

The Place of Memory

John Hope Franklin Center, room 240 – 24th April 2009 (08.50 am -16.00 pm). This one-day symposium will explore themes relating to the neurosciences and the re-visualization of scientific knowledge through art and digital media/technology. The focus of the symposium will be memory.

Lecture Abstracts

- In the first lecture Timothy Senior will give a general introduction to the topic of Art-Science collaborations. The use of more traditional art techniques as well as new technological approaches (including digital media practices) to explore the complex relationship between the two will be discussed. Topics will range from the use of art as a tool to describe science (both the scientific process as well as scientific knowledge) through to art as a reflection of brain processes themselves (for example, what can illusionary-art tell us about brain function?).
- Bill Seaman will give the second lecture, entitled ‘Art \leftrightarrow Science Bridging - Towards Machines of Creativity and Innovation’. Abstract - “Artists and Scientists have been developing new tools that seek to enhance aspects of creativity, knowledge production and innovation. A series of interesting collaborations between artists (as creative researchers) and scientists have been undertaken. In part, these collaborations explore new approaches to tool building through unique approaches to computational processes and interactivity. Linklider’s notion of man-machine symbiosis is discussed as is the long term approach to articulating a Neosentient machine. Alternately, some individuals have taken on the role of researcher in the tradition of the renaissance, bridging art and science in unique ways”.

Workshop Abstracts

- Timothy Senior will explore ideas relating to memory encoding and consolidation from the perspective of Systems Neuroscience, focussing in particular on the Hippocampal-Neocortical system. The Hippocampus is a structure thought to be crucial for the acquisition of episodic and spatial memories. Issues to be examined include how our daily experience, in both space and time, may be represented in the firing of populations of neurons. The role of oscillatory brain network states (during behavioural and sleep conditions) in the coordinated encoding, consolidation and retrieval of memories will also be discussed.
- Kevin LaBar will discuss how emotions modulate memory behaviorally and in the brain. Key psychological and neurobiological theories of emotion will be introduced and related to memory systems. Questions to be addressed include: How are memories for emotional events different from neutral ones, both in terms of their accuracy and in terms of their phenomenology? How does the brain encode and retrieve emotional information in memory? What role do stress and stress hormones play in memory consolidation? What happens in the brains of individuals who suffer from traumatic memories? A goal is to consider new ways to visualize how emotion alters the architecture of memories and the act of remembering.
- Alison Adcock will discuss how memories for events are affected by an individual’s biological “state of brain” when those memories are recorded. How biological systems for motivation enhance memory formation will be described, including an introduction to the genetic, chemical and behavioral determinants of activity within the neurotransmitter systems that are believed to support motivated memory. Discussion will include ideas about how these systems contribute to “stochastic” memory formation and how one might learn to control these processes voluntarily.