



# 뇌인지공학 연구실

BRIAN & COGNITIVE ENGINEERING LAB (<https://sites.google.com/view/bcelab>)

## Education & Experience

Ph.D., Dept. of Bio & Brain Engineering, KAIST  
 B.S. , Dept. of Bio & Brain Engineering, KAIST

Postdoc., Harvard Medical School  
 Postdoc., University of Cambridge, UK



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## 연구실 소개

### 대표 연구 성과

- "Persistent impacts of smoking on resting-state EEG in male chronic smokers and past-smokers with 20 years of abstinence" Scientific Reports (2023)
- "Diffusion tensor image assessment in mild cognitive impairment patients with neuropsychological tests" OHBM 2023
- "Anesthetic modulations dissociate neuroelectric characteristics between sensory-evoked and spontaneous activities across bilateral rat somatosensory cortical laminae" Scientific Reports (2022)
- "Obesity, binge-eating and food addiction: Mental health and cognitive risk factors" Society for Neuroscience meeting (2021)

### 주요 연구 내용

본 연구실에서는 인간의 인지/행동을 모델링하고 뇌영상 빅데이터로 두뇌 신경망을 분석하여 정신질환 및 이상행동의 원인을 밝히고, 진단/치료를 위한 디지털 헬스케어 도구를 개발하는 것을 목표로 하고 있습니다. We aim to construct models for human cognition and behavior, analyze brain networks using neuroimage big-data, discover the neural basis of mental disorders and problematic behaviors, and develop digital healthcare tools for diagnosis & treatments.

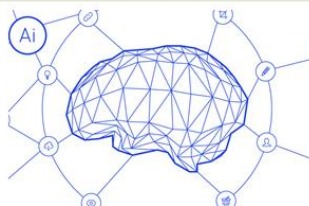
#### Computational Psychiatry

- Computerized tasks and models for analyzing human behaviors
- IT applications in diagnosis of mental disorders.



#### Neuroimage Big-data Analysis

- Brain network analysis in large-scale neuroimage database
- Identifying brain network alteration in patients.



#### Neuromodulation Treatment

- Brain-stimulation treatment (TMS, tDCS) to restore brain network function.
- Optimized target based on brain network data.

