Concept of interoperability of clinical carepaths and the electronic health record systems conditions implementation

G. BLIŹNIUK

e-mail: grzegorz.blizniuk@wat.edu.pl

Instytut Systemów Informatycznych
Wydział Cybernetyki WAT
ul. S. Kaliskiego 2, 00-908 Warszawa

In contents of paper a description of requirements to the manner of the implementation of the nonvisual interface to systems of the type EHR (electronic health record) was described. That all was carried out as part of project no. POIG.01.03.01-00-145/08, partly granted by EU founds. According to the scope of this project offering such an interface to the model of non-commercial EHR system was supposed to be one of his results. At the same time the scope of the project didn't include the implementation of production EHR systems. During design works a made attempt to start the so-called research EHR system stayed, of which the effective implementation contributed to enrich research alternatives of the environment worked out connected with realization of simulated routes of clinical paths. A description of requirements for the interface to the EHR system both for the system of the repository of clinical paths, and for the tool of effectiveness examinations and XPDL interfaces conception was described too. In the synthetic way were discussed also occurrences so called: cooperativeness, one-way and two-way interoperability of IT systems.

Keywords: interoperability, clinical pathways, EHR

Architecture-driven approach in experimental software designing

T. GÓRSKI

e-mail: gorski@wat.edu.pl
Instytut Systemów Informatycznych
Wydział Cybernetyki WAT
ul. S. Kaliskiego 2, 00-908 Warszawa

The paper describes the use of an information system architecture-driven approach in the process of experimental software design to build models of clinical paths. This article presents the results of the analysis of the applicability of BPMN, GELLO, UML, OCL, XML, HL7 and GLIF standards in the context of their suitability for modelling system architecture. Selected set of standards is evaluated in terms of obtaining the desired effects of construction of information system architecture and creation of clinical paths models in the experimental software.

Keywords: information system architecture, requirements management

Agility and discipline in increasing the efficiency of project teams

T. GÓRSKI

e-mail: gorski@wat.edu.pl
Instytut Systemów Informatycznych
Wydział Cybernetyki WAT
ul. S. Kaliskiego 2, 00-908 Warszawa

The article presents assumptions of the software development methodology which links the features of Rational Unified Process and agile methodologies such as SCRUM and OpenUP. The article presents properties of following methodologies: Rational Unified Process, SCRUM and OpenUP with emphasis on their common features. The article also contains a results analysis of the methodology in a software project in the context of improving the efficiency of the design team working in accordance with this methodology.

Keywords: effectiveness of the software development process, information system architecture

Hidden Markov Models as a text mining method

M. MAZUREK
e-mail: marcin.mazurek@wat.edu.pl
Instytut Systemów Informatycznych
Wydział Cybernetyki WAT
ul. S. Kaliskiego 2, 00-908 Warszawa

In the text mining applications probabilistic models of document are widely used. In this paper the Hidden Markov Models were described as a fundamental method for text processing. Definition of the HMM was presented and the algorithms to find parameters of the model. Some of the possible applications of HMM were suggested.

Keywords: text mining, Hidden Markov Model, information retrieval

Software reliability growth models

R. PEŁKA
e-mail: radoslaw.pelka@wat.edu.pl
Instytut Systemów Informatycznych
Wydział Cybernetyki WAT
ul. S. Kaliskiego 2, 00-908 Warszawa

History of research on reliability of software began on early seventies of the last century. A significant progress of the work aimed at construction of a mathematical model of software reliability growth has been performed since the first publication devoted to this subject was presented. Analysis of existing literature may lead to the conclusion that there is no universal solution which could be applied in every single case. However, it is possible to classify existing models, based on their characteristics such as data domain, way to describe faults discovered during testing process, way to express reliability, or other remaining assumptions, including mathematical concepts used in evaluation process. This article presents an overview of existing solutions related to software reliability modeling, focusing on variety of aspects and methods used within this process.

Keywords: modeling, software, software reliability

Calculating matrix form of an operator describing complex quantum circuit

J. WIŚNIEWSKA
e-mail: Joanna.Wisniewska@wat.edu.pl
Instytut Systemów Informatycznych
Wydział Cybernetyki WAT
ul. S. Kaliskiego 2, 00-908 Warszawa

The article contains a method′s description, which allows to calculate matrix form of quantum operator representing quantum circuit, made of quantum gates (in case, when matrix representations of these gates are known). Mentioned method shows, what kind of mathematic operations we need to perform on matrices describing gates, included in circuit in various configurations, to gain matrix form of quantum operator, which represents given quantum circuit.

Keywords: quantum circuit, unitary quantum gates, matrix representation of quantum operator