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Apparatus, System and Method for Batch Mode Active Learning with Guaranteed Performance Bounds

Due to the increase in the amount of digital data, effective data classification plays an increasingly important role in real world applications. For instance, a retrieval application would use a trained classification model to retrieve relevant results with respect to a query. To ensure reliable performance, the classifier must be trained using labeled examples. Typical methods can be time consuming and labor intensive, requiring hand labeling of training objects. Another method of classifying data is attempting to automate the training. However, once a classifier is trained, it cannot be guaranteed to perform with a desired accuracy of quality on unknown data sets.

Researchers at Arizona State University have developed a batch mode active learning method to train a classifier. Batches of unlabeled data are selected simultaneously to optimize the value of the objective, assigned a score, and then are ranked by their scores. The process produces quality data classification. The simple and effective strategy provides a strong guarantee of the quality and accuracy of the convex relaxation.

Potential Applications

- Video analytics
- Face recognition software
- Video Processing
- Medical imaging
- Video surveillance and security
- Gaming establishments

Benefits and Advantages

- More Efficient – Reduces the resources utilized to train a data classifier.
- More Reliable – Provides better reliability the performance of the system.
- Effective – Can be used in situations where data instances need to be selected from vast quantities of unlabeled data.

For more information about the inventor(s) and their research, please see

Dr. Vineeth Balasubramanian's directory webpage

Dr. Sethuraman Panchanathan's directory webpage

Dr.Jieping Ye's directory webpage