Online Corrective Boosting

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Algorithms which Classify Data in Real-Time with Low Memory Load Classification algorithms are widely used in modern technology, particularly in search algorithms, object recognition, and data mining applications. Due to the expansive amount of data in the world which is increasingly accessible in a continuous, real-time manner, there is an important need for classification algorithms that are highly efficient, real-time, and accurate. Current classification algorithms in particular are hampered by high memory loads, need for offline training on datasets, and long processing times. Development of algorithms which can classify data in a real-time, low memory load manner is highly applicable to classification technology such as face recognition, optical character recognition, language processing, and other machine learning technologies.

Machine-Learning Algorithm with Real-Time, Tunable Categorization Function The technology presented offers a novel machine learning algorithm which is able to offer a real-time, tunable, and accurate categorization function. Specifically the technology achieves this through the following: • The algorithm is based upon a boosting algorithm design in which only weak classifier weights are updated; this allows the algorithm to be run in an online manner. • Updates its weightings by minimization of the Adaptive Boosting (AdaBoost) algorithm exponential loss function during incremental training. • Increases computational speed dramatically by approximating all the AdaBoost weak classifier weights through a greedy algorithm; this approximation method allows faster classification and the ability to run the algorithm in a online, real-time manner. • The extent to which this approximation occurs can be tuned such to achieve higher accuracy rates but requiring higher processing times.

For further technical details about the algorithm, please see the inventor's publication Online Coordinate Boosting by Pelossof et al.

Applications: • Online classification systems • Facial/Object Recognition • Optical Character Recognition • Natural Language Processing • Data mining algorithms

Advantages: • Efficient Classification System • Generalized algorithm able to be adapted to any classification task • Real-time capability • Low memory usage • Tunability – ability to optimize memory usage versus performance

Patent Status: Patent Pending

Licensing Status: Available for Licensing and Sponsored Research Support

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