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Title:	Neural basis of Decision Making in the Prefrontal Cortex of the Macaque brain: Interactions between the Dorsolateral and Ventrolateral Prefrontal Cortex
Authors:	Bhatia, Cheshta .
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Abstract:	Cognition is dynamic, with each stage of a task requiring context-dependent decisions. These decisions arise from the interactions between neurons in different brain regions and exchange of representations between them, enabling the integration of all required parts of a cognitive operation. Well coordinated interactions between neurons in different brain regions and exchange of representational information between them enables the efficient integration of all necessary component parts of any given cognitive operation. Indeed, all complex behavioural processes like decision-making, learning, memory and perception emerge from the orchestrated electrochemical activity of billions of neurons. Despite recent advances in the study of the brain, there have been experimental and computational limitations which have made it difficult to understand the complexity of spatiotemporal patterns that enable the brain to represent and formulate complex decisions. Simultaneous recordings from ensembles of neurons gives information which is not evident from single neuron recordings. In order to investigate the communication between brain areas which leads to context specific decisions, we analysed neural activity datasets from the dorsolateral and ventrolateral regions of Prefrontal cortex. I have extracted information from decision based activity data on a single trial basis. This structure is usually extracted from data averaged across many trials, but deeper understanding requires studying phenomena detected in single trials. Single trial information time courses will help us in illuminating neural population activity and study interactions between them to infer how information flow between different regions of the prefrontal cortex controls cognition.
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