

COGNITIVE NEUROSCIENCE AT THE MRC COGNITION & BRAIN SCIENCES UNIT

**OCTOBER 2012
PhD positions**

What we offer

- Fully funded MRC studentships
- Independently funded applications also welcomed
- Full College and University of Cambridge membership
- In-house MEG, fMRI and EEG facilities
- Purpose-built behavioural testing laboratories
- Further clinical fMRI facilities at the Wolfson Brain Imaging Centre
- Panels of both clinical and non-clinical research volunteers
- Superb computing provisions, plus administrative and technical support

Our Research

Executive Processes

Duncan Astle:

The development of the neural mechanisms of top-down control during childhood, using MEG and EEG, and the implications of this development for subsequent academic performance.

Tristan Bekinschtein:

Neural mechanisms of conscious and unconscious processes in sleep, anaesthesia and its transitions from wakefulness. Emotion, decision-making and language processing in patients with disorders of consciousness. Attention and conscious modulation of learning and memory. Hd-EEG, EEG-fMRI and intracranial recordings.

John Duncan:

Selective attention from behavioural to cellular levels; action planning, frontal lobe function and intelligence; integration of cognitive and brain functions.

Susan Gathercole:

Working memory and executive functions; developmental and acquired disorders of cognition and learning; cognitive training.

Joni Holmes

Working memory and executive functions in children; cognitive training.

Tom Manly:

The cognitive neuropsychology of adult acquired attentional and executive disorders; attentional/executive function in children; neuropsychological rehabilitation.

James Rowe:

The relationship between motor and cognitive processes in healthy subjects and neurodegenerative disease; overlap between disorders of movement and cognition; functional changes associated with disease; assessment of potential surrogate indices of the efficacy of candidate therapies; cognitive architecture for response selection and voluntary action; fMRI, PET, rTMS and MEG.

Methods

Neuroimaging forms a key part of the Unit's endeavour, with a number of imaging modalities in regular use. Projects are available for those who wish to work on the methods that permit measurement of brain structure and function. Potential supervisors include Olaf Hauk, Rik Henson, Niko Kriegeskorte, James Rowe, Yury Shtyrov.

Speech, Language & Hearing

Bob Carlyon:

Hearing; perceptual segregation of concurrent sounds; grouping and streaming; effects of attention on auditory perception; pitch perception; hearing by cochlear implantees.

Matt Davis:

Neuro-anatomical and computational accounts of language comprehension; spoken and written word recognition; connectionist modelling; fMRI.

John Deeks:

Hearing - pitch perception; speech recognition; auditory grouping and segregation. Hearing through a cochlear implant - pitch of sounds; speech processing strategies.

Olaf Hauk:

EEG/MEG, fMRI and eye-tracking in reading and arithmetics; methods development for EEG/MEG analysis and multi-modal integration; linking computational modelling and neuroimaging.

Yury Shtyrov:

Neural mechanisms and time course of spoken language processing in the brain, particularly lexical, semantic and morpho-syntactic processes; automaticity and attention control in language comprehension; word learning and memory trace formation; linguistic processes in the malfunctioning brain.

Emotion

Andy Calder:

Cognitive and fMRI studies of face perception in healthy and clinical populations; adolescent disorders of aggression and antisocial behaviour.

Tim Dalgleish:

Experimental investigation of cognition-emotion relationships; post-traumatic stress; functional theoretical modelling of emotions; depression.

Barney Dunn:

Different forms of emotion regulation in adult psychopathology, particularly looking at depression, post traumatic stress disorder and borderline personality disorder.

Memory & Perception

Mike Anderson:

Memory, cognitive control, and their interaction, from behavioural to neural levels; mechanisms of mnemonic attention and inhibitory control; incidental and motivated forgetting; controlling unwanted memories of trauma.

Rik Henson:

Neural bases of recognition memory, episodic memory, priming, face and object perception using fMRI, EEG, computational modelling, statistical modelling and methods for multimodal integration.

Niko Kriegeskorte:

Higher-level visual object representations, investigated using fMRI in conjunction with novel pattern-information and representational similarity analysis as well as computational modelling.

Dennis Norris:

Psycholinguistics; visual and spoken word recognition; short-term memory; computational modelling.

How do I apply?

Application information and further details on our research can be found by visiting our website at:

<http://www.mrc-cbu.cam.ac.uk/>

Closing date for studentship applications:

**1ST DECEMBER
2011**