

Interoperability and Security Standards and Rules in the Polish Law on Informatization

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Observing time-period from 2003 till 2008, polish governmental efforts in informatization was focused on e-government legal foundations and IT standards too. Main purpose of this article is to achieve short discussion of crucial associations between IT practice (especially software engineering rules) and legal limitations of IT plans and strategies in Poland. Main issues of author considerations are rules of interoperability and security of IT systems in polish public administration.

Keywords: interoperability, IT systems, software engineering

Hidden associations in semantic networks

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This paper presents main concepts of semantic network applications in facts association allowing for potential crisis situation identification. Described method helps with development of ontology centric tools for terrorist threat identification. Introduced solution offers wide spectrum of available analysis methods for graph similarity measurement, first order logic and description logic reasoning. Paper presents spectrum of available semantic languages and tools used for processing and inference and pinpoints available areas of application in described domain. Knowledge base in form of rich semantic network is difficult structure to process due to the complexity of similarity and reasoning algorithms. To obtain an efficient tool there have been proposed specific procedure of choosing and filtering the nodes and arcs in knowledge base, unimportant from analysis point of view greatly reducing the problem using simple algebraic formulas.

Keywords: ontology, networks, semantics

Object oriented simulator programs with static and dynamic properties analysis

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This article relates to the problems of research of the object-oriented properties of the simulator programs. Chapter 2 concerns the methods of research of application design and its source code. Chapter 3 describes the methods of research of running object-oriented application. It also shows the methods of research of events taking place inside running applications and its environment.

Keywords: simulation, object-oriented properties, static and dynamic properties

Modeling Complex Network with Small World and Scale Free features

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The paper deals with research of complex networks displaying the, so called, Small World and Scale Free features, which make them accurate models of many real networks. A Small World network is a type of graph in which most nodes are not neighbors of one another, but most of them can be reached from any other with a small number of steps. The Scale Free feature pertains to a network in which most of people have relatively small amount of contacts, but there are some individuals that have huge amount of contacts. We also deliver some evidences for statement that interactive information visualization is important and how visual representation of information can be used to demystify data and reveal otherwise hidden patterns by leveraging human visual capabilities to make sense of abstract information.

Keywords: complex networks, small word, scale free

The Concept of Complex Network Evolution

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In this paper, I focused particular attention on the relationship between the structure and dynamics of complex networks. I am convinced of importance of measuring the structural properties of evolving networks in order to characterize how the connectivity of the investigating structures changes in time. Network measurement are therefore essential in my investigation. I intend to test how the non-stability of structure properties can be viewed as a factor that show abnormal state of the system (e.g. increasing of terrorism activity) modeled by complex networks.

Complex networks are commonly modeled by means of simply or directed graphs. In some cases the use of graph to represent complex networks does not provide a complete description of the real-world systems under investigation. Consequently, I will formally introduce the hypernetwork concept as generalization for representing complex networks and will call them complex hyper-networks.

Keywords: complex networks, social networks, complex hyper-networks

Data Warehouse In Knowledge Management System

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In this study has been characterized as the use of data warehouse in knowledge management systems. In the first part those systems are characterized. In details are characterized: evident and implicit knowledge, manner of management knowledge and methodology of project design of management knowledge systems. Lists and describes the basic tools to support knowledge management processes. Heterogeneous environment with data warehouse in knowledge management systems has been characterized in next part. Last part describes architecture of system of management knowledge and give realization of basic functions of such system (stockpiling knowledge, clean-up, storage, searching out and distribution of knowledge), built of data warehouse.

Keywords: Data Warehouse, Knowledge Management Systems

Data Warehouse In Knowledge Management System – solution model

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In this study has been characterized as the use of selected implementation tools to design a data warehouse (SAS Institute) in system supporting knowledge management. In the first part, these tools are listed and briefly described. In the next, define criteria of valuations knowledge management system built of multidimensional data model or built of relation data model. Furthermore, represents idea of knowledge management system based on extended relation data model.

Keywords: Data Warehouse, Knowledge Management Systems

Quantum computer implemented with use of nuclear magnetic resonance phenomenon – basics of working

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Paper contains information about theory of constructing quantum computer. There are a few different propositions of this kind device's implementation and, in this article, method based on nuclear magnetic resonance phenomenon were characterized. The paper contains also matrix forms of unitary operators, which describe basic logical operations for quantum computer. This thesis doesn't include author's genuine researches' results. The article were prepared as a training material for XXII Meeting of Cybernetic Interests' Circle.

Keywords: quantum computer, quantum gates, nuclear magnetic resonance phenomenon