

# MaryAnn P. Noonan

St. John's College, St Giles, University of Oxford, UK, OX1 3JP  
 Department of Experimental Psychology, University of Oxford, UK, OX1 3PH

Email: [maryann.noonan@psy.ox.ac.uk](mailto:maryann.noonan@psy.ox.ac.uk) Website: XXX

## Professional Experience

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2015-Present	Supernumerary Teaching Fellow, St. John's College, University of Oxford, UK.
2013-2014	Postdoctoral Research Fellow, OHBA, University of Oxford, UK.
2012	Jeanne Timmins Costello Postdoctoral Fellow, McGill University, MNI hospital, Canada.
2010-2011	MRI Laboratory manager, Biomedical Services, University of Oxford, UK.
2010-2011	Wellcome Trust Value in People postdoctoral researcher, University of Oxford, UK.
2004-2006	Research Assistant, Supervisor: G. Gaskell, University of York.
2003-2004	Research Assistant, Department of Psychology, University of York.

## Education

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2007-2010	D.Phil. in Cognitive Neuroscience, University of Oxford, UK. <u>Supervisor:</u> Professor Matthew Rushworth
2006-2007	M.Sc. in Neuroscience, University of Oxford, UK.
2003-2006	B.Sc. Psychology (Hons) 1 <sup>st</sup> Class, University of York, UK.

## Awards, Honours and Grants

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2018	Academy of Medical Sciences, Springboard award, £99,702.98
2017	St John's Small research grant, £4000
2017	OUSU Outstanding Tutor Award in the Medical Sciences
2015	British Academy/Leverhulme, £7830
2013	Brain Travel Grant: SFN, San Diego. Press conference speaker and poster presentations, £800
2012	Brain Travel Grant: SFN, New Orleans. Invited nano-symposium speaker, £800
2012	Jeanne Timmins Costello Postdoctoral Fellowship, \$40,000 CAD
2010	Wellcome Value in People postdoctoral award, £16,750.25
2010	Keble Association Grant: Human Brain Mapping Conference, Barcelona.
2010	"Reward and Decision-Making in the Brain" conference travel grant, Jerusalem.
2009	Brain Travel Grant: SFN, Chicago. Invited nano-symposium speaker, £800
2009	Keble Association Grant: Human Brain Mapping Conference, San Francisco.
2006	Wellcome Trust 4-year studentship: University of Oxford, £141,236 with £151,155 animal costs
2006	MRC summer studentship, Cognition and Brain Sciences Unit, University of Cambridge, £2058.64
2005	Departmental summer studentship, Department of Psychology, University of York, £900

## Publications in Peer Review Journals

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(\* authors contributed equally to this work)

Noonan, M. P., Mars, R.B., Sallet, J., Dunbar, R.B.M., & Fellows, L.K. (2018). The structural and functional brain networks that support human social networks. *Behavioural Brain Research*, 14(355), 12-23.

- Noonan, M. P., Crittenden, B., Jensen, O., & Stokes, M. (2017). Selective inhibition of distracting input. *Behavioural Brain Research*, *14*(355), 36-47.
- Noonan, M. P., Chau, B., Rushworth, M.F.S., Fellows, L.K. (2017) Contrasting effects of medial and lateral orbitofrontal cortex lesions on credit assignment and decision making in humans. *Journal of Neuroscience*, *37*(29), 7023-7035.
- Noonan, M. P., Crittenden, B., Adamian, N., Printzlau, F., Pike, A., Horst, A. L., & Stokes, M. G. (2016). Distinct mechanisms for distractor suppression and target facilitation. *Journal of Neuroscience*, *36*(6), 1797-1807.
- Mars, R. B., Foxley, S., Verhagen, L., Jbabdi, S., Sallet, J., Noonan, M. P., ... & Khrapitchev, A. A. (2016). The extreme capsule fiber complex in humans and macaque monkeys: a comparative diffusion MRI tractography study. *Brain Structure and Function*, *221*(8), 4059-4071.
- Chau, B. K., Sallet, J., Papageorgiou, G. K., Noonan, M. P., Bell, A. H., Walton, M. E., & Rushworth, M. F. (2015). Contrasting roles for orbitofrontal cortex and amygdala in credit assignment and learning in macaques. *Neuron*, *87*(5), 1106-1118.
- Petitot, P.\*, Noonan, M. P.\*, Bridge, H., O'Reilly, J. X., & O'Shea, J. (2015). Testing the inter-hemispheric competition account of visual extinction with combined TMS/fMRI. *Neuropsychologia*, *74*, 63-73.
- Noonan, M. P.\*, Sallet, J.\*, Mars, R. B.\*, Neubert, F. X., O'Reilly, J. X., Anderson, J. L., Mitchell, A. S., Bell, A. H., Miller, K. L., & Rushworth, M. F. S. (2014). A neural circuit covarying with social hierarchy in macaque. *PLoS Biology*, *12*(9), e1001940.
- O'Reilly, J. X., Croxson, P. L., Jbabdi, S., Sallet, J., Noonan, M. P., Mars, R. B., ... & Rushworth, M. F. (2013). Causal effect of disconnection lesions on interhemispheric functional connectivity in rhesus monkeys. *PNAS*, *110*(34), 13982-13987.
- Sallet, J., Mars, R. B., Noonan, M. P., Neubert, F. X., Jbabdi, S., O'Reilly, J. X., ... & Rushworth, M. F. (2013). The organization of dorsal frontal cortex in humans and macaques. *Journal of Neuroscience*, *33*(30), 12255-12274.
- Mars, R.B., Neubert, F.X., Noonan, M.P., Sallet, J., Toni, I., & Rushworth, M.F.S. (2012). On the relationship between the 'default mode network' and the 'social brain'. *Frontiers in Human Neuroscience*, *6*, 189.
- Noonan, M. P., Kolling, N., Walton, M. E., & Rushworth, M. F. S. (2012). Re-evaluating the role of the orbitofrontal cortex in reward and reinforcement. *European Journal of Neuroscience*, *35*(7), 997-1010.
- Sallet, J.\*, Mars, R. B.\*, Noonan, M. P.\*, Andersson, J. L., O'reilly, J. X., Jbabdi, S., ... & Rushworth, M. F. (2011). Social network size affects neural circuits in macaques. *Science*, *334*(6056), 697-700.
- Noonan, M. P., Mars, R. B., & Rushworth, M. F. S. (2011). Distinct roles of three frontal cortical areas in reward-guided behavior. *Journal of Neuroscience*, *31*(40), 14399-14412.
- Walton, M. E., Behrens, T. E., Noonan, M. P., & Rushworth, M. F. (2011). Giving credit where credit is due: orbitofrontal cortex and valuation in an uncertain world. *Annals of the New York Academy of Sciences*, *1239*(1), 14-24.
- Rushworth, M. F., Noonan, M. P., Boorman, E. D., Walton, M. E., & Behrens, T. E. (2011). Frontal cortex and reward-guided learning and decision-making. *Neuron*, *70*(6), 1054-1069.
- Mars, R. B., Jbabdi, S., Sallet, J., O'Reilly, J. X., Croxson, P. L., Olivier, E., Noonan, M. P., ... & Behrens, T. E. (2011). Diffusion-weighted imaging tractography-based parcellation of the human parietal cortex and comparison with human and macaque resting-state functional connectivity. *Journal of Neuroscience*, *31*(11), 4087-4100.
- Noonan, M. P., Walton, M. E., Behrens, T. E., Sallet, J., Buckley, M. J. & Rushworth, M. F. S. (2010). Separate value comparison and learning mechanisms in macaque medial and lateral orbitofrontal cortex. *PNAS* *107*(47):20547.
- Noonan, M. P., Sallet, J., Rudebeck, P. H., Buckley, M. J., & Rushworth, M. F. (2010). Does the medial orbitofrontal cortex have a role in social valuation? *European Journal of Neuroscience*, *31*(12), 2341-2351.

Manly, T., Dove, A., Blows, S., George, M., Noonan, M. P., Teasdale, T. W., Dodds, C. M., Fish, J., & Warburton, E. (2009). Assessment of unilateral spatial neglect: scoring star cancellation performance from video recordings-method, reliability, benefits, and normative data. *Neuropsychology*, 23(4), 519.

### Book Chapters

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Boorman, E. B. & Noonan, M. P. (2011). Contributions of ventromedial prefrontal and frontal polar cortex to reinforcement learning and value-based choice. In Mars, R.B., Sallet, J., Rushworth, M.F.S. and Young, N (Eds.), *Neural basis of Motivation and Cognitive Control* (pp. 55-74). Cambridge, MA: MIT press.

Noonan, M. P.\*, Mars, R. B.\*, Neubert, F. X., Ahmed, B., Smith, J., Krug, K., & Sallet, J.\* (2016). Organisation of the social brain in macaques and humans. In Dreher, J. C. & Tremblay, L. (Eds.), *Decision Neuroscience* (pp. 185-196). Academic Press, Elsevier.

### Invited Research Talks

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#### *International and National Meetings*

- 2016 Cognitive Neuroscience Society, Data Blitz, New York.
- 2012 Society for Neuroscience, Nano-symposium, New Orleans.
- 2009 Society for Neuroscience, Nano-symposium, Chicago.

#### *University Seminars and Smaller Workshops*

- 2017 Neuroscience Seminar, Department of Experimental Psychology, University of Oxford.
- 2017 Byrant Society, St John's College, Oxford.
- 2016 Departmental Seminar, University of York.
- 2016 The Feindel Brain Imaging Lecture Series @ The Brain Imaging Centre, McGill University, Canada.
- 2016 Departmental Seminar, Mont Sinai, New York.
- 2015 MEG Meeting, FIL, University College London.
- 2015 Byrant Society, St John's College, Oxford.
- 2012 Departmental Seminar, The Brain Imaging Centre, McGill University, Canada
- 2011 Graduate Discussion, Keble College, University of Oxford
- 2010 University of Zurich
- 2009 Early career DPhil talk, Department of Experimental Psychology, University of Oxford
- 2008 Graduate Discussion, Keble College, University of Oxford

### Selected Conference Posters

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#### *(First and last author only)*

Noonan MP, Bauer Y, Von Lutz A, Summerfield C & Stokes MG (2017). Distractor suppression varies with expectation. Cognitive Neuroscience Society, San Francisco.

Noonan MP, Bauer Y, Von Lutz A, Summerfield C & Stokes MG (2016). Differential modulation of visual responses by distractor or target predictions, MEG UK York, Cognitive Neuroscience Society New York, and Motivation and Cognitive Control Workshop St Andrews.

Noonan MP, Adamian N, Pike A, Printzlau F, Crittenden B, Stokes MG (2015). Distinct mechanisms for distractor suppression and target facilitation. Society for Neuroscience, Chicago.

Noonan MP, Mars RB, Sallet J, Dunbar RIM, Rushworth MFS & Fellows LK (2013). Structural and functional brain networks relating to social network size in humans. Society for Neuroscience, San Diego.

Noonan MP (2013). How Many Friends Can A Brain Handle? Extensive brain network underlies more extensive social networks. Social Ladders Press Conference Society for Neuroscience, San Diego.

Stokes MG, Crittenden B, Adamian N, [Noonan MP](#) (2013). The role of sensory expectation in working memory-based decision making. Society for Neuroscience, San Diego

[Noonan MP](#), Mars RB & Rushworth MFS (2010). Distinct Roles of Three Frontal Cortical Areas in Reward-Guided Behavior. Human Brain Mapping Conference, Barcelona.

### Impact and Media Interest

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Noonan MP, Mars RB, Sallet J, Dunbar RBM & Fellows, LK (submitted). The structural and functional brain networks that support human social networks.

SFN press release: <https://www.sfn.org/Press-Room/News-Release-Archives/2013/NEW-LINKS-BETWEEN-SOCIAL-STATUS-AND-BRAIN-ACTIVITY>

Scientific American: <https://www.scientificamerican.com/article/how-many-friends-can-your-brain-handle/>

Independent: <http://www.independent.co.uk/news/science/sociable-people-have-bigger-brains-8937474.html>

Daily Mail: <http://www.dailymail.co.uk/health/article-2504591/How-sociable-boost-brain-Parts-organ-bigger-better-connected-people-lots-friends.html?ico=health%5emostread>

Noonan MP,\* Sallet J,\* Mars RB,\* Neubert FX, O'Reilly JX, Anderson JL, Mitchell AS, Bell AH, Miller KL, & Rushworth MFS (2014). A neural circuit covarying with social hierarchy in macaque. *PLoS Biology*, 12(9), e1001940.

BBC News: <http://www.bbc.co.uk/news/science-environment-29013592>

BBC Radio Oxford: <http://www.bbc.co.uk/programmes/p0255dlx>

BBC Radio Scotland: <http://www.bbc.co.uk/programmes/b04g146z>

Newsweek: <http://europe.newsweek.com/social-status-changes-monkey-brains-study-says-268025?rm=eu>

Medical Daily: <http://www.medicaldaily.com/social-status-and-alpha-male-traits-may-be-influenced-size-key-brain-regions-300808>

ScienceDaily:

[https://www.sciencedaily.com/releases/2014/09/140902144201.htm?utm\\_source=feedburner&utm\\_medium=feed&utm\\_campaign=Feed%3A+sciencedaily%2Fmind\\_brain%2Frelationships+\(Relationships+News+---+ScienceDaily\)](https://www.sciencedaily.com/releases/2014/09/140902144201.htm?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+sciencedaily%2Fmind_brain%2Frelationships+(Relationships+News+---+ScienceDaily))

Huffington Post: [http://www.huffingtonpost.co.uk/-frontier/born-to-lead-monkey-brains\\_b\\_6461558.html](http://www.huffingtonpost.co.uk/-frontier/born-to-lead-monkey-brains_b_6461558.html)

Oxford University press release: <http://www.ox.ac.uk/news/2014-09-03-brain-link-primacy-primates>

Sallet J,\* Mars RB,\* Noonan MP,\* Andersson J, O'Reilly JX, Jbabdi S, Croxson PL, Miller KL, Jenkinson M & Rushworth MFS (2011). Social network size affects neural circuits in macaques. *Science*, 334, 697.

Science podcast: <http://science.sciencemag.org/content/suppl/2011/11/03/334.6056.697.DC2>

The World interview: <http://www.pri.org/stories/2011-11-03/study-bigger-your-social-network-bigger-your-brain>

Scientific American: <https://www.scientificamerican.com/article/your-brain-on-facebook/>  
livemint.com: <http://www.livemint.com/Opinion/lzDX4kBcNRHsOf7W6NnS5N/It-makes-sense-to-network.html>

Daily Mail: <http://www.dailymail.co.uk/news/article-2057440/As-social-network-grows-does-brain.html>

### Teaching & Supervision

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2018 Supervisor of three Experimental Psychology undergraduate project students in adolescent goal-directed behaviour.

- 2017 Supervisor of one Experimental undergraduate project student in the interaction of attentional control and reward-guided decision making.
- 2016 Supervisor of one and co-supervisor of one Experimental Psychology undergraduate project students in attention and reward-guided decision making.
- 2016 Co-lecturer in Psychology Advanced Options: Working Memory: The iconic beginnings to the dynamic future.
- 2015 Supervisor of two Experimental Psychology undergraduate project students in TMS and eye-tracking experiments.
- 2015 Supernumerary Teaching Fellow in Psychology at St. John's College  
Prelims: Perception, Psychobiology, Cognitive Psychology  
Part Is: Cognitive Neuroscience, Behavioural Neuroscience  
Medical Sciences FHS: Paper 1 Sensorimotor integration, Paper 3, Paper 2.
- 2014 Tutor for Christ Church College: Prelims, Introduction to Psychology.
- 2013-2014 Co-supervisor of two Experimental Psychology undergraduate project students.
- 2013-2015 Tutor in Psychology Advanced Options: Working Memory: The iconic beginnings to the dynamic future (Dr. M. Stokes).
- 2013 Co-supervision of an M.Sc. in research methods project student.
- 2008 Tutor in Cognitive Psychology for International student, University of Oxford.
- 2008-2010, 2013 Teaching assistant for Graduate Program Imaging and Experimental Design, FMRIB, University of Oxford.
- 2007-2010 Lab demonstrator in undergraduate Neuroanatomy, University of Oxford, UK.

### **Outreach and Development**

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- 2018 iF Oxford Science Festival: Decision Game
- 2017 UNIQ summer school tutorial in Psychology
- 2017 Mansfield college: FE & SFC Open Day
- 2017 National History museum
- 2017 Academic Session on Pathways Study Days: Cognitive Psychology's guide to exam revision: strategies for encoding long term memories
- 2015 Early academic careers talks for Springboard
- 2015 Early academic careers talks for career services
- 2014 Post-MSc in Neuroscience career talk

### **Additional Skills and Information**

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#### Reviewing and editing responsibilities

Journals: Journal of Neuroscience, Social Neuroscience, Brain, Cortex, Human Brain Mapping, Neuroimage, Neuropsychological, Frontiers.

Grant proposals: Agence Nationale de la recherche (ANR).

Books: Neural Basis of Motivation and Cognitive Control, Eds Mars, RB., Sallet, J. Rushworth, MFS. and Yeung, N.

#### Conference organization

Co-organizer of the symposium 'Motivational and cognitive control', Oxford, United Kingdom, June 2-4th, 2010 (Mars, RB. Sallet, J. Rushworth, MFS. and Yeung, N.).

#### Professional memberships

Society for Neuroscience; Organization for Human Brain Mapping, Cognitive Neuroscience Society