

ABSTRACTS

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KEYWORDS OF ONTOLOGY OF DESIGNING: REVIEW, ANALYSIS, GENERALIZATION

The proposed article is an invitation to a discussion of the conceptual framework of the emerging area of research. Article complements the previous article by the author of «the Scientific basis of ontology of designing» in the magazine «Ontology of designing» (№1(7), 2013). Article continues the study of the conceptual apparatus, on the basis of which attempt to define the area of research, the circle of basic concepts and to justify the key terms of the ontology of designing. The author hopes that the formation of the future «common» language for designer on the basis of the developed thesaurus enables and facilitates the penetration of the results and achievements of the project activities in different subject areas.

Key words: *ontology, design, thesaurus, terms, concepts, words, meaning.*

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ONTOLOGY OF PHYSICAL AND PHILOSOPHIC ASPECTS OF MODERN CATASTROPHE THEORY IN INTELLIGENT TECHNOLOGIES OF XXI CENTURY

The formalized model of complex ontology of the modern catastrophe theory is considered on the basis of intelligence technologies of XXI of century. The basic attention addresses on realization of physical and philosophical aspects of this theory within the framework of complex ontology of processing of the information in multiprocessor computing environment. The developed of ontology model takes into account expansion of functionalities of dynamic model catastrophe at interpretation of complex physical processes with use of intelligence technologies. The directions of the practical application of ontological knowledge are specified at realization of the concept of representation and processing of the information in tasks of the control of extreme situations in complex dynamic environment. Clause represents the reduced variant of research submitted by the author on the «World Forum-2013» in USA.

Key words: *ontology, modern of catastrophe theory, physical and philosophic aspects, intelligence technologies, high-performance computing, emergency situation, complex dynamic environment.*

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OPTIMAL DESIGN IN CONDITION OF UNCERTAINTY DETERMINIZATION METHOD

The existing approaches to the optimization of systems (optimal design) in the face of uncertainty are considered. The exact formulation of the problem of constrained optimization in the case of interval uncertainty of parameters of the objective function and constraints is given. In this regard the mathematical theory of interval comparison, including the precise definition of the minimum and maximum intervals. On the base of it the method of determinization is formulated and proved. This method allows to solve the problem by reduction of problem to the two completely define optimization problems of the same type

Key words: *optimal design, constrained optimization, uncertainty, interval mathematics, optimization with interval indeterminacy, the method of determinization.*

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THE PARADIGM OF AN INTELLECTUAL PROFESSIONAL ACTIVITY AUTOMATION. PART 1. THE FEATURES OF AN INTELLECTUAL PROFESSIONAL ACTIVITY

This article is devoted to analysis of day-to-day intellectual activity's organization and control of its quality. Such control is aimed at control of reached decisions, at perfection of used knowledge, at training of new specialists. The outlines of necessary automation for support of decision-making, support on quality management of knowledge bases, support of training to decision-making are offer submitted. This article is the first of the cycle of articles, aimed at search of ways of overcoming of problems with practical use of intellectual program systems. To illustrate of the features of an intellectual activity and its automation the medicine is considered here.

Key words: *cognition, decision support, quality of knowledge, the right knowledge, the accuracy of knowledge, evaluation of the knowledge base, knowledge management.*

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MOBILE LEARNING SYSTEMS AND ONTOLOGY

The paper proposes a scenario model of learning and the open architecture of context-based mobile learning system. Developed structure of a content management system is based on semantic web. The structure of the content management system contains four main elements: the ontology metadata, ontologies particular domain, which describes the structure of indexing resources, and, finally, models of training scenarios and adaptive selection of learning resources. The model based on probabilistic automata is proposed for building a content management system. Context-sensitive learning system should be able to personalize the best learning style. For this purpose we propose to use the apparatus of Bayesian networks and evolutionary computation.

Key words: *mobile learning, context-aware system, content management, ontology, probabilistic automaton, script learning, Bayesian network.*

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SEMANTIC MODEL OF AN INTELLECTUAL E-UNIVERSITY

The paper presents the approach to the construction of intellectual electronic university. As an information model of portal used ontology. Knowledge is one of the most important resources for the higher education institutions. Knowledge, intellectual capital and intellectual property are growing recognition as a new source of development. In connection with this innovative universities seek to effectively manage, control of their knowledge. The objective of this paper is to construct a semantic model of intellectual electronic university in the form of ontology. Intellectual electronic university (the IEU) - a software package to automate the training and control of knowledge in credit system through a global network based on artificial intelligence methods. Information base of IEU are – ontology, conceptual model, which helps in the formalization of a field of knowledge. Problems of the development of intellectual electronic university are being opened, stage of construct ontology of the e-university.

Key words: *Intellectual electronic university, knowledge representation, ontology.*

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THE BANKING ACTIVITIES CONTROL SYSTEM WITH USAGE OF ARTIFICIAL INTELLIGENCE TOOLS

The system of banking management as a complex system with usage of artificial intelligence tools is developed, banking processes using the theory of sets are formalized, a scheme of bank management including control elements such as interest rate and index of banking quality is constructed, the intellectual structure of decision support system that will allow enhance decision-making when choosing the direction of the bank is formed.

Key words: *control system, a bank, knowledge base, modeling, artificial intelligence.*