Lipschitz Classifiers Ensembles: Usage for Classification of Target Events in C-OTDR Monitoring Systems

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Abstract : This paper introduces an original method for guaranteed estimation of the accuracy of an ensemble of Lipschitz classifiers. The solution was obtained as a finite closed set of alternative hypotheses, which contains an object of classification with a probability of not less than the specified value. Thus, the classification is represented by a set of hypothetical classes. In this case, the smaller the cardinality of the discrete set of hypothetical classes is, the higher is the classification accuracy. Experiments have shown that if the cardinality of the classifiers ensemble is increased then the cardinality of this set of hypothetical classes is reduced. The problem of the guaranteed estimation of the accuracy of an ensemble of Lipschitz classifiers is relevant in the multichannel classification of target events in C-OTDR monitoring systems. Results of suggested approach practical usage to accuracy control in C-OTDR monitoring systems are present.