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Information system based on multi-value classification of fully connected neural network for construction management

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ABSTRACT

This study is devoted to solving the problem to determine the professional adaptive capabilities of construction management staff using artificial intelligence systems. It is proposed fully connected feed-forward neural network (FCF-FNN) architecture and performed empirical modeling to create a data set. Model of artificial intelligence system allows evaluating the processes in an FCF-FNN during the execution of multi-value classification of professional areas. A method has been developed for the training process of a machine learning model, which reflects the internal connections between the components of an artificial intelligence system that allow it to "learn" from training data. To train the neural network, a data set of 35 input parameters and 29 output parameters was used; the amount of data in the set is 936 data lines. Neural network training occurred in the proportion of 10% and 90%, respectively. Results of this study research can be used to further improve the knowledge and skills necessary for successful professional realization.

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1. INTRODUCTION

Nowadays artificial intelligence becomes one of the defining start technologies, which is being worked on in a significant number of areas with regard to the possibility of its implementation. According to the research with P. Boucher at the front, artificial intelligence is defined as a system that simulates human behavior by analyzing the environment and performing functions, with a certain degree of autonomy, to achieve pre-formed goals [1]. Thus, artificial intelligence is a systemic definition that includes machine and deep learning, peculiarities of which are revealed while artificial intelligence models' learning.

The study provides a scientific basis for the application of artificial intelligence technology to determine the professional adaptive capabilities of construction management staff. If we base the development of an artificial intelligence information system for multi-value classification on the results of youth vocational guidance tests, it will improve the diagnosis of professional selection and will be able to provide recommendations for improving the productivity of professional implementation [2]. The level of trust of young people in the artificial intelligence when it comes to the questions of career guidance, choosing