

CARNEGIE MELLON UNIVERSITY

BME 2021 SUMMER SEMINAR SERIES

Using Advanced Non-Invasive Imaging Techniques to Interpret Brain Structure and Function



PRESENTED BY

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SCHEDULE

**Thursday,
July 29, 2021
(9:00AM-10:00AM)**

Severe vascular diseases, like stroke, lead to devastating, life-altering neural effects and frequently can result in loss of life. Despite significant progress made in disease awareness, detection, and treatment, there are limits in our fundamental understanding of vasculature dysfunction and brain abnormalities due to disease burden making this a vital area for exploration.

In this talk, I will share how ultrahigh field (UHF) MRI techniques have improved the detection of human disease and tissue damage by overcoming the challenges of UHF MRI. Advances in the development of radiofrequency (RF) instrumentation and RF safety assessments have resulted in the visualization of the human brain anatomy up to 100 micrometers. I will discuss how designing a 3D printed phantom and thermal assessment tools have contributed to improving RF instrumentation. I will conclude why using multi-modal hemodynamic and neural imaging can advance the management and quantify the treatment of vascular diseases with neural effects and neural disorders.

