



## Thesis Project Form

**Title (tentative):** Handwriting skill as a diagnostic and monitoring tool for neuromotor and cognitive symptoms in Parkinson's disease

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### Description

#### Motivation and application domain

Clinical management of Parkinson disease (PD) benefits from continuous monitoring of symptoms and disease progression. The quantitative study of goal-directed movements potentially provides rich information on perception, planning and executive mechanisms.

#### General objectives and main activities

The goal is to develop a novel technological solution for the diagnosis and monitoring of the progression of Parkinson's disease, capable of providing objective information on the type and degree of impairment.  
The solution will involve a pen-based interface, which is able to record samples of cursive handwriting and automatically detect signs of PD-related impairment.  
The research combines technological development (new device), computational methods (analysis of complex movements); and clinical experimentation with the aim of identifying the relationship between writing ability and severity/progression of neurological symptoms.

#### Training Objectives (technical/analytical tools, experimental methodologies)

Smartpad interfacing techniques  
Movement analysis  
Clinical trials

**Place(s) where the thesis work will be carried out:** Bioengineering Lab (DIBRIS); Neurological Clinic (DINOGLMI)

### Additional information

**Maximum number of students:** 2