



Talks by rising stars of neuroscience

**The role of the primate prefrontal cortex in inferring
the state of the world and predicting change**

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In an ever-changing environment, uncertainty is omnipresent. To deal with this, organisms have evolved mechanisms that allow them to take advantage of environmental regularities in order to make decisions robustly and adjust their behavior efficiently, thus maximizing their chances of survival. In this talk, I will present behavioral evidence that animals perform model-based state inference to predict environmental state changes and adjust their behavior rapidly, rather than slowly updating choice values. This model-based inference process can be described using Bayesian change-point models. Furthermore, I will show that neural populations in the prefrontal cortex accurately predict behavioral switches, and that the activity of these populations is associated with Bayesian estimates. In addition, we will see that learning leads to the emergence of a high-dimensional representational subspace that can be reused when the animals re-learn a previously learned set of action-value associations. Altogether, these findings highlight the role of the PFC in representing a belief about the current state of the world.

Event link:

<http://www.crowdcast.io/e/wwneurise/>