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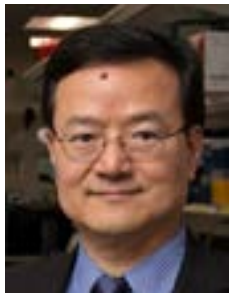
WORLD ASSOCIATION FOR
CHINESE BIOMEDICAL ENGINEERS

SATURDAY: NOVEMBER 14, 2020

10:00 AM (New York) | 3:00 PM (London) | 4:00 PM (Europe) | 10:00 PM (Beijing)

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DISTINGUISHED BIOMEDICAL ENGINEERING WEBINAR



“Noninvasive Human Brain Mapping and Brain-Computer Interface”

Bin He, PhD
Carnegie Mellon University

ABOUT THE WEBINAR

Brain activity is distributed over the 3-dimensional volume and evolves in time. Mapping spatio-temporal distribution of brain activation with high spatial resolution and high temporal resolution is of great importance for understanding the brain and aiding in the clinical diagnosis and management of brain disorders. Electrophysiological source imaging (ESI) from noninvasively recorded high density electroencephalogram (EEG) has played a significant role in advancing our ability to image brain function and dysfunction. We will discuss principles and current state of EEG-based ESI in localizing and imaging human brain activity with applications to imaging epileptic networks. Promising clinical results validated by intracranial recordings and surgical resection outcomes demonstrate the merits of noninvasive EEG-based ESI in mapping epileptogenic zones, aiding surgical treatment of intractable epilepsy. We will also discuss our recent progress in noninvasive brain-computer interface, for controlling of a robotic arm from noninvasive EEG signals using a motor imagery paradigm. Our work in a group of human subjects demonstrate the capability of controlling a virtual or physical device using only the “thoughts” as decoded from noninvasive recordings.

ABOUT THE SPEAKER

Bin He, PhD

Trustee Professor and Head of Biomedical Engineering, Carnegie Mellon University

Bin He became Head of Carnegie Mellon University’s Department of Biomedical Engineering in 2018. Before CMU, he was Director of University of Minnesota’s Institute for Engineering in Medicine, Distinguished McKnight University Professor of Biomedical Engineering and Medtronic-Bakken Chair for Engineering in Medicine. Dr. He has made significant research contributions to the fields of neuroengineering and biomedical imaging, including electrophysiological source imaging, brain-computer interface, and neuromodulation. He has received a number of awards including the IEEE Biomedical Engineering Award, the William J. Molock Award, the IEEE EMS Academic Career Achievement Award, the AHA Established Investigator Award, among others. He served as a Past President of the IEEE Engineering in Medicine and Biology Society, Chair of Publications Committee of American Institute of Medical and Biological Engineering, and serves as the Chair of the International Academy of Medical and Biological Engineering. Dr. He also served as Editor-in-Chief of IEEE Transactions on Biomedical Engineering from 2013-2018, and as Member of NIH BRAIN Initiative Multi-Council Working Group from 2014-2019. He is an elected Fellow of International Academy of Medical and Biological Engineering, American Institute of Medical and Biological Engineering, Biomedical Engineering Society, and IEEE.