# World Wide

# NeuRise

## Talks by rising stars of neuroscience

**Limited Evidence for Sensory Prediction Error Responses
in Visual Cortex of Macaques and Humans**
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( Albert Einstein College of Medicine; Growth Intelligence)

A recent formulation of predictive coding theory proposes that a subset of neurons in each cortical area encodes sensory prediction errors, the difference between predictions relayed from higher cortex and the sensory input. Here, we test for evidence of prediction error responses in spiking responses and local field potentials (LFP) recorded in primary visual cortex and area V4 of macaque monkeys, and in complementary electroencephalographic (EEG) scalp recordings in human participants. We presented a fixed sequence of visual stimuli on most trials, and violated the expected ordering on a small subset of trials. Under predictive coding theory, pattern-violating stimuli should trigger robust prediction errors, but we found that spiking, LFP and EEG responses to expected and pattern-violating stimuli were nearly identical. Our results challenge the assertion that a fundamental computational motif in sensory cortex is to signal prediction errors, at least those based on predictions derived from temporal patterns of visual stimulation.

Event link
https://www.crowdcast.io/e/wwneurise/