

Brainstem Modulation of Cortical Decision Computations

Perceptual decisions entail the slow accumulation of fluctuating sensory information gathered from the outside world, a process that takes place in a network of brain areas that are widely distributed across the cerebral cortex. Perceptual evidence accumulation is known to depend on the internal brain state. But how brain states shape the interactions in, and computations performed by, the cortical decision network is poorly understood. To tackle this issue, we have recently begun to characterise the effects of modulatory brainstem systems – in particular the locus coeruleus (LC) norepinephrine (NE) system – on cortical network dynamics and evidence accumulation. My talk will focus on ongoing experiments, which link decision-related pupil responses to activity in the human brainstem (assessed with high-resolution fMRI) and decision computations (assessed by behavioral modeling).