Postdoctoral Positions Available in the Neuromodulation Research Center at the University of Minnesota

The Neuromodulation Research Center (NMRC) is accepting applications for multiple postdoctoral associates to join its team. Under the direction of Dr. Jerrold Vitek, NMRC brings together an interdisciplinary team of experts from neurology, neurosurgery, neuroscience, radiology, and engineering to advance neuromodulation therapies for movement disorders. Our group is part of the Udall Center for Excellence in Parkinson’s Disease Research awarded to the University of Minnesota in 2016. In the heart of Minnesota’s ‘Medical Alley’ our NIH funded team fosters inventive, translational research aimed at training the next generation of researchers and clinicians and providing Minnesotans with world-class care. For more information visit nmrc.umn.edu.

We seek outstanding scientists interested in working in an NIH funded research program studying motor systems neurophysiology, the pathophysiology of Parkinson’s disease (PD), mechanisms of deep brain stimulation (DBS) in preclinical animal models of PD, and new DBS approaches. These postdoc positions offer opportunities for multidisciplinary research, training in neuroengineering and neurophysiology, and career development. The projects associated with the available positions are described below.

**Basal Ganglia Cortical Coupling and Connectivity Changes in Parkinson’s Disease and Deep Brain Stimulation**

This position is focused on the analysis of large-scale neuronal populations, characterization of circuit connectivity in Parkinson’s disease, optimization of directional DBS, and development of closed-loop deep brain stimulation (DBS) approaches by using the MPTP non-human primate model of PD.

**Pathophysiological mechanisms underlying parkinsonian motor and non-motor (sleep) symptoms**

Using the progressive MPTP non-human primate model of Parkinson’s disease, this study aims to provide a better understanding of the brain circuitry involved in disordered sleep-wake behavior in parkinsonism and inform the development of targeted therapeutic interventions to treat motor and non-motor symptoms of PD.

**Optimizing coordinated reset deep brain stimulation for Parkinson’s disease**

Coordinated reset deep brain stimulation (CR DBS) is a novel DBS approach that has the potential to treat parkinsonian motor symptoms with significantly less stimulation compared to traditional DBS. Utilizing the MPTP nonhuman primate model of Parkinson’s disease, this project is to optimize critical CR parameters, compare CR DBS in different targets, and understand the mechanism underlying its therapeutic effects.

The qualifications required for these positions are:

- PhD in biomedical engineering, neuroscience or related engineering/science field
- Experience conducting neurophysiology experiments in the human and/or animal models
- Signal processing and data analysis
- Programming in MATLAB
- Excellent interpersonal skills and ability to work collaboratively with others
- Strong record of presenting research results through publications and conference abstracts

For more information please email Wyatt Doepke (doep0013@umn.edu) with your CV.