision': A Predictive Coding Account of Individual Differences in the Interoceptive Accuracy. *Philosophical Transactions of the Royal Society Biological Sciences B.* ***IF = 7.33***

Farmer, H., **Apps, M.A.J.,** & Tsakiris, M. (2016). Reputation in an Economic Game Modulates Premotor Cortex Activity during Action Observation. *European Journal of Neuroscience.* ***IF = 3.75***

Balsters, J.H., Mantini, D., **Apps, M.A**., Eickhoff, S., Wenderoth, N. (2016). Connectivity-based parcellation increases network detection sensitivity in resting state fMRI: An investigation into the cingulate cortex in autism. *Neuroimage: Clinical.* ***IF = 2.5;*** *Altmetric: 16 – top 10% of all papers.*

2015

Apps, M.A.J., Lesage, E., & Ramnani, N. (2015) Vicarious Reinforcement Learning Signals When Instructing Others. *Journal of Neuroscience.* ***IF = 6.3;*** *Altmetric: 58 – top 2% of all papers.*

Apps, M.A.J., Grima, L., Manohar, S., & Husain, M. (2015). The role of cognitive effort in subjective reward devaluation and risky decision-making. *Scientific Reports****. IF = 5.6.*** *Altmetric: 30 – top 3% of all papers.*

Manohar, S., Chong, T., **Apps M.A.J**., Batla A., Stamelou M., Jarman PR., Bhatia KP., & Husain, M. (2015). Reward Pays the Cost of Noise Reduction in Motor and Cognitive Control. *Current Biology.*
IF = 9.6*; Altmetric: 35 – top 3% of all papers.*

Lockwood, P.L., **Apps M.A.J.**, Roiser, J., & Viding, E. (2015) Encoding of vicarious reward prediction in anterior cingulate cortex and relationship with trait empathy. *Journal of Neuroscience.* ***IF = 6.3.*** *Altmetric: 141 – top 1% of all papers.*

Ang, Y-S., Manohar, S. & **Apps, M.A.J.** (2015). Commentary: Noradrenaline and Dopamine Neurons in the Reward/Effort Trade-off: A Direct Electrophysiological Comparison in Behaving Monkeys. *Frontiers in Behavioural Neuroscience.* ***IF = 3.3****. Altmetric: 13 – top 8% of all papers.*

2014

Apps M.A.J., & Ramnani, N. (2014). The anterior cingulate gyrus signals the net-value of others' rewards. *Journal of Neuroscience.* ***IF = 6.3****; Altmetric: 29 – top 4% of all papers.*

Apps, M.A.J. & Tsakiris, M (2014). The free-energy self: A predictive coding account of self-recognition. *Neuroscience and Biobehavioural Reviews.* ***IF = 9.4****; Altmetric: 6 – top 16%.*

2013

Apps, M.A.J. & Tsakiris, M. (2013). Predictive codes of familiarity and context during the perceptual learning of facial identities. *Nature Communications, 4.* ***IF = 11.5****; Altmetric: 51 – top 2%.*

Apps, M. A. J. , Tajadura-Jiménez, A. , Sereno, M., Blanke, O., & Tsakiris, M. (2013). Plasticity in unimodal and multimodal brain areas reflects multisensory changes in self-face identification. *Cerebral Cortex* ***IF = 8.7****; Altmetric: 11 – top 8% of all papers.*

Apps M.A.J., Lockwood, P.L. & Balsters, J.H. (2013). The role of the midcingulate cortex in monitoring others' decisions. *Frontiers in Neuroscience. IF = 3.7; Altmetric: 40 – top 3% of all papers.*

Apps, M.A.J., Green, R., & Ramnani, N. (2013). Reinforcement learning signals in the anterior cingulate cortex code for others' false beliefs. *Neuroimage.* ***IF = 6.3****; Altmetric: 6 – top 15%*

2012

Apps, M.A.J., Tajadura-Jimenez, A., Turley, G,. & Tsakiris, M. (2012). The different faces of one's self: an fMRI study into the recognition of current and past self-facial appearances. *Neuroimage.*
IF = 6.3*; Altmetric: 2 – top 50% of all papers.*

Apps, M.A.J., Balsters, J. H., & Ramnani, N. (2012). The Anterior Cingulate Cortex: Monitoring the outcomes of others' decisions. *Social Neuroscience.* ***IF = 2.7****; Altmetric: 7 – top 15%*

2010

Lesage E., **Apps, M. A. J**., Hayter, A. L., Beckmann, C. F., Barnes, D., Langdon, D. W., & Ramnani, N. (2010). Cerebellar Information Processing In Relapsing-Remitting Multiple Sclerosis (RRMS). *Behavioural Neurology*. ***IF = 1.5.***

In preparation

Apps, M.A.J.,* Mckay, R.,* Azvedo, R., Tsakiris, M.,* & Whitehouse, H.,* (in prep). Medial prefrontal cortex contributions ingroup unfairness. **** equal contributors***

Lockwood, P.L., Hamonet, M., Ratnavel, A., Salmony, F., Husain, M*., **Apps, M.A.J.*** (in prep). Prosocial Motivation: Hypo-altruism for exerting effort. **** equal contributors***