

# STAT-ON: Monitoring mobility in Parkinson's Disease. From research to market

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## Abstract

STAT-ON is a waist-worn medical device that provides objective information on PD motor symptoms in activities of daily life. The device is based on the execution of machine learning algorithms in real-time. With a simple APP, the healthcare professional can configure the device and download the information obtained, which is stored only in the device and never goes to any external server. STAT-ON enables clinicians to understand the distribution and severity of the PD motor symptoms such as bradykinesia, dyskinesia, FoG, motor fluctuations, and activity and gait parameters. One of the most important features is that the device is worn on the waist, which is very close to the center of mass of the human body. This allows characterizing the patient's movements with higher accuracy with only one sensor. Years of research are behind the device. The device is based on supervised machine learning techniques, and a large videorecorded and inertial database with PD patients was performed. Every symptom was label in the video, which was synchronized with inertial signal. A feature matrix was built for each symptom and several algorithm models were built, which were then embedded in a microcontroller. A rigorous phase on industrialization, certification, and business plan was needed before going to the market. STAT-ON is now in the market but achieving more clinical evidence in real clinical practice.

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