

# CARNEGIE MELLON UNIVERSITY BME 2022 FALL SEMINAR SERIES

## Competing neuronal and vascular interactions shape brain-wide arteriole dynamics



### PRESENTED BY

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Experimental Biophysics  
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### SCHEDULE

PH 100

**Thursday,**  
**September 1, 2022**  
(10:15AM-11:15AM)

The pial arterioles form an interconnected network that distributes blood across the cortical mantle. These vessels feed the associated penetrating arterioles that dive into the parenchyma and source nourishment to brain cells. Far from a passive network, the diameter of these arterioles intrinsically oscillates at 0.1 Hz and modulates the flux of blood into cortex. The patterns formed by these oscillations involves competition from neighboring vessels with input from underlying neurons, such that neuronal oscillatory input can entrain pial oscillators and parse the network into incommensurate rhythmic neighborhoods. I discuss the impact of these finding on fMRI signals.

