



Optical Imaging in EMU and ICU Monitoring: Shedding Light on the Epileptic Brain

NEUROSCIENCE GRAND ROUNDS

SPEAKER

Ke Peng , PhD

Assistant Professor, Department of Electrical and
Computer Engineering, University of Manitoba

DATE

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9:00 AM - 10:00 AM

LOCATION

Psychiatry Bldg. 2nd Floor Rm PX236/238

BIO

Dr. Ke Peng is an assistant professor at the Department of Electrical and Computer Engineering and a member of the Biomedical Engineering Graduate Program of the University of Manitoba. He received his master's degree in computer engineering from Ecole Polytechnique, University of Montreal, in 2012, followed by a PhD in biomedical engineering from the same institution in 2016. From 2016 to 2019, he worked as a postdoctoral fellowship at Harvard Medical School, where he later advanced to the position of instructor. During this period, Dr. Peng also served as a research associate at Boston Children's Hospital (Anesthesiology) and Massachusetts General Hospital (Radiology). In 2019, Dr. Peng returned to Canada and joined the Research Center of the University of Montreal Hospital Center as a postdoctoral researcher. Dr. Peng has published widely in the field of non-invasive multimodal brain imaging (EEG, fMRI, fNIRS), particularly in the study of neurological disorders such as epilepsy, stroke, chronic pain and dementia. He was the recipient of the 2018 Anesthesia Distinguished Trailblazer Award from Boston Children's Hospital/Harvard Medical School and has received research support from major funding agencies in both the US and Canada.

ABSTRACT

Having long-term, continuous readouts of cortical hemodynamic/oxygenation signals will be invaluable in monitoring brain conditions during epileptic events and improving patient care. Recent studies showed the potential of optical brain imaging, particularly functional near infrared spectroscopy (fNIRS), as a noninvasive, bedside brain imaging technique to delineate the hemodynamic responses to epileptic activities. Compared with functional magnetic resonance imaging, fNIRS is infrequently used in research or in the clinic to support diagnosis and treatment. This Grand Rounds presentation will provide an overview of the fNIRS technique, including its principles, system setup in clinical settings, as well as the ongoing research of using fNIRS to reconstruct the hemodynamic and oxygenation changes associated with seizures and spikes, to assist in presurgical evaluations, and to study the abnormal EEG patterns commonly observed in critically ill patients in the intensive care unit.

Social Media: <https://www.linkedin.com/in/ke-peng-19137789>

For more information
T: 204-235-3939
E: info@manitobaneuroscience.ca

Zoom Link: <https://us06web.zoom.us/j/83267302150>

Meeting ID: 832 6730 2150

Passcode: 748222