K-Brain 2026

Symposium 08

Title:Neuroscience-Driven Non-Human Primate Brain–Machine Interface (BMI) Research for the Emerging Neuro-Industry

September 6th (Sunday), 12:30-14:25

Room 107-108, Daejeon Convention Center, Daejeon, Korea

Registration KSBNS2026.org

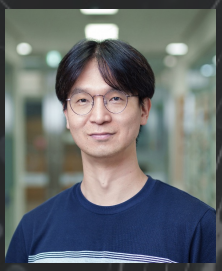
Organizers

Hyoung F. Kim, Ph.D

School of Biological Sciences, Seoul National University, Korea

Description

: This symposium focuses on neuroscience-based brain-machine interface (BMI) research in non-human primates, featuring presentations on soft biocompatible implants, cognitive rehabilitation systems, neuronal population decoding, and neural information injection for decision-making guidance. Collectively, the researchers demonstrate how NHP neuroscience is driving translational innovation across neuro-industrial applications.



Joonyeol Lee, Ph.D

Department of Biomedical Engineering, Sungkyunkwan University, Suwon, Korea

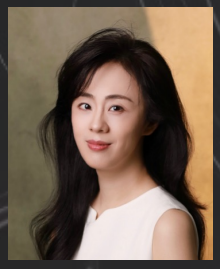
Speakers

Seung Woo Lee, Ph.D

Dept. of Brain and Cognitive Sciences, KAIST, Korea

"High-resolution Brain-Computer Interfaces for Vision Restoration"

He is a pioneering neuro-electronics researcher who developed breakthrough micro-fabrication technology using liquid crystal polymers (LCP) to ensure the long-term stability of chronic neuroprosthetic implants. He further advanced the field by introducing micro-coil based magnetic stimulation, a transformative approach that enables highly precise and selective neuronal activation compared to conventional electrode-based methods. He is now leading the development of micro-coil-based visual cortical prosthetics aimed at restoring functional vision for individuals with severe visual impairments.



Yiwen Wang, Ph.D

Department of Electronic and Computer Engineering, Hong Kong University of Science and Technology, Hong Kong

"Re-establishing Neural Functional Connectivity between Disconnected Brain Areas"

Her research interests encompass neural decoding in brain-machine interfaces, adaptive signal processing, computational neuroscience, and neuromorphic engineering. She is interested in developing interdisciplinary and integrative approaches to study brain plasticity and incorporate it as an integral part of the overall effort to revolutionize neuro-prosthesis design. The significance is to provide a quantitatively dynamic understanding of the neuroplasticity from multiple scales, and will revolutionize the design of BMI to an intelligence learner capable of performing various movements through learning, which makes clinic trial realistic for an individual with motor disability with long-term use and full motor function restore.

Jeong-Woo Sohn, Ph.D

College of Medicine, Catholic Kwandong University, Korea

"Decoding Primate Motor and Executive Cortex with Neural Foundation Models"

Description

He is a neuroscientist working on brain–machine interfaces, integrating non-human primate neural recordings with advanced decoding algorithms to advance next-generation implantable BCI systems. He has contributed to international BCI standardization (ISO/IEC JTC 1/SC 43) and holds patents in neural signal processing.

Kyung-In Jang

DGIST & ENSIDE Corp.

"Mechanically guided-bioelectronics from material design to clinical applications

This talk presents recent advances in mechanically guided approaches for designing soft, stretchable bioelectronic systems that seamlessly interface with biological tissues. Topics span from fundamental material strategies—including flexible neural probes and conformal biosensors—to their translational applications in implantable brain–computer interfaces and AI-driven clinical diagnostics.