

Special Issue on
**Computer-Aided Early Detection and Analysis of
Parkinson's Disease**

CALL FOR PAPERS

According to a representative study, Parkinson's disease (PD) along with other neurodegenerative diseases may surpass cancer as the second largest cause of mortality by the year 2040. It is a neurodegenerative disorder marked by motor and nonmotor manifestations. Clinical and nonclinical symptoms typically worsen over time. PD is clinically identified by rigidity, rest tremor, bradykinesia, and postural instability. The clinical diagnosis led by the onset of these symptoms is in the advanced stages characterized with 60-80% dopamine (DA) decline in the substantia nigra pars compacta (SNc) along with 40-50% atrophy of cell bodies. Early and accurate detection of PD is crucial for prognostic analysis and patient management and for avoiding unnecessary medication and their associated financial overheads, possible side-effects, and safety risks.

Studies for the progression of PD suggest nonlinear pathogenesis with varying rate of deterioration and accelerated atrophy in the early phase. Advances in computer-aided techniques have the potential of improving disease management by capturing the deviations from healthy controls, if successfully detected early enough.

This special issue seeks to explore novel computer-aided techniques, which can act as support tools for clinicians in identifying efficient and cost-effective biomarkers for early detection of Parkinson's disease and its management. The special issue also encourages development of mathematical models or analysis and progression of the disease. We welcome high original research articles as well as reviews of the state-of-the-art and clinical studies and relevant field trials and their results.

Potential topics include but are not limited to the following:

- ▶ Novel features for prognostic PD analysis, from among the three recognized classes: clinical, nonclinical, and imaging-based features
- ▶ Novel representations, mathematical formulations, and analysis
- ▶ Efficient algorithms for early PD detection and analysis, in terms of compact representation and fast classifiers
- ▶ Efficient representation and mathematical models for disease progression in terms of multiple modalities
- ▶ Expert systems/mobile apps to aid clinicians and neurologists in PD analysis
- ▶ Clinical studies, statistical validation, and field trials

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/jhe/cad/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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