



PhD Positions on Multiscale Modelling of the Neuromuscular System for Deep Brain Stimulation

1. Background

Deep Brain Stimulation (DBS) is an effective, safe and reversible method for treating the symptoms of Parkinson's disease and other neurological disorders. It involves implanting electrodes in the brain to stimulate neurons responsible for symptoms including tremor, slowed movement and stiffness. Despite its success, the methods by which DBS works are not yet known and many questions remain to be answered in order to realize its full potential. The aim of this project is to improve our understanding of DBS and identify new approaches for stimulation using computer models of networks of neurons within the brain and the neuromuscular system. Experiments will also be conducted to identify new biomarkers of neural activity that can be used to enable continuous symptom monitoring for closed-loop stimulation.

Applications are invited for two full time PhD positions, one focusing on the development of computational models of the neuromuscular system, and one in recording and analysis of experimental data in patients with Parkinson's disease. The start date for both projects will be September 2015.

2. Who Should Apply

Applicants should have, or expect to obtain, a first or upper second class honours Bachelors or Masters degree in Electrical, Electronic or Biomedical Engineering (or a related discipline). Suitable candidates will have a strong interest in biomedical/neural engineering and neuroscience. Excellent analytical, computer and communications skills are essential.

3. Funding

This project is funded by a European Research Council (ERC) Consolidator Grant. Studentships cover tuition fees for EU applicants and a tax free stipend of €18,000 per year. An annual allowance is provided for research consumables and for conference attendance.

4. How to Apply

Please send a cover letter describing your experience and interest in this project (1 page max), CV, and academic transcripts to

Dr. Madeleine Lowery
UCD School of Electrical, Electronic & Mechanical Engineering
University College Dublin
Belfield
Dublin 4
Ireland
E-mail: madeleine.lowery@ucd.ie
Tel. (01) 716 1911