Bonn Melbourne Seminar in Decision Making and Computational Psychiatry

"Adaptive Behaviour, State Inference and Mesolimbic Dopamine"

Prof Mark Walton (Department of Experimental Psychology, University of Oxford, UK)

Abstract

It is widely recognised that monoamine neurotransmitter systems such as dopamine are ideally situated to regulate adaptive behaviour, yet there is still little consensus as to how these signals are interpreted and used in downstream regions to achieve this. One potential reason for this impasse is that while the focus of much research has built on the canonical finding that transient dopamine reflects reward prediction errors, used to update the values associated with stimuli and actions, dopamine may also represent actions and reward information over different timescales and in different brain regions. Furthermore, it is increasing clear that an ability to infer statistical relationships and hidden states of the world, and not just value learning, plays an important role in shaping adaptive behaviour. Here, I will present data from mice performing reward-guided decision making tasks showing that dopamine carries rich information about value, action and recent reward history. Nonetheless, in structured environments common both in the lab and real world, where animals can use state inference to guide choice behaviour, its causal influence over reward-guided behaviour may be surprisingly constrained.

Thursday, 2nd November 2023, 9am (CET)

https://uni-bonn.zoom.us/j/67862809703?pwd=WHM3b3lIUFJYY2x0ekxLZUhxS3UvUT09

Meeting-ID: 678 6280 9703, Code: 193789

Contact

Prof Ulrich Ettinger, Department of Psychology, University of Bonn, Germany; ulrich.ettinger@uni-bonn.de

Prof Carsten Murawski, Department of Finance, The University of Melbourne, Australia; carstenm@unimelb.edu.au

#BonnMelbourneDecisionSeminar