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Deep Data Stream Analysis Model and
Algorithm With Memory Mechanism

ABSTRACT:
Integrated analysis is an important method for data analysis. Aimed at improving the deficiencies of traditional integrated data stream analysis, a human-like remembering and forgetting mechanism is introduced into data stream analysis, and a deep data stream analysis model based on remembering (DSAR) is proposed. Through this remembering and forgetting mechanism, the model regards basic classifiers as system-obtained knowledge and not only stores useful basic classifiers in a ``remembering library'' to improve prediction stability but also selects good basic classifiers to participate in integrated prediction, thus improving its ability to accommodate conceptual variations. Based on the DSAR model, an integrated deep data stream analysis (DDSA) algorithm is proposed. The algorithm uses the forgetting curve and a selective ensemble classifier to simulate human thinking. Compared with four typical data stream analysis algorithms, the DDSA algorithm has a high classification accuracy and a strong capacity for accommodating concept drift features (CDFs) within data stream analysis. Classification is an important application in the field of data analysis. The classical problems mainly adopt static batch processing that is, all the training data is submitted to the learning system. However, as application fields acquire ever increasing amounts of data, the ability of learning systems to learn dynamically is also becoming increasingly important