



## Invited Talk

# *The Computational and Cognitive Neuroscience of Parkinson's disease*

By Dr. Ahmed Moustafa

*Senior Lecturer from Marcs Institute for Brain, Behaviour, and Development  
& School of Social Sciences and Psychology, Western Sydney University*

**Abstract:** Parkinson's disease (PD) is most commonly viewed as a motor disorder associated with reduced levels of dopamine in the basal ganglia and prefrontal cortex. Over the last two decades, research has shown that PD is also associated with cognitive and psychiatric deficits. Specifically, my research (along with research from other labs) has shown that PD patients show impairment performing attentional, working memory, and feedback learning tasks. PD patients are prescribed dopaminergic medications to ameliorate their motor symptoms. In this talk, I will present empirical and computational research findings on the effects of PD and dopaminergic medications on cognitive and motor processes. I will also present new results (and a computational model) on the behavioral basis of the occurrence of "gait problems" in a subset of PD patients. I will also present data on a new computational model of Deep Brain Stimulation (DBS).

**Biography:** Dr. Ahmed Moustafa is a Senior Lecturer in Cognitive and Behavioural Neuroscience at Marcs Institute for Brain, Behaviour, and Development & School of Social Sciences and Psychology, Western Sydney University. He is trained in computer science, psychology, neuroscience, and cognitive science. His early training took place at Cairo University in mathematics and computer science. Before joining Western Sydney University as a lab director, he spent 11 years in America studying psychology and neuroscience. Dr. Moustafa conducts research on computational and neuropsychological studies of addiction, schizophrenia, Parkinson's disease, PTSD, and depression.



He has published over 130 papers in high-ranking journals including *Science*, *PNAS*, *Journal of Neuroscience*, *Brain*, *Neuroscience and Biobehavioral Reviews*, *Nature* (Parkinson's disease), *Neuron*, among others. His recent book, *Computational models of brain and behavior*, provides a comprehensive overview of recent advances in the field of computational neuroscience.



زمان: دوشنبه ۲۷ آذر ۱۳۹۶ ساعت ۱۲/۵ الی ۱۴  
مکان: اتاق ۸۰۳ ساختمان جدید دانشکده مهندسی برق و کامپیوتر  
پردیس شماره ۲ دانشکده های فنی دانشگاه تهران

