



Thesis Project Form

Title (tentative): Neurodiseases Motor Fluctuation Study

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Description

Motivation and application domain

X-linked Dystonia-Parkinsonism is a disease that occurs only among Ilongo people of Philippines. It is a neurodegenerative disease that evolves over the course of many years, resulting in significant disability and a shortened life span. The aim of this thesis is to use advanced machine-learning techniques to analyze data collected with wearable sensors and to assess the clinical score of the pathology in a completely automatic way.

General objectives and main activities

The thesis research will be aimed at the investigation of novel biomarkers using data analysis techniques in order to identify pathological patterns in X-linked Dystonia-Parkinsonism. Accordingly, the main tasks will be the following ones:

- Acquiring data using wearable devices, from both healthy subjects and patients.
- Developing software algorithms based on Machine Learning techniques
- Analyzing the collected data to predict clinical scores

Training Objectives (technical/analytical tools, experimental methodologies)

The thesis will allow training in neuroengineering, rehabilitation, neurophysiology, data analysis, machine learning, code writing.

Place(s) where the thesis work will be carried out: Spaulding Rehabilitation Hospital, Boston, MA, USA

Additional information

Pre-requisite abilities/skills: Coding expertise is mandatory for the data analysis part.

Maximum number of students: 1

Financial support/scholarship: YES