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Features Reduction Using Bat Algorithm for Identification and Recognition of Parkinson Disease

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Abstract : Parkinson's disease is a chronic neurological disorder that directly affects human gait. It leads to slowness of movement, causes muscle rigidity and tremors. Gait serve as a primary outcome measure for studies aiming at early recognition of disease. Using gait techniques, this paper implements efficient binary bat algorithm for an early detection of Parkinson's disease by selecting optimal features required for classification of affected patients from others. The data of 166 people, both fit and affected is collected and optimal feature selection is done using PSO and Bat algorithm. The reduced dataset is then classified using neural network. The experiments indicate that binary bat algorithm outperforms traditional PSO and genetic algorithm and gives a fairly good recognition rate even with the reduced dataset.

Keywords : parkinson, gait, feature selection, bat algorithm
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