Intelligent Parkinson’s early detection guiding novel supportive interventions

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Parkinson’s disease (PD)
One of the commonest neurodegenerative diseases

1% of individuals over 60 years; 4% over 75 years

Progressive
Initial subtle symptoms evolve over time
May take 10 years after disease onset

Prodromal PD
- Hyposmia / Sleep disorder / Excessive daytime sleepiness / Anxiety

Motor symptoms

Stable PD
- Predictable response to dopamine / No motor fluctuations
Daily activities are affected

Movement → Tremor, Bradykinesia
Walking → Freezing of gait
Eating → Obesity
Talking → Hypophonia
Writing → Micrographia
Sleeping → REM behaviour disorder
Mood → Depression
Expression → Hypomimia
Importance of early PD detection

The sooner PD symptoms are identified and clinical diagnosis takes place, the sooner multidisciplinary therapy can be employed to sustain patients’ quality of life.
The i·PROGNOSIS approach
Early PD Detection

PD Support
A screening tool for PD in the daily living

i-PROGNOSIS aims to develop a mobile application that will record data *unobtrusively* from the user’s daily interaction with the smartphone and smart web-connected devices to detect behaviour related to PD.
Novel ICT-based supportive interventions

Personalised gamified interventions to facilitate physical exercise, diet, emotional expression, voice and handwriting quality sustenance

Assistive interventions to improve oral communication, sleep and walking
i-PROGNOSIS
Final system

GDATA

IoT

SDATA

INTERVENTIONS
+Monitoring
The GData Study
Engage volunteers in donating data against Parkinson’s

PD patients and healthy individuals over 40 years old

Anonymous contribution

Only an Android smartphone is needed
What data?

Silent, unobtrusive collection via a mobile app

- Voice characteristics when on a phone call
- How steady the phone is held when talking on the phone or typing
- Keystrokes timing and pressure when typing
- The distance covered each day
- Emotional content from stored text messages
- Facial expressions from stored photos
Machine learning

Develop computer algorithms that will learn from the data collected to detect behaviour related to PD.

Data security

Data transferred securely/anonymously and stored on Microsoft Azure servers.
How to participate
iPrognosis app

Be part of the research.
Donate data against Parkinson’s.
Download the iPrognosis app

The app is available for Android smartphones from the Google Play store, free-of-charge.
Offer data by doing what you do everyday. No more.

The iPrognosis app records data from your everyday use of the smartphone, e.g., when talking on the phone or sending a text message.
Choose what is being recorded

Through the settings of the app, you can modify what types of data are recorded at will.
Changed your mind? Withdraw at any time

Through the settings of the app, you can withdraw from the study at any time and even delete the data recorded so far.
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GData Study in Greece
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GData Study in the UK

Faculdade Motrigada Humana  Portugal
GData Study in Portugal

Microsoft Innovation Center  Greece
Data protection and storage
Thank You

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