

Semi-supervised Adaptive Method for Human Activities Recognition (HAR)

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Abstract

Using sensors and mobile devices integrated with hardware and software tools for Human Recognition Activities (HAR), is a growing scientific field, the analysis based on this information have promising benefits to detect regular and irregular behaviors in individuals during their daily activities. In this study, the Van Kasteren dataset was used for the experimental stage, and it all data was processed using the data mining classification methods: Decision Trees (DT), Support Vector Machines (SVM) and Naïve Bayes (NB). These methods were applied during the training and validation processes with the proposed methodology, and the results obtained showed that all these three methods were successful to identify the cluster associated to the activities contained in the Van Kasteren dataset. The Support Vector Machines (SVM) method showed the best results with the evaluation metrics: True Positive Rate (TPR) 99.2%, False Positive Rate (FPR) 0.6%, precision (99.2%), coverage (99.2%) and F-Measure (98.8%).

Keywords HAR, Data mining, Cluster, Evaluation metrics, Dataset, Van Karesten

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