



Improved Transient Search Optimization with Machine Learning Based Behavior Recognition on Body Sensor Data

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Abstract: Recently, human healthcare from body sensor data has gained considerable interest from a wide variety of human-computer communication and pattern analysis research owing to their real-time applications namely smart healthcare systems. Even though there are various forms of utilizing distributed sensors to monitor the behavior of people and vital signs, physical human action recognition (HAR) through body sensors gives useful information about the lifestyle and functionality of an individual. This article concentrates on the design of an Improved Transient Search Optimization with Machine Learning based Behavior Recognition (ITSOML-BR) technique using body sensor data. The presented ITSOML-BR technique collects data from different body sensors namely electrocardiography (ECG), accelerometer, and magnetometer. In addition, the ITSOML-BR technique extract features like variance, mean, skewness, and standard deviation. Moreover, the presented ITSOML-BR technique executes a micro neural network (MNN) which can be employed for long term healthcare monitoring and classification. Furthermore, the parameters related to the MNN model are optimally selected via the ITSOML algorithm. The experimental result analysis of the ITSOML-BR technique is tested on the MHEALTH dataset. The comprehensive comparison study reported a higher result for the ITSOML-BR approach over other existing approaches with maximum accuracy of 99.60%.

Keywords: Behavior recognition; transient search optimization; machine learning; healthcare; sensors; wearables

1 Introduction

Recent advancements in sensing technologies have enabled the healthcare industry to enhance the quality of its services [1]. Additionally, the design of lightweight and small smart sensors has enabled

