MATHEMATICAL METHOD IN PATTERN RECOGNITION |
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On a Classification Method for a Large Number of Classes

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Abstract

The construction of a two-level decision scheme for recognition problems with many classes is proposed that is based on the development of the error-correcting output codes (ECOC) method. In the “classical” ECOC, a large number of partitions of the original classes into two macroclasses are constructed. Each macroclass is a union of some original classes. Each macroclass is assigned either 0 or 1. As a result, each original class is defined by a row of 0 and 1 (the stage of encoding) and a coding matrix is constructed. The stage of classification of an arbitrary new object consists in the solution of each dichotomic problem and application of a special decision rule (the stage of decoding). In this paper, new methods for weighting and taking into account codewords, modifying decision rules, and searching for locally optimal dichotomies are proposed, and various

quality criteria for classification and the cases of extension of a codeword are considered.

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Ethics declarations

The authors declare that they have no conflicts of interests.

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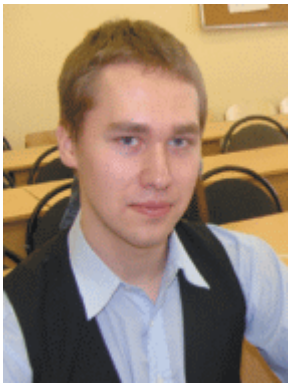

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