

ABSTRACTS

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CONCURRENT DESIGN

A new design paradigm is considered which is aimed to significantly reduce the development time and to optimize a product performance. Key terms and main areas for the improvement of a high-tech products design are discussed. The paradigm is illustrated by the examples from aircraft engineering field.

Keywords: *design, structure, topology, optimization, predictive modeling, validity, control, aircraft, concurrent design.*

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CONCEPTUAL DESIGN ISSUES OF CONSTRUCTIVE SCHEMES OF TURBOPUMP UNITS OF AIRCRAFT ENGINES

The paper analyzes the construction scheme products to a large extent determine the parameters of its technical excellence and reliability, as the concept of its design and conceptual issues related to the process of selecting the design concept stage to the product conceptual design. The features of this process on the basis of a systematic approach are illustrated by the example of the turbopump assembly-engine aircraft with a design scheme is determined by the parameters and the structural elements of the machine, engine and aircraft, for which the engine is designed. Emphasizes the need to address the structure and properties of the product. It is shown that the design of new technology products are on the way of dialectical contradictions between the growing scientific and technological needs and opportunities of the current generation of products. In order to generalize the analysis formulated principles for the selection of design schemes for product conceptual design stage.

Keywords: *structural system, construction scheme, structural elements, product construction, structure construction turbopump unit, aircraft engines.*

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ONTOLOGICAL ASPECTS OF COMPUTATIONAL MODEL FOR VISUAL PROGRAMMING TECHNOLOGY

The article considers the computational model for Graph-Symbolic Programming technology (GSP-technology), which implements visual programming style. Visual programming makes it easier to represent models of algorithms, significantly reduces the number of errors made during design and writing of programs, and thus improves the reliability of the developed programs. This is achieved mainly due to the similarity of the domain structuring methods adopted in GSP, and ontological approach in describing the world. In this paper we discuss the ontological aspects of GSP-technology.

Keywords: *computational model, Graph-Symbolic Programming technology, visual programming, ontology, creative problems, artificial intelligence.*

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TRANSFORMATION OF OWL-ONTOLOGY FOR VISUALIZATION AND USAGE AS THE BASIS OF THE USER INTERFACE

Article is devoted to questions connected with simplification of OWL ontologies usage as a basis of graphic user interfaces. In particular creation intermediate model, called user representation ontology, for OWL ontology, which focused first of all on direct visualization in the form of graph structure is considered. The structure of such model, and also an order of axiom's mapping from initial OWL ontology to it are proposed.

Keywords: *ontology, OWL, SKOS, user interface.*

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ONTOLOGY OF EDUCATIONAL PROCESS IN THE DIRECTION «INFORMATION SYSTEMS AND TECHNOLOGIES»

Expert knowledge system investigated and ontology knowledge base of information-learning system is constructed. The mathematical model of representation of expert knowledge in a relational database of information training system built. Software implementation described in the paper Mathematical models will define a view of discipline in a clear and foreseeable as with the qualitative characteristics of the learning material, reflected in the learning system of personal and professional experience of the teacher, thus, improve the quality of automated learning.

Keywords: *information training system, ontology, knowledge base, fuzzy logic*