John Joseph

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Week 3

**Reading 1: Integrated model of visual processing. Brain Res Brain**

The Bullier Paper discussed the cortical hierarchy of the visual system, and its implications in terms of neural resources. He deconstructs the process of building an image into a three step method in which lower order areas are constantly receiving feedback which refines and adds dimension to an image stored within them on a hypothetical object he refers to as an “active black board”.

**Reading 2: Local circuits in primary visual cortex of the macaque monkey**

This paper continued to emphasize the importance of feedback connections in the visual system and introduced a circuit model whose functional organization agreed with the concepts proposed in the Bullier paper.

**Reading 3: The circuitry of V1 and V2: Integration of color, form, and motion**

The third reading followed a similar theme to those before it, and its discussion of the lower areas and experimental techniques was a helpful conclusion to the reading assignment. The title's mention of color, form and motion was touched upon in a proposal of the circuitry behind different functional areas responsible for these cues.

A constant theme in this weeks reading was the response architecture of our visual system and its design. The importance of feedback into the lower areas like V1 and V2 was a constant theme, and after reading these papers I''ve an even deeper respect for the complexity of our neural circuitry. Its organization seems tuned to process visual data in a non-linear way, and understanding this organization and how our brains make use of it will lead to unorthodox computational models. This was the interesting part to me; however, I will admit that I was a bit overwhelmed with the biology of this weeks readings. I will try and keep up, but my lack of discussion here about the LGN and higher order areas should be an indication of my lack of understanding in this regard. I'll continue to revisit the textbooks (I read Chapter 27 last week) in the hope of fixing this.

**References**

Bullier J. (2001). *Integrated model of visual processing.* Brain Res Brain Res Rev.36(2-3):96-107

Callaway EM (1998). *Local circuits in primary visual cortex of the macaque monkey,* Annual Review of Neuroscience 21, 47-74. Comprehensive review.

Sincich, L. C. and Horton, J. C.  (2005). *The circuitry of V1 and V2: Integration of color, form, and motion.* Annual Review of Neuroscience, 28:303-26