2018 Talent Development Competition Awardees

Title: Anxiety and resting state dynamic functional connectivity in patients with Parkinson's disease

Jinhee Kim

Supervisor: Antonio Strafella

Abstract: Parkinson's disease (PD) is known for its motor symptoms, but the disease presents with several non-motor symptoms as well, a common one being anxiety. Anxiety contributes to significant impairments such as greater disability, poorer quality of life, higher levels of care dependency, and increased caregiver burden. Despite its significance, the underlying neural basis of anxiety in PD is not completely understood. The diagnosis of anxiety in PD patients depends mainly on clinical symptoms. A better understanding of the neural mechanisms and abnormal brain processes associated with anxiety is a major prerequisite for efficient therapeutic strategies. With this proposal, we are aiming to use resting-state functional magnetic resonance imaging (fMRI) to investigate in-vivo intrinsic functional communication in the brain of PD patients with anxiety, focusing on temporal properties of fluctuating functional connectivity. The proposed study will identify the neurobiological signatures associated with anxiety in PD. Uncovering the pathophysiological mechanism of anxiety in PD can be used to develop a model of affected neuronal circuits in PD with anxiety, which may have very important implications at several levels such as i) an indicator of anxiety symptoms, ii) a possible tool for early detection of anxiety and iii) possibly the development of preventative measures to decrease the burden of anxiety in PD. Additionally, the validation of this approach may allow a broader application of this methodology to measure intrinsic brain activation patterns in other neuropsychiatric disorders.