DETERMINATION OF THE MOST RELEVANT FEATURES TO IMPROVE THE PERFORMANCE OF RF CLASSIFIER IN HUMAN ACTIVITY RECOGNITION

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Abstract

The impact that neurodegenerative diseases have in our society, have made human activity recognition (HAR) arise as a relevant field of study. The quality of life of people with such conditions, can be significantly improved with the outcomes of the projects within this area. The application of machine learning techniques on data from low level sensors such as accelerometers is the base of HAR. To improve the performance of these classifiers, it is necessary to carry out an adequate training process. To improve the training process, an analysis of the different features used in literature to tackle these problems was performed on datasets constructed with students performing 18 different activities of daily living. The outcome of the process shows that an adequate selection of features improves the performance of Random Forest from 94.6% to 97.2%. It was also found that 78 features explain 80% of the variability.

Keywords

HAR; Machine learning; Feature selection; RF classifier