

INFORMATION AND COMPUTER TECHNOLOGIES

Comparative analysis of environments for logic programming in the Prolog language

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This paper presents the results of a survey of basic characteristics and parameters of logic programming environments. The object of the analysis are four systems: Strawberry Prolog [1], SWI Prolog [6], Visual Prolog 5.3 [4, 8], Visual Prolog 7.3 [2] and the C ++ compiler Visual [3]. The analysis represents different generations of systems for logic programming of the language Prolog comparing their parameters in the implementation of application for solving the problem: "The Tower of Hanoi" [8] by a recursive algorithm. There are criteria for classification, comparison and evaluation of community programming that can be applied to their choice in the implementation of a specific project.

Keywords: environment for logic programming, Prolog, predicate recursion

Research of neural network simulators through two training data sets

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In the present study our aims is to analyze and test two neural networks simulators - Joone and NeuroPh. This will be accomplished by establishing a neural network of 4 layers constituting a multilayer perceptron with sigmoid links. For the purpose of the study were selected two test data sets, which contain integers. Through sequential training the neural network with each of them and subsequently the test results will be obtained for analysis. The study seeks to show how much these two simulators are similar and how different in their characteristics, what neural networks is suitable to be made by them, what are their advantages and disadvantages, how they can be used interchangeably to give certain desired result.

Keywords: neural network, neural network simulator, data set, training set, neural network architecture

Comparative analysis of simulators for neural networks Joone and NeuroPh

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This paper describes a comparative analysis of two simulator neural networks - Joone and NeuroPh. Both simulators are object-oriented and java - based. The analysis seeks to show how much these two simulators are similar and how different in their characteristics, what neural networks is suitable to be made through them, what are their advantages and disadvantages, how they can be used interchangeably to give certain desired result. For the purpose of comparative analysis of both the simulator will be realized logic function, which is not among the standard, and relatively complex and is selected as a combination of several standard logical operations.

Keywords: neural network, neural network simulator, logical function, exclusive OR, neural network architecture

Some issues of expert systems in healthcare and education

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A very significant and essential part of the development of an expert system is the creation of its knowledge base. The knowledge base includes not only the rules and the facts that form a part of the declarative knowledge, but also functions and procedures, which are responsible for the optimization of the algorithms used in the expert system. However, there is no clear and universal idea of creating knowledge base. This thesis will describe the attempt to develop ontology of the creation of knowledge base for different expert systems.

Keywords: expert systems, knowledge base [KB], medicine, education, future profession

NATURE PHENOMENA AND INNOVATIVE ENGINEERING

Jeans instability and hydrodynamic roots of Landau damping

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Landau damping of Langmuir waves is shown to have hydrodynamic roots, and, in principle, might have been predicted (along with Langmuir waves) several decades earlier, soon after Jeans (1902) paper appeared.

Keywords: Jeans instability, hydrodynamic roots, Landau damping

OPERATION RESEARCH AND DECISION MAKING**Evaluating the strategic directions of innovative development of the shipbuilding industry in Latvia**

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The shipbuilding industry in Latvia – the construction, repair and maintenance of ships and boats – plays an important role in the country's economy. In the context of globalization, there is quite tough competition for orders and sales markets among shipbuilding companies of the world at the regional and global levels. Goal of the research – the analysis of the condition of the Latvian shipbuilding industry and the evaluation of main strategic directions of its innovative development. The research has allowed identifying the most important directions of innovative development of the shipbuilding and ship repair industry. It has been found that at present the most topical directions of innovations in the shipbuilding industry are the development of workers' skills and improvement of the marketing system. There is an urgent need for the construction of new production facilities and repair of the existing ones. These main directions of innovations meet the first priority requirements of the industry and are necessary to improve its competitiveness. Without progress in the first three main directions of innovations, the successful development of the industry in all other directions is not possible.

Keywords: shipbuilding industry, innovative development, competitiveness

Comparative analysis of GIS in sight of view of renewable energy sources monitoring

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At present there exists a great deal of GIS providing data on renewable energy on local and international level. In case of lack of field measurements the idea of using open source data along with field actinometrical measurements on the certain (or existing) sites seems to be efficient from the point of view of accuracy and costs. An overview of GIS commonly used in Russia and USA is given below. All the data used in the overview is available as project descriptions given on the web portal being discussed. All the systems have been analysed from the point of view of the data used on the portal, visualization tools and maps (wind, solar etc.).

Keywords: renewable energy sources, monitoring, visualization tools, geospatial data