

Resonating to Rhythm

Edward Large

**Associate Professor of Psychology
Center for Complex Systems and Brain Sciences
Florida Atlantic University**

In this talk, I will explore the idea that certain classes of rhythms tap into brain dynamics at an appropriate time scale to cause the nervous system to resonate to rhythmic patterns. I will review key behavioral, physiological and neuroimaging results from my lab and others, showing that cortical rhythms entrain to temporally structured acoustic signals, and entrainment of neuronal oscillations can function as a mechanism of attentional selection. This response depends upon processes in both sensory and motor systems, and work on sensorimotor synchronization provides a rich source of information about this process. I will present a model intended to encompass rhythm perception, rhythmic attending, and rhythmic coordination. The approach is based on the idea that rhythmic expectancies emerge from neural resonance in sensory and motor cortices. I will show how the model predicts certain facts about behavior and neurophysiology, and how this approach may have something to say about the communication of emotion in music.