Report on 2017 UCL-France Workshop on Computational Approaches to Decision and Affective Neuroscience

A French Embassy Sponsored Workshop

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Summary

A workshop on computational approaches to decision and affective neuroscience, supported by the French Embassy, was held on 8-9 June 2017 at the Max Planck UCL Centre for Computational Psychiatry in Russell Square House.

The aims of the workshop were:

x To promote collaboration between UCL and French institutions on the topic of computational decision and affective neuroscience, bringing together many of the leading groups advancing understanding of the computational basis of decision making and emotion and discussing the relevance of this work to the emerging field of computational psychiatry.

   Can computational models be used to understand how subjective states relate to adaptive behaviour?
ƒ Can computational models be used to understand aberrant decisions and emotions in psychiatric disorders?

The workshop was attended by 7 academics from France and 5 from UCL (alphabetical order):

1. Dr Benedetto De Martino (UCL)
2. Dr Sophie Deneve (INSERM, ENS)
3. Dr Eran Eldar (UCL)
4. Dr Steve Fleming (UCL)
5. Dr Etienne Koechlin (INSERM, ENS)
6. Dr Stefano Palminteri (ENS)
7. Dr Mathias Pessiglione (INSERM, CNRS, UPMC, CRICM)
8. Prof Hilke Plassmann (INSEAD, ENS)
9. Dr Marion Rouault (UCL)
10. Dr Robb Rutledge (UCL)
11. Dr Fabien Vinckier (INSERM, CRICM)
12. Dr Yulia Worbe (INSERM, UPMC)

Program

Day 1 (Thursday, June 8)

12:50 Registration
13:20 **Robb Rutledge & Ray Dolan** - Opening remarks
13:30 **Etienne Koechlin** - Neural mechanisms of decision-making under uncertainty
14:00 **Eran Eldar** - Cortical dynamics of integrative decision-making
14:30 **Sophie Deneve** - Experimental evidence for circular inference in schizophrenia
15:00 Coffee break
15:30 **Marion Rouault** - Variability in psychopathology is linked to confidence but not performance in perceptual decision-making
16:00 **Robb Rutledge** -

Outcome

These were several beneficial outcomes from the workshop. First, the scientific content was greatly appreciated. The latest research tools and results were presented in great detail with opportunity for detailed and valuable discussion. Second, the informal and flexible environment allowed fruitful dialogues between the attendees and the speakers. It was an opportunity for different actors (researchers, clinicians) and future actors (PhD students) from the field to interact with each other. Notably, this provided the junior researchers the opportunity to describe their research projects and to interact with prominent experts in the field.

Invited participants from UCL and France have been active in developing new behavioural tasks for studying a wide variety of questions in decision and affective neuroscience, and novel computational models to describe the result. Strengths at UCL and in France in these emerging research areas made this workshop particularly timely.

A recent example of a successful exchange of ideas between the two sites is the happiness model of Rutledge, Dayan, and Dolan developed at UCL which has now been successfully applied to neural data from the Pessiglione group in Paris. This work was presented at the workshop by Fabien Vinckier and it demonstrated the effect of mood fluctuations on risky behaviour based on the model proposed at UCL. The workshop encouraged discussion likely