Department of Psychology
The University of Hong Kong
香港大學心理學系

Departmental Seminar

# Investigating Prediction Errors for Visual Surface Segmentation

**11:30 a.m. – 12:30 p.m. | November 29, 2018 (Thursday)**
**Rm 813, 8/F, The Jockey Club Tower | Centennial Campus | The University of Hong Kong**


## Dr. Matt Oxner

University of Auckland



## Abstract

The visual system quickly registers perceptual regularities in the environment and responds to violations in these patterns. Errors of perceptual prediction are associated with EEG modulation, including the visual mismatch negativity (vMMN). One relatively unexplored question is whether these prediction error signals are limited to lower-level perceptual features; I describe two recent experiments showing that these prediction error signals can in fact encode higher-level properties such as the segmentation of object surfaces in visual space. Telltale mismatch responses - affecting the P2-N2 and P300 amplitudes - reflected sensitivity to a change in stimulus layout, when surfaces shifted position in depth or disappeared. These signals of deviance in object perception were independent of separate EEG signals to exogenous stimulus properties. In the visual domain, unnoticed and task-irrelevant changes in visual surface segmentation lead to prediction error signals that are dissociable from stimulus-specific encoding and lower-level perceptual processing. I discuss the theoretical implications of these results for the idea that predictive coding occurs at multiple levels in the visual hierarchy.


## About the speaker

Matt Oxner has just completed his PhD in Psychology at the University of Auckland, under the supervision of Professor Will Hayward and Associate Professor Paul Corballis. The dissertation investigated what cognitive processes can occur in the absence of visual awareness, particularly whether the visual system is unconsciously sensitive to similarity across percepts. His research interests are focused around three theoretical issues: the limits of cognition in the absence of awareness; the relation of attention and awareness; and whether visual awareness is graded or dichotomous in nature.

**~All are Welcome~**


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