Neural Correlates of Episodic Memory Formation in Audio-Visual Pairing Tasks

Chung-Yeon Lee¹, Beom-Jin Lee³, Joon Shik Kim¹,², and Byoung-Tak Zhang¹,²,³
Graduate Programs in Brain Science¹ and Cognitive Science², Seoul National University
School of Computer Science & Engineering³, Seoul National University
{cylee, bjlee, jskim, btzhang}@bi.snu.ac.kr

Biointelligence Lab, Seoul National University, Seoul 151-744, Korea (http://bi.snu.ac.kr)

Experimental Results

A Neural correlates of episodic memory encoding and retrieval

<table>
<thead>
<tr>
<th>Theta (4-8Hz)</th>
<th>Encoding</th>
<th>Retrieval</th>
<th>Difference (R-E)</th>
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B Normalized Frequency Power on ROIs

- The grand-average of topography about theta and gamma frequency power values in the memory encoding, retrieval tasks and their difference (retrieval−encoding)

Concluding Remarks

- EEG activations during episodic memory encoding and retrieval were recorded using a memory task program and audio-visual movies as naturalistic stimuli.
- Our results shows that neural activities related to episodic memory formation in the spatial and spectral domains (Theta: C3, CP1 / Gamma: T7, T8).
- Stronger neural activities were observed in the frontal and parietal cortex during retrieval session of the episodic memory tasks.
- Correlations between behavioral differences in RT and EEG activation during the query task was observed in the same regions (Sustained RT > Instant RT).
- This indicates memory formation, especially retrieval, is involved with stronger activation when subjects make more efforts to the query tasks and it also shows again the theta and gamma activities on these regions are correlated with memory formation.