**Computational modelling of memory replay in sleep**

**Penny Lewis and the NaPS Lab, CUBRIC, Cardiff University, UK**

**Please send a CV to** [**LewisP8@Cardiff.ac.uk**](mailto:LewisP8@Cardiff.ac.uk) **if interested.**

We are seeking an outstanding scientist for a 2 year Research Associate post on computational modelling of how memory reactivation during wake and both REM and NonREM phases of sleep differentially impacts on consolidation. Our [lab](http://sites.cardiff.ac.uk/cubric/research-2-2/neuroscience-and-psychology-lab-naps/) studies the impact of sleep on memory, primarily using behavioural measures together with EEG and fMRI. We are particularly interested in how memory replay in sleep may contribute to the formation of cortical representations from knowledge that is initially coded into the hippocampus. We are also interested in how integration of incoming information with pre-existing cortical knowledge may lead to plastic changes in existing schemas, potentially even boosting the creative recombination of ideas or concepts. Sleep provides the perfect opportunity for building and remodeling predictive models of the world – so a predictive coding angle would be great. This will be the lab’s first foray into computational modelling, and we are looking for someone experienced in deep nets and / or PDP models. Note that we expect to recruit 1-2 PhD students to work on this project starting from August, and the successful postdoctoral candidate would have the opportunity to work closely with them, and potentially even be involved in their supervision.

Cardiff University’s Brain Research Imaging Centre (CUBRIC) is one of the best equipped neuroscience institutes in Europe, housing 3 MRI scanners, including a 7T and a Connectom scanner, a MEG, EEG labs, a brain stimulation lab, and of course the state of the art sleep lab. Further details of CUBRIC can be found on our web-page:  <http://sites.cardiff.ac.uk/cubric. />. The Neuroscience and Psychology of Sleep (NaPS) group is housed within CUBRIC, and conducts world-leading research on the impacts of sleep on cognitive processes.

Period of appointment: 2 year (potential extension up to 3 years).

Salary: £31,656 - £37,768 per annum (Grade 6)

The post is available from August 2019