A New EFMM-OneR Hybrid Model for Diagnosing Parkinson's Disease

ABSTRACT

Parkinson's disease is a dangerous disease that attacks the nervous system and affects it negatively over time. Early diagnosis of this disease is necessary for identifying the most appropriate treatment for preventing the disease from worsening. It can be diagnosed by examining the symptoms of the patient. Recently, researchers have used voice disorders to diagnose Parkinson's disease by extracting attributes from audio recordings of affected people and using classification techniques to provide accurate diagnoses. In this paper, an enhanced fuzzy min-max neural network based on the OneR attribute evaluator (EFMM-OneR) is proposed as a hybrid model for diagnosing Parkinson's disease. The hybrid model consists of two stages: In the first stage, feature selection is used to identify and remove irrelevant, redundant, or noisy features from the provided dataset. In the second stage, the enhanced fuzzy min-max (EFMM) neural network is used for the classification process. The results demonstrated the ability of the EFMM-OneR model to improve the classification accuracy as compared to other classifiers from the literature.