

## Research Position

**Hospital for Sick Children, UHN**  
Toronto, Canada

Our group at the Hospital for Sick Children and the University Health Network in Toronto is offering a full-time research position for 2 years to work on the neurophysiological bases of hypnosis, starting around May 2015, with a stipend of \$40,000/year.

In this project we will investigate the neurophysical alterations that accompany hypnotic stages and simple memory tasks using intracranial electroencephalography (iEEG) in individuals undergoing standard clinical assessment for their epilepsy. While several studies have advanced the view that hypnosis results in the dissociation, or “disconnection”, between frontal cortices and other brain areas, this evidence has been mainly obtained with non-invasive recordings such as functional neuroimaging. iEEG provides an exceptional opportunity to investigate with high spatial and temporal resolution changes in activity associated with alterations in cognitive states, thus overcoming typical problems that arise during source reconstruction from non-invasive recordings.

The experimental procedures that the incumbent will carry out include the preparation and coding of the tasks to be presented to patients during control and mental imagery relaxation states. The incumbent will thus be taught how to administer mental imagery relaxation techniques and associated technicalities involved in such activities. Data analysis will require experience with typical digital signal processing for brain recordings such as power spectra and coherence, among others. Some scripts are already available in MATLAB and FieldTrip for signal processing, and the incumbent will have the chance, and would be encouraged to create his/her own codes, with the assistance of the members of the team.

There are two **absolute requirements** for the incumbent: first, an excellent knowledge of coding in MATLAB and willingness to implement experimental tasks using Presentation, PsychoPy, or Psychtoolbox and, second, the ability to learn how to put patients at ease and coach them through the mental imagery relaxation technique that will be taught by one of the members of our team who practices this in his clinic.

Specific knowledge of neurophysiology is not required but it will facilitate the project. Nevertheless, the incumbent will have plenty of opportunities to become familiar with neurophysiological techniques, concepts and analysis. The combined expertise of our team, that includes electrophysiological recordings, brain coordination dynamics and psychology, plus the several activities in our institutions, offer an excellent environment for a motivated student of the brain and behaviour. We think that this is a very interesting and innovative project and thus we are seeking a person who is not afraid of facing advanced brain recording methods and analysis of the psychophysics of altered states of consciousness.

Those interested should contact and submit a CV to Jose Luis Perez Velazquez, [jlpv@sickkids.ca](mailto:jlpv@sickkids.ca), or [jose-luis.perez-velazquez@sickkids.ca](mailto:jose-luis.perez-velazquez@sickkids.ca). A couple of potential references may be added to the CV.