

Data Analytics Based on Multi-Class Classification and Concept Drift Adaptive Ensemble Learning

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The challenges in big data analytics are the high dimensionality and complexity in data representation. Granular computing and feature selection are among the challenge to deal with big data analytics that is used for Decision making. We will discuss these challenges in this plenary talk and provide new projection on ensemble learning for health care risk prediction. We have utilized ensemble learning as multi-classification techniques on multi-data streams that collected from multi-sensing devices installed in home care center. These devices collected information in multidimensional data streams that are reflecting life style, environment and physical data. These are called as data streams that require learning models adaptable to objects with for decisions. These data streams change over time, so that the learned model may not become obsolete, leading to concept drift in providing better learning methods. On important aspect in project of multi-sensing for healthcare that has three layers. Each layer has a set of features resembling a set of conditions, are ensemble of different classifiers that are trained to achieve best accuracy. Feature selection plays an important role in data mining in multiclass classification as it can reduce complexity of training with good accuracy. Decomposition and ensemble methods can increase the performance on multi-class classification problems. However, the accuracy is affected by the imbalanced data that could affect the training of different classifiers and also could involve in making the accuracy of prediction not appropriate. Also, these ensemble classifiers have to adapt, automatically to the changes in the streams. The talk will discuss these issues and provide a challenge and solution to overcome such problems. Also, outline several decomposition strategies for ensemble methods to enhance the accuracy rate and provide better active and adaptive ensemble.



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