



Seminar/Talk

Neuromodulation of plasticity - from synapse to behaviour

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Spike timing-dependent synaptic plasticity is often assumed to underlie behavioural learning and memory, but the difference in timescales between the rules of synaptic plasticity (tens of milliseconds) and behaviour (seconds, minutes or longer) has proven difficult to explain. Neuromodulation may serve as a mechanism to bridge these different time scales. Synaptic plasticity is known to be under neuromodulatory control, and this presentation will discuss how neuromodulation can influence the rules of synaptic plasticity, not only when acting concurrently with spiking activity, but also when acting prior to or following the spike patterns that induced plasticity. Such experimental findings at synaptic level could have implications for our understanding of how context influences learning and how learning may be influenced by the outcome of actions. I will describe a set of experiments to investigate the neuromodulatory control of hippocampal spike timing-dependent synaptic plasticity, introduce a simple computational model using these plasticity rules to make predictions about the behavioural consequences for hippocampus-dependent learning, and present some data testing these predictions in behaving animals.

Wednesday, July 31, 2019 03:00pm - 04:00pm

Mondi Seminar Room 3, Central Building



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