VISITING SPEAKER

Frank Tong

(Psychology Department, Vanderbilt University)

"Deciphering the role of early visual areas in high-level visual cognition"

What cortical processes underlie people's ability to perceive, attend to, or remember, visual features and complex objects? To what extent might high-level processes of attention or memory depend on accessing relevant information in early visual areas? Using functional MRI and pattern classification methods, my lab has found that it is possible to decode what item a person is seeing, attending to, or remembering, from activity patterns in early visual areas (V1-V4). Our studies reveal that cortical responses to orientation can be dynamically altered by the surrounding visual context, attentional relevance, and perceptual learning. In studies of visual working memory, we find that information about simple and complex stimuli is actively maintained in the detailed activity patterns of the visual cortex, even after the overall BOLD response has fallen to baseline levels. Finally, we find that when observers must identify objects in the presence of visual clutter, detailed patterns of attentional feedback to early visual areas serve to separate the attended object from background noise. Object-based attention can thereby serve the function of active noise filtering. Taken together, our results support an interactive model of visual processing, in which feedback signals to early visual areas are important for the top-down selection and maintenance of visual information needed to perform demanding cognitive tasks.

Date: Friday, September 12, 2014

Time: 2:00 p.m.

Location: Fisher Scientific Room,
The Robarts Research Institute

If you require information in an alternate format or if any other arrangements can make this event accessible to you, please contact Denise Soanes at dsoanes4@uwo.ca

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