**Project title: "Neuro-computational mechanisms of mood instability"**

Supervisor: Liam Mason (Research group: Robb Rutledge, Max Planck UCL Centre for Computational Psychiatry)

Project description:

We are interested in how mood influences the choices people make and how this relates to mood disorders. Good moods may make us perceive rewards as being better than they actually are. This may drive us to pursue them more vigorously and to take bigger risks than we might normally take, something seen in mood disorders like bipolar disorder.

* Can computational models inspired by neuroscience explain why shifts in mood bias our perception of rewards and our willingness to take risks? When is this mood bias helpful and when does it cause problems that might make people vulnerable to mood disorders? In this project we will conduct experiments in healthy participants and patients with bipolar disorder. We will use a combination of lab-based tasks and those using online ‘big data’ platforms capable of collecting data from thousands of subjects.
* *Neuroimaging:* This project joins up with simultaneously acquired functional magnetic resonance imaging (fMRI) and electroencephalography (EEG) data collected in patients with bipolar disorder. Students with existing experience of neuroimaging analysis will have the option to pose questions to these datasets.

Research details:

- Contribute to development of the task and recruit and test subjects.

- Contribute to behavioural analysis using computational models of decision-making.

- Contribute to neural analysis of simultaneous EEG-fMRI data

Requirements:

- Interest in the neuroscience of decision-making and emotion.

- Prior experience with linear algebra is strongly preferred.

- Prior experience with Matlab or any computer programming languages is strongly preferred.

- Prior experience testing human subjects in psychology experiments is preferred but not required.

- Will undertake safety training and operational training for MRI.

Contact details:

Please email l.mason@ucl.ac.uk and attach your CV.