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Research Seminar

Sponsored by:

Department of Pain and Translational Symptom Science & Center to Advance Chronic Pain Research

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“The brain as its own decoder: predicting behavior from the geometrical structure of brain representations”

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12-1pm

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Multivariate pattern analysis has become an important tool for measuring “information” in the brain. An important question is whether or not the information measured by neuroscientists is actually utilized by the brain for behaviour, e.g. the retina contains a complete record of the visual world but the brain does not directly access its content. One fruitful approach to address this question is to construct models of how information is “read out” from brain representations, and test whether the model’s output can predict behaviour. In this talk, I will discuss a simple read out model that predicts reaction time (RT) behaviour for object categorisation based on recordings of neural activity measured using fMRI. Using same model with MEG data, we show that the brain “read outs” category information from the optimal brain state. Finally, I will discuss ongoing research that dissociates decodable brain activity, i.e. activity that predicts the category of a stimulus, from brain activity that can predict participant behaviour. Collectively this research shows that while measuring “information” in the brain is important, constructing models of how this information is readout from brain representations is more fruitful avenue for advancing our understanding of the relationship between brain and behaviour.



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