BME Seminar Series
Wednesday, September 20, 2017
9:30-10:20am
MJIS 1001

Weldon School of Biomedical Engineering
Purdue University

Beyond the focus - Brain network connectivity in temporal lobe epilepsy

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Abstract: Epilepsy is a disorder in which patients suffer from chronic unprovoked seizures. One of the first clinical goals in diagnosing and managing epilepsy is the identification of the seizure focus where the abnormal neural activity originates. Generally, it is believed that if the focus can be accurately localized, then invasive disturbance of this focus, either by surgical resection, ablation or electrical stimulation, can reduce or eliminate the seizures. While this idea has improved the care of focal epilepsy patients over the last few decades, it has become increasingly clear that the networks across the brain by which the seizures propagate play an important role in the outcomes of these treatments.

With the development of Magnetic Resonance Imaging (MRI) brain connectivity mapping, it is now possible to investigate the seizure propagation networks across the whole brain with millimeter scale spatial resolution. Our lab has implemented both functional and structural MRI connectivity mapping to attempt to characterize the epileptic network across the brain. In this talk, I will present some of our recent work to develop and adapt MRI connectivity methods to increase our understanding of the physiological and neurocognitive effects of seizures. In addition, I will illustrate a method of predicting surgical outcome using presurgical network mapping.

Bio: I got my BS in Biomedical Engineering from Wright State University in Dayton OH. After that I worked for General Motors in an impact testing facility testing airbags, instrument panels and steering wheel with crash test dummies. After 2 years I decided to go to graduate school and got my MS and PhD in biomedical engineering from Vanderbilt. I have been in the Vanderbilt University Institute of Imaging Science since its early beginnings in 2002. I am an Associate Professor of Radiology and Biomedical Engineering. My research focuses on clinical and translational brain imaging methods.
https://faculty.mc.vanderbilt.edu/Faculty/Details/332922

~BME Faculty Host: Prof. Zhongming Liu~
****Coffee and juice will be provided at West Lafayette****