



## Neuromuscular Systems Research Lab School of Electrical & Electronic Engineering University College Dublin

### Post-doctoral Research Position Computational modelling of closed-loop deep brain stimulation

#### Background

Applications are invited for a 2 year post-doctoral position with the Neuromuscular Systems Research Lab at University College Dublin. The project represents an exciting opportunity to work on a multidisciplinary research project funded by Science Foundation Ireland.

A highly motivated post-doctoral research fellow is sought to design multivariable control policies for closed-loop control of deep brain stimulation (DBS) in Parkinsons' disease. The project will use computational models of the neuromuscular system to design and test closed-loop DBS control strategies. This work will form part of a wider multidisciplinary project incorporating clinical and preclinical studies. The project would suit candidates with expertise in neuromodulation, computational neuroscience, control theory and/or physiology of the corticospinal and basal ganglia systems.

#### UCD Neuromuscular Systems Lab

The Neuromuscular Systems Lab is an international multidisciplinary research group in the School of Electrical and Electronic Engineering at UCD and part of the UCD Centre for Biomedical Engineering. Our research involves applying engineering principles, in particular mathematical modelling, signal analysis and experimentation, to understand how the nervous system controls muscle in healthy and diseased states. Through this research we aim to improve our understanding of the neuromuscular system to address fundamental questions in the control of human movement and to develop improved therapeutic and rehabilitation strategies.

We are based at University College Dublin ([www.ucd.ie](http://www.ucd.ie)), Ireland's largest university, ranked within the top 1% of higher education institutions worldwide. The university is located on a 330-acre parkland campus just south of Dublin city Centre. Dublin is a lively European capital renowned for its nightlife and bustling technology industry.

#### Who Should Apply

Suitable candidates should have

- A PhD in Biomedical Engineering, Electrical/Electronic Engineering, Neuroscience or a related discipline
- Experience in the field of computational neuroscience, neuromodulation or control theory
- Excellent programming, computational and analytical skills
- A demonstrated commitment to research and publications
- Excellent Communication Skills

Experience with deep brain stimulation, analysis of local field potential or cortical signals or experience with closed loop control systems are also desirable.

#### How to Apply

Applications should be submitted through the UCD website, under job reference 017838 [link](#). For informal enquiries please contact Prof. Madeleine Lowery ([madeleine.lowery@ucd.ie](mailto:madeleine.lowery@ucd.ie)). The closing date for applications 12:00 noon (local Irish time) on 10th of December 2024.

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