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EDITORIAL

Editorial

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This third issue of the seventh volume of the *Journal of Reliable Intelligent Environments* includes one review and five research papers.

Trends in human activity recognition using smartphones, by Anna Ferrari, Daniela Micucci, Marco Mobilio and Paolo Napoletano, presents the most recent solutions proposed in the human activity classification process. It focuses on each task of the process, which are acquisition, preprocessing, data segmentation, feature extraction, and classification. Solutions are analyzed by emphasizing their strengths and weaknesses. The survey also presents the metrics commonly used to evaluate the goodness of a classifier and the datasets of inertial signals from smartphones that are mostly used in the evaluation phase.

A distributable event-oriented architecture for activity recognition in smart homes, by Cédric Demongivert et al., proposes a new architecture for continuously generating, propagating, and delivering information using event-based communications among software agents. The communication components implement an abstraction layer that can integrate heterogenous environments. An implementation of the proposed mechanisms is presented to handle activity recognition in Intelligent Environments.

Machine learning approach for classification of Parkinson disease using acoustic features, by Vikas Mittal and R. K. Sharma, investigates machine learning algorithms for the classification of Parkinson's disease. Authors adopted Principal Component Analysis (PCA) to partition data and select features. Then they adopted three different classifiers to classify all data partitions, specifically the weighted k-NN (nearest neighbour, wkNN), Logistic Regression (LR), and Medium Gaussian Kernel support vector machine (MGSVM).

A new hybrid approach for feature extraction and selection of electroencephalogram signals in case of person recognition, by Bhawna Kaliraman and Manoj Duhan, describes different feature extraction schemes for the classification of EEG signals. After feature extraction, feature selection techniques are applied to improve classification accuracy by reducing the dimension of data. Again, Principal Component Analysis (PCA) and Linear Discriminant Analysis (LDA) are used for dimensionality reduction.

A systematic approach to diagnose Parkinson's disease through kinematic features extracted from handwritten drawings, by Rohit Lamba, Tarun Gulati, Kawther A. Al-Dhlan and Anurag Jain, proposes a Parkinson?s disease diagnosis system that analyzes the kinematic features extracted from the handwritten spirals drawn by patients. The publicly available University of California, Irvine, Parkinson's disease spiral drawings using digitized graphics tablet dataset is used in this study. A total of 29 kinematics features are extracted from the dataset. Relevant features are selected using a genetic algorithm and mutual information gain feature selection methods. The performance of four classifiers (e.g. support vector machine, random forest, AdaBoost and XGBoost) are analyzed in terms of accuracy, sensitivity, specificity, precision, F-measure, and area under ROC curve.

A decision support system for heart disease prediction based upon machine learning, by Pooja Rani, Rajneesh Kumar, Nada M. O. Sid Ahmed and Anurag Jain, presents a hybrid decision support system that can assist in the early detection of heart diseases. Authors have adopted the Cleveland heart disease dataset available at UCI (University of California, Irvine) machine learning repository. A multivariate imputation approach has been implemented to handle the missing values. A hybridized feature selection algorithm combining the Genetic Algorithm (GA) and recursive feature elimination has been used for the features selection. Finally, Support Vector Machine, Naive Bayes, Logistic Regression, Random Forest, and Adaboost classifiers have been tested.

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We hope these articles stimulate the community to further improvements in this area and perhaps to collaborations between the participating teams so that complementary solutions can be used in a combined way to tackle more complex problems.