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Acting Out Your Feelings: Internal State Signals in Motor Cortex

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Internal states, such as arousal, attention, and anticipation, not only dictate how we process stimuli, they influence how we move in response to them. How do internal state signals interact with motor commands to bring about changes in behaviour? In this talk, I will present some of our recent results investigating internal state signals in the motor cortex. Using multi-electrode recordings in the motor cortices of Rhesus macaques performing a variety of motor and brain-computer interface tasks, we find that internal state signals related to both arousal and reward anticipation have massive but largely distinct effects on neural population firing activity that impacts the neural encoding of movement.