



Hamilton Institute

Model-Based Functional Brain Imaging &
The Neurobiological Basis of Human
Reinforcement-Learning

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Abstract:

In model-based functional magnetic resonance imaging (fMRI), signals derived from a computational model for a specific cognitive process are correlated against fMRI data from subjects performing a relevant task to determine brain regions showing a response profile consistent with that model. A key advantage of this technique over more conventional brain imaging approaches is that model-based fMRI can provide insights into how a particular cognitive process is implemented in a specific brain area as opposed to merely identifying where a particular process is located.

In this talk I will briefly summarize the approach of model-based fMRI, with reference to the field of reinforcement learning, where computational models have been used to probe the neural mechanisms underlying learning of reward associations, modifying action choice to obtain reward, as well as in encoding signals that reflect the abstract structure of a decision problem.

Venue: Seminar Room, Hamilton Institute, Rye Hall,
NUI Maynooth

Time: 2.00 - 3.00pm (followed by tea/coffee)

Travel directions are available at www.hamilton.ie