

2014/15 CIMeC PhD Colloquia

LIST

06/11/2014 (New PhD Cohort Welcome) **Terry E. Robinson** (*Elliot S. Valenstein Distinguished University Professor of Psychology & Neuroscience, The University of Michigan, Ann Arbor, MI (USA)*) Title: Individual Variation in Resisting Temptation: Implications For Addiction

1/12/2014 **Floris de Lange** (*Principal Investigator, Donders Institute for Brain, Cognition and Behavior, Radboud University Nijmegen, Netherlands*) Title: "How do prior expectations change sensory processing?"

5/12/2014 (Commencement) **Geoffrey M. Boynton** and **Ione Fine** (*Associate Professors, Department of Psychology, University of Washington, (USA)*) Title: "Thus in the beginning all the World was America." John Locke 2nd treatise.

27/02/2015 **Martijn Meeter** (*VU University Amsterdam*) Title: It's all priming: A new perspective on visual search

29/04/2015 **Flavio Dell' Acqua** (*King's College - London*) Title: Advanced models for diffusion imaging and tractography

29/05/2015 **Edwin Robertson** (*University of Glasgow - Institute of Neuroscience and Psychology*) Title: Flipping the switch to control memory consolidation

17/6/2015 **Norimichi Kitagawa** (*NTT Communication Science Laboratories*) Title: Body-related sounds can affect tactile perception, body representation, and preference toward sounds.

11/9/2015 **Ruth M. Krebs** (*Dept. of Experimental Psychology, Ghent University, Belgium*) Title: Effects of reward cues and rewarded targets in cognitive-control tasks

11/9/2015 **C. Nico Boehler** (*Dept. of Experimental Psychology, Ghent University, Belgium*) Title: Attention and (in)action (and reward): attentional input gating in proactive response inhibition

DETAIL

Feb

Speaker: **Martijn Meeter, Ph.D.**, (*VU University Amsterdam*)

Date and time: Friday, February 27, 3:00 p.m. [3rd floor seminar room](#)

Title: **It's all priming: A new perspective on visual search**

For more than two decades, a debate has been raging in the literature on whether visual selection is driven mostly by bottom-up factors, or by top-down goals. Recently, it has been argued that there is a third factor driving selection, namely prior selection history. Indeed, it has been known already for quite some time that visual search is speeded when target identity or location match those in previous trials, a phenomenon known as Priming of Popout (PoP). Here I will argue that priming is far more pervasive than usually thought, to the extent that we may have to start viewing top-down and bottom up guidance as appendages to priming instead of the other way round. I will give an overview of our work on priming, and then concentrate on a remaining question: if attentional selection is dominated by priming, how can it nonetheless appear flexible and responsive to task demands?

Host: Clayton Hickey

April

Speaker: **Flavio Dell' Acqua** (*King's College - London*), MR research engineer and lecturer at *The Department of Neuroimaging at King's College London - Institute of Psychiatry, Psychology and Neuroscience (IOPPN)*.

Date and time: Wednesday, April 29, 3:30 p.m. [3rd floor seminar room](#)

Title: **Advanced models for diffusion imaging and tractography**

Flavio's research focuses on the development of advanced Diffusion Imaging methods and their application to the study of the human brain connections during normal development as well as in neurological and psychiatric disorders. In particular, he is currently working on the implementation of new Tractography algorithms and Spherical Deconvolution methods based on High Angular Resolution Diffusion Imaging (HARDI) techniques.

Over the last 20 years diffusion imaging and tractography methods have improved our ability to probe non invasively the microstructural organisation of the living human brain and its connectivity. New models have allowed to overcome some of the limitations of the first generation of diffusion imaging methods but also introduced new issues and challenges that need to be taken into account when these approaches are used in clinical and research applications. In this talk, the current state of the art of diffusion imaging models for tractography applications will be presented together with a new type of tract specific diffusion indices. Applications of these methods will be discussed.

Host: Olivier Collignon/Stefania Benetti

29/05/2015 **Edwin Robertson** (*University of Glasgow - Institute of Neuroscience and Psychology*) Title: Flipping the switch to control memory consolidation

17/6/2015 **Norimichi Kitagawa** (*NTT Communication Science Laboratories*) Title: Body-related sounds can affect tactile perception, body representation, and preference toward sounds.

September

Speaker: **Ruth M. Krebs** (*Dept. of Experimental Psychology, Ghent University, Belgium*)

Date and time: Friday, September 11, 3:00 p.m. [3rd floor seminar room](#)

Title: **Effects of reward cues and rewarded targets in cognitive-control tasks**

While a globally energizing influence of extrinsic motivation has long been appreciated in psychological research, a series of more recent studies has described motivational influences on specific cognitive operations ranging from visual attention, to cognitive control, to memory formation. In the majority of these studies, a cue predicts the potential to win money in a subsequent task, thus allowing for modulations of proactive task preparation. Intriguingly, some recent studies have shown that similar performance benefits can be achieved by directly associating specific features of the target stimulus with reward, which abolishes the cue-based preparation phase, and hence classic proactive control strategies. A central question here is whether the behavioral benefits in such tasks (including rewarded conflict and response inhibition paradigms) rely on enhanced reactive control processes instead. The behavioral and neural data presented in this talk sketch a multifaceted picture, wherein reward-related performance modulations indeed seem to rely on rapidly-deployed reactive control processes, which are, however, accompanied by more low-level processing changes related to the saliency of the reward-related target. Intriguingly, while the low-level prioritization of task-compatible reward features benefits performance, it can impede performance when those salient features are incompatible with the current task goal, which is clearly in contrast to the solely beneficial preparatory mechanisms triggered by reward cues. From a

more general point of view, these observations suggest that reward information affects performance in cognitive-control tasks in diverse ways, depending on how exactly it is embedded in the task.

Speaker: **C. Nico Boehler** (*Dept. of Experimental Psychology, Ghent University, Belgium*)

Date and time: Friday, September 11, 3:45 p.m. [3rd floor seminar room](#)

Title: **Attention and (in)action (and reward): attentional input gating in proactive response inhibition**

Efficiently avoiding inappropriate actions in a changing environment is central to cognitive control. One mechanism contributing to this ability is deliberately slowing down responses in uncertain contexts, dubbed proactive inhibition. Although typically it is believed that this function relies on a core “response inhibition network” known to implement reactive stopping (e.g., in a Stop-signal task), some recent data also suggest that even relatively early attentional processes can affect the speed of the respective motor response. We have recently extended upon this line of research with variants of the Stop-signal task comparing EEG data from task blocks in which outright response inhibition might be required vs. not (study 1), or required in all task blocks, but related to reward in one but not the other (study 2). In order to access within-participant variability, we adopted a multi-level linear modelling approach that models the data in a timepoint-by-timepoint fashion and incorporates single-trial reaction time data. This approach allows for mapping the relationship between reaction time variability and brain activity under different contexts in a within-participant fashion. The results indicate that Go-trial reaction time co-varies with modulations already at the level of the attentional N1 ERP component elicited by the Go-stimulus, but only in task blocks with task-relevant stop-stimuli and only in the absence of a reward context. This suggests that attentional processing is being actively controlled to adapt response speed, implying active input gating as a mechanism for proactive inhibition, which however can be abolished by additional reward-related attentional processes.