University of Birmingham

Professor Chris Miall BSc, DIC, PhD, ARCS

Professor of Motor Neuroscience
College Director of Research

School of Psychology (/schools/psychology/index.aspx)

Contact details

Telephone **+44 (0)121 41 42867 (tel:+44 121 41 42867)**

Email **r.c.miall@bham.ac.uk (mailto:r.c.miall@bham.ac.uk)**

School of Psychology
University of Birmingham
Edgbaston
Birmingham
B15 2TT
UK

About

Professor Miall has been studying sensory motor control for about 30 years, from his PhD in locusts, to crayfish, primates and for most of the 15 years, working on human motor control. He is particularly interested in the role of the cerebellum, in motor learning and in predictive control.

His research team website is: **http://prism.bham.ac.uk/index.html (http://prism.bham.ac.uk/index.html)**

Qualifications

- B.Sc. (Imperial, London, 1977)
- Ph.D. (Imperial, London, 1980)

Biography

Professor Miall has been studying sensory motor control for about 30 years. His PhD was a mix of behavioural studies and developmental endocrinology in locusts, with John Moorhouse at Imperial College London. He started off his post-doctoral research in the electrophysiology of crayfish, working with Jim Larimer in Austin, Texas. He was then trained in signal analysis by Dick Kitney at Imperial College and worked on primate neurophysiology with John Stein at Oxford. In 1986 he studied flight control in locusts and dabbled in neural networks while at King's College Research Centre in Cambridge. And in 1989 he returned to Oxford, where he stayed untill 2004 when he moved to the Behavioural Brain Sciences Centre at the University of Birmingham. In 2006 he took over as Head of Psychology, and in 2013 became the Director of Research for the College of Life and Environmental Sciences.

Teaching

Professor Miall teaches a second year course on the Neural Control of Movement, and also teaches on the MSc in Brain Imaging and Cognitive Neuroscience, and the MSc in Computational Neuroscience and Cognitive Robotics.

Postgraduate supervision

Professor Miall is interested in supervising graduate students in topics related to sensory-motor control, motor learning and the function of the cerebellum. Students should be knowledgeable about neuroscience, and interested in quantitative analysis of behaviour.

FindAPhD listings:
http://tinyurl.com/6jxjthz (http://tinyurl.com/6jxjthz)
http://tinyurl.com/6cqms5 (http://tinyurl.com/6cqms59)

Research

Professor Miall's research focuses on motor learning and motor coordination, usually in visually guided actions (such as tracking of moving objects, or using a computer mouse). Much of his recent work has been directed towards questions of predictive knowledge and predictive control, and how these issues reflect on the use of 'internal models' in the nervous system. His team are using tests of human motor psychophysics, with functional MRI and TMS as brain mapping techniques.

He iis current funded by:

- Wellcome Trust programme grant
- EU FP7-ITN & FP7-STREP
- MRC
- BBSRC
- MRC-ARUK
- Royal Society grants

His research team website is: **http://prism.bham.ac.uk/index.html (http://prism.bham.ac.uk/index.html)**

He is a member of the Centre for Computational Neuroscience and Cognitive Robotics (CNCR)

Other activities

Professor Miall is on the board of the Society for the Neural Control of Movement, is a member of the Society for Research on the Cerebellum, of the British Neuroscience Association and of the Society for Neuroscience.

Publications

Some recent papers (see http://prism.bham.ac.uk/prism_files/Research_papers.html for full list)

1. Sami S, Robertson EM, **Miall RC** The time course of task-specific memory consolidation effects in resting state networks. *J Neuroscience (in press)*
2. Tchalenko J, Nam S-H, Moshe & **Miall RC** (2013) The Gaze-Shift Strategy in Drawing*(in press) Psychology of Aesthetics, Creativity, and the Arts*
3. Caligiore D, Pezzulo G, Baldassarre G, **Miall RC** (2013) The contribution of brain sub-cortical loops in the expression and acquisition of action understanding abilities. *Neurosicence and Biobehavioural Reviews, (in press).*
4. Grimaldi G, Argyropoulos GP, Boehringer A, Celnik P, Edwards MJ, Ferrucci R, Galea JM, Groiss SJ, Hiraoka K, Kassavetis P, Lesage E, Manto M, **Miall RC**, Priori A, Sadnicka A, Ugawa Y, Ziemann U. (2013) Non-invasive cerebellar stimulation – A consensus paper. *Cerebellum, in press.*
5. Sami S, **Miall RC** (2013) Graph network analysis of immediate motor-learning induced changes in resting state BOLD. *Frontiers in Human Neuroscience 7:166. doi: 10.3389/fnhum.2013.00166*
6. Hardwick R, Rottschy C, **Miall RC** & Eickhoff SB (2013), A quantitative meta-analysis and review of motor learning in the human brain. *NeuroImage* 67, 283-297.
7. Lesage E, Morgan BE, Olson AC, Meyer AS & **Miall RC** (2012). Cerebellar rTMS disrupts predictive language processing. *Current Biology*, 22: R794.
8. Nazarpour K, Ethier C, Paninski L, Rebesco JM, **Miall RC** & Miller LE. (2012) EMG prediction from motor cortical recordings via a non-negative point process filter *IEEE Trans. Biomed. Eng, 59:* 1829:1838.
9. Pope P & **Miall RC** (2012) Task-specific facilitation of cognition by cathodal transcranial direct current stimulation of the cerebellum. *Brain Stimulation 5:* 84-94.
10. Rawle C, **Miall RC** & Praamstra P (2012) Fronto-parietal theta activity supports behavioral decisions in movement-target selection. *Frontiers in Human Neuroscience, 6:* #138: 1-11
11. Thomaschke R, Hopkins B, **Miall RC** (2012) The Planning and Control Model (PCM) of motorvisual priming: Reconciling motorvisual impairment and facilitation effects *Psych Review 119,* 388-407.
12. Balslev D, Jackson CPT & **Miall RC** (2011) Decreased visual attention further from the perceived direction of gaze for equidistant retinal targets. *J Cog Neurosci.* 23(3):661-669.
13. Balslev D, Albert NB & **Miall RC** (2011) Eye muscle proprioception is represented bilaterally in the sensorimotor cortex. *Human Brain Mapping: 32(4),* 624-631.
14. Pope P, **Miall RC** (2011) How might the cerebellum participate in motor control, if life without one is possible? *ACNR, 10:* 16-18.
15. Praamstra P, Torney L, Rawle C, **Miall RC** (2011) Misconceptions about mirror-induced motor cortex activation. *Cerebral Cortex: 21,*1935-1940.
16. Thomaschke R, Hopkins B, **Miall RC** (2011) The role of cue-response mapping in motorvisual impairment and facilitation: Evidence for different roles of action planning and action control in motorvisual dual-task priming. *J Exp Psychology-HPP 38,* 336-349.
17. Albert NB, Peris Y, Cohen G, **Miall RC**, Praamstra P (2010) Interference effects from observed movement in Parkinson's disease. *J Motor Behavior 42:*145-149.
18. Galea J, Albert N, Sami S & **Miall RC** (2010) Secondary tasks impair adaptation to step and gradual visual displacements. *Exp Brain Res 202:* 473-484.
19. Jackson CPT, **Miall** RC (2010) Illusory force perception following a voluntary limb movement. *NeuroReport 21:* 675-679.
20. Jackson CPT, Balslev D, **Miall RC** (2010) Spatially valid proprioceptive cues improve the detection of a visual stimulus. *Exp Brain Res 205:* 31–40.
21. Jenkinson E. & **Miall RC** (2010) Disruption of saccadic adaptation with repetitive transcranial magnetic stimulation of the posterior cerebellum in the human. *Cerebellum, 9(4):* 548-555.
22. Stanley J, Gowen E, **Miall RC** (2010) How instructions modify perception: an fMRI study investigating brain areas involved in attributing human agency. *NeuroImage 52:* 389-400.
23. Welchman AE, Stanley J, Schomers MR, **Miall RC**, Bulthoff HH (2010) The quick and the dead: when reaction beats intention. *Proc R Soc B, 277:* 1667-1674.

Expertise

How the human brain controls movement; how we learn and adapt our movements; visual guided movement; use of brain imaging, brain stimulation and movement recording methods, in normal people and in patients with movement disorders

Related media experts

- **Professor Stephen Wood (/staff/profiles/psychology/wood-stephen.aspx)**

Alternative contact number available for this expert: **contact the press office (http://www.birmingham.ac.uk/news/contacts/index.aspx)**

© University of Birmingham 2015