Some Aspects of Individual Approach to Learning Based on Tutoring Integrated Expert Systems

Authors:
Galina V. Rybina
Elena S. Fontalina

National Research Nuclear University MEPhI

Educational and scientific laboratory "Intelligent systems and technologies"
Intellectualization and individualization of learning process

Using Intelligent tutoring systems of various architectural types

- ITS based clouds platforms
- WEB ITS
- WEB Tutoring Integrated Expert Systems
- Agent oriented architectures
- other …
Tutoring Integrated Expert Systems (IES)

Basic Models Tutoring IES

- competency oriented student model
- Adaptive tutoring model
- Model of generalized ontology and ontology of the course/discipline
- Model of problem domain
- Model of explaining

Typical tasks intellectual learning

- Individual planning course/discipline studying
- Intellectual analysis of tutoring tasks solutions
- Intelligent decision support
- Performance monitoring Tutoring IES
- Intelligent Collective Learning
Examples of application of Tutoring IES in the educational process of NRNU MEPhi

Direction of preparation (Bachelor, Master)

Applied Mathematics and Computer Science
- Intelligent Systems and Technologies
- Intelligent Information Systems
- ...  

Software engineering
- Introduction to Intelligent Systems and Technologies
- Dynamic Intelligent Systems
- development systems based on knowledge
- Intelligent Conversation Systems
- Моделирование систем
- System modeling

Logical programming
- functional programming
- Object Oriented and Environment Oriented Programming
- Intelligent Simulation Tools
- Audiovisual Information Processing
Ontological approach to designing tutoring IES for courses / disciplines

Basse tools AT-TECHNOLOGY workbench

Applied Ontologies for the course 1

Problem-oriented methodology (prof. Rybina G.V.)

Generalized Ontology “Intelligent Systems and Technologies”

Applied Ontologies for the course N
Technology for developing ontologies of courses/disciplines for tutoring IES and web IES
Individual planning of the methodology of studying the training course for the course "Introduction to the intellectual system"
Monitoring the functioning of the tutoring IES
Ontology fragment example
“Introduction to Intelligent Systems”

Introduction to intelligent systems

Network models of knowledge representation

Frames

Frame definition

Output on frames

Homogeneous and heterogeneous networks of frames

Frame-based KRL

Multiple-theoretic description of frame

Components of identifying the learner’s skills of trainable to simulate simple situations with frames

Competences

PC-1
PC-2
PC-11
PC-12
PC-13

CC-5
CC-51
CC-52
CC-53
CC-54
CC-55

KRL

Hypertext textbook chapters
Thank you for attention!

Speaker's contacts:

Elena S. Fontalina
National Research Nuclear University MEPhI
deav@inbox.ru