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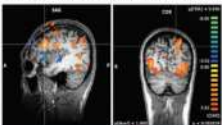
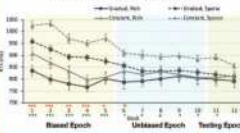
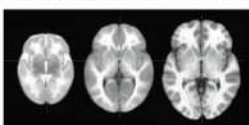
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<http://sites.google.com/view/cognitionlab>

## Neural basis and development of human high-level cognitive functions

How does the human brain transform patterns of light into meaningful representations of the world? We examine this question using the methods of psychophysics, cognitive psychology, functional MRI, and computational modeling. Visual information processing in the human brain is commonly thought to involve two anatomically and functionally distinct pathways. In this two-pathway view, the occipitotemporal, or ventral, pathway is involved in object perception and recognition. The occipitoparietal, or dorsal, pathway is involved in spatial vision as well as motor actions directed to objects. However, our research challenges the current two-pathway view and suggests that human posterior parietal cortex (PPC) in the dorsal pathway is dynamically involved in various high level cognitive functions from object perception to abstract representation. Currently, we are investigating the function and development of human PPC supporting high level cognition. Specifically, we study the role of PPC in 1) learning statistical regularities, 2) understanding temporal order and duration, and 3) making inferences and predictions.

Aim	Understanding high-level human cognition		
Tool	Functional MRI + Psychophysics + Developmental study		
TARGET	<p>Macroscale neural representation</p> 	<p>Human psychophysics</p> 	<p>Behavioral and neural development</p> 

**Curriculum Vitae**

2016~Present : Principal Investigator/Lab Head,  
Korea Brain Research Institute  
2016~2016 : Postdoctoral Associate,  
Johns Hopkins University, USA  
2014~2016 : Postdoctoral Associate, Princeton University, USA

**Academic Credential**

2014 : Ph.D., Cognitive Psychology, Harvard University  
2007 : M.A., Psychology, Yonsei University  
2002 : B.A., Psychology, Yonsei University

**Awards/Honors/Memberships**

2017~Present : Member, Korea Society for Cognitive & Biological Psychology  
2013 : Elsevier/Vision Research Graduate Student Travel Award  
2012 : Certificate of Distinction in Teaching, Harvard University  
2011~Present : Member, Society for Neuroscience  
2011 : Stimson Fund Research Grant, Harvard University  
2008~Present : Member, Vision Sciences Society

**Research keywords**

High-level human cognition, Posterior parietal cortex, Cognitive development, Functional MRI.

**Key techniques**

Psychophysics, Functional MRI, Eye tracking, Computational modeling.

**Research Interests/Topics**

- Macroscale neural representation of perceptual and abstract information in the human brain.
- Developmental changes in cognitive functions.

**Research Publications (selected)**

- Lee S, **Jeong SK**. The effects of age and event structure on time line estimation, *CogSci Proceedings*, 2018.
- **Jeong SK** Xu Y. Task-context dependent but linear representation of multiple visual objects in human parietal cortex, *J Cogn Neurosci*, 29:1778-1779, 2017.
- Kastner S, Chen Q, **Jeong SK**, Mruczek R. A brief comparative review of primate posterior parietal cortex: a novel hypothesis on the human toolmaker, *Neuropsychologia*, 105:123-134, 2017.
- **Jeong SK**, Xu Y. The impact of top-down spatial attention on laterality and hemispheric asymmetry in the human parietal cortex, *J Vis*, 16:1-21, 2016.
- **Jeong SK**, Xu Y. Behaviorally relevant abstract object identity representation in the human parietal cortex, *J Neurosci*, 36:1607-1619, 2016.
- Hong I, **Jeong SK**. The properties and mechanism of probability cueing effect, *The Kor J Cogn Bio Psych*, 31:53-66, 2019.
- Lee S, **Jeong SK**. Development of the spatial representations of time, *Kor J Dev Psych*, 31:99-117, 2018.