

Construction of a Parkinson's voice database

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Abstract

In recent years, voice analysis has been studied for the non-invasive evaluation of Parkinson patients. In this context, a Parkinson's voice database has been built by an interdisciplinary team made up of neurologists, *otorhinolaryngologists and speech therapists* from Hospital Posadas and Hospital Rivadavia and coordinated by researchers from Universidad Nacional de La Matanza (UNLaM). Voice samples were recorded during 2019 at a sound laboratory in Hospital Rivadavia which had been equipped by UNLaM and conditioned by a sound technician and a speech therapist. Parkinson patients were selected and scheduled to participate in a circuit that included a neurological assessment with the *Unified Parkinson's Disease Rating Scale* (UPDRS), voice recordings and a vocal cord endoscopy. Such investigation was approved and supervised by Hospital Rivadavia Ethics' Committee Ethics. The voice database includes voice samples of 55 (24 female and 31 male) Parkinson patients. In addition, voice samples from 64 non- Parkinson participants were obtained under the same conditions and protocol. Preliminary results from the database show differentiation between Parkinson and non- Parkinson participants, though parameters and methods to synthesize differences are still pending. Parkinson patients' age range between 38 and 79 years (mean age: 64), and disease duration varies from 1 to 16 years (mean: 6 years). General results in terms of vocal cords condition and hoarseness are remarkable when compared with healthy participants. The collaborative work from this interdisciplinary group will provide a useful, easy to use, low-cost tool for Parkinson patients' follow-up.

Keywords

Data Mining, Classification Algorithms, Vocal Acoustic Analysis, Database, Parkinson Disease

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Pérez, Silvia Noemí is an Associate Professor in Engineering and Technological Research Department, National University of La Matanza and she coordinates Applied Statistics subject for Industrial Engineering. She earned a Master's degree in Biometrics from University of Buenos Aires. Her main lines of research focus on technology-enhanced learning, particularly using educational platforms, and statistics applied to the analysis of health and education data.

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