

- [Home](#)
- [About the CVR](#)
- [News](#)
- [Members](#)
- [Seminar Series](#)
- [Conference](#)
- [Resources](#)
- [CVR Summer School](#)
- [Research Labs](#)
- [Training at the CVR](#)
- [Partnering with the CVR](#)
- [Contact Us](#)

- Monday, November 9, 2009

Assessing multisensory integration with additive factors and functional MRI

The topic of this presentation is the use of additive-factor designs in combination with functional MRI to assess multisensory integration. Unisensory and multisensory stimuli were presented across two different pairings of sensory systems, audio-visual (AV) and visuo-haptic (VH). In addition to stimulus modality, signal-to-noise ratio (SNR) was included as an additive factor. Previous research investigating the effect of SNR on sensory integration has documented an effect called inverse effectiveness, where the multisensory gain increases with decreasing SNR. Potential sites of multisensory convergence were mapped for each sensory pairing and were found to be non-overlapping, suggesting that the neural mechanisms of integration are specialized for each unique pairing of sensory systems. Evidence of inverse effectiveness was found at all convergence sites, regardless of whether they were AV or VH. This result suggests that inverse effectiveness is a general characteristic of multisensory integration, regardless of the sensory pairing. The results also showed that a single-factor additive model of multisensory integration produced different outcomes at different levels of SNR. Based on this last result, we conclude that an additive-factors approach to assessing multisensory integration will provide more reliable inferences than single-factor designs.

Tom James  
University of Indiana