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THE METHOD OF BUILDING AND OPTIMIZING COGNITIVE MAPS FOR USE IN INFORMATION AND CONTROL SYSTEMS

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A method for the optimal construction of cognitive maps is presented. It consists in optimizing input data, data dimension and cognitive map structure. The optimization problem occurs with large amounts of input data. Also, the data may not be accurate or distorted. Optimization of the data dimension is clustering the input data. The hierarchical agglomerative method is used as a clustering method. Cluster analysis methods allows to break a lot of data into a finite number of homogeneous groups. The data are combined according to similar characteristics or general characteristics. Optimization of the structure of a cognitive map consists in the automatic adjustment of the weights of the influence of concepts on each other by machine learning methods. In this paper, we use the neural network learning method.

Keywords: cognitive map, cluster analysis, neural network, training sample, fuzzy sets.

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