Project Title	Neurobehavioural biomarkers for Deep Brain Stimulation (DBS)
Supervisor	Dr Shlomi Haar (Department of Brain Sciences)
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Theme	Biomedical Sensing Diagnostics and Imaging
	Neurotechnology and Robotics
Project Type	Lab based
Project Description	Deep brain stimulation (DBS) is a routine treatment for patients with Parkinson's disease (PD) and Essential Tremor (ET) which improves their motor symptoms and as a result their function and quality of life. While DBS is an effective therapy, it is still not clear how and why it works and therefore there are many open questions as to how it can work better.

This research project is part of a program that aims for a better understanding of the effects of DBS on the system level (in addition to improving symptoms) and a search for biomarkers to improve DBS delivery. In this research project, you will help to collect behavioural (movement sensor) and neural (EEG) recordings from PD patients with implanted DBS electrodes.

You will analyse the data to study the effects of the DBS parameters on patients' body movement and brain activity, in an attempt to develop digital biomarkers to improve DBS delivery. Those can be used initially for improving DBS programming in the clinic, and later for closed-loop adaptive DBS, where the parameters and continually adapted by an AI, based on biomarkers.