

COMPANY PROFILE

The company "MIVAR" is an innovator in the field of development of artificial intelligence systems. The company is a supplier of the technology platform and development tools.

The company "Mivar" was founded in 2012 by developers of mivar modelling theory and designers of logical artificial intelligence of new generation.

R&D – KEY AREAS:

- ◆ Expert systems of new generation
- ◆ Semantic processing and text analysis in natural Russian language
- ◆ Intellectualization systems for robotics

The company "MIVAR" has received **COMNEWS AWARD 2015** for "Technology innovation in the field of artificial intelligence development".

ABOUT TECHNOLOGY

Mivar is a special form of describing reality. Artificial intelligence developed on the basis of mivar principles is extremely close to rational human reasoning.

Mivar-based approach is a universal modelling system with logical inference using if-then rules. This technology allows us to use all the advantages and capabilities of existing tools for working with knowledge efficiently such as ontologies, cognitive maps and semantic networks.

Three pillars of mivar technologies:

- ◆ Multidimensional evolutionary databases
- ◆ Logical inference with the linear computational complexity
- ◆ Conceptual model of a subject domain

The use of mivar logical inference with the linear computational complexity allows us to process more than 5 000 000 rules in a second.



MIVAR



TOMMOROW IS NOW!



logical artificial intelligence

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ENVIRONMENT FOR DEVELOPING KNOWLEDGE MODELS

Wi!Mi is a tool for developing models with unlimited number of connections, parameters and relations.

Wi!Mi allows us to build complex logical chains using simple if-then rules. To design an algorithm logical inference with linear computational complexity is used.

Wi!Mi can be used for developing robots, complex expert systems or logical reasoning systems.

THE TASKS SOLVED:

- ◆ Developing expert systems
- ◆ Designing knowledge models and algorithms for logical reasoning systems
- ◆ Generating execution algorithms: logical inference

ADVANTAGES:

- ◆ The use of available knowledge for processing (formalization)
- ◆ Automated generation of solution algorithms on the basis of available knowledge
- ◆ Proving solution
- ◆ Evolutionary knowledge models
- ◆ The speed of logical inference processing is 5000 000 rules/second

SUPPORTED PLATFORMS:



*Wi!Mi registered in the Unified State Register of Software as "KESMI – Mivar expert system designer". The order of the Ministry of Communications of Russia of 28.04.2016



SEMANTIC PLATFORM

THE TECHNOLOGY OF NATURAL LANGUAGE UNDERSTANDING AND SEMANTIC TEXT ANALYSIS

Application of semantic technologies designed on the basis of mivar-oriented approach has allowed us to overcome considerable limitations in the field of natural Russian language understanding.

OPERATION PRINCIPLE:

Algorithms used in **TEL!Mi** consecutively convert text into the mivar semantic graph. The process of text analysis includes text parsing, semantic conversion, graph building, as well as work with context and ambiguity elimination.

System database consists of concepts and their definitions, system relations and contexts.

Semantic graph and platform modules allow us not only search for words in the dictionary, but also identify context environment, which ensures completely accurate text meaning understanding.

PRACTICAL APPLICATION:

- ◆ Smart search
- ◆ Virtual consultant
- ◆ Anti-plagiarism: detecting plagiarism
- ◆ Intelligent annotation and abstracting
- ◆ Content monitoring and filtering
- ◆ Automated ontology construction
- ◆ Speech understanding for robots



ROBORAZUM IS A SOFTWARE PLATFORM FOR INTELLECTUALIZING ROBOTIC SUITES

INTELLECTUALIZATION IS THE LAST FACTOR THAT CONSTRAINS DEVELOPMENT OF AUTONOMOUS ROBOTS.

ROBORAZUM is an embedded software platform for designing autonomous robot control systems. It provides robotic suites with artificial intelligence, allows them to operate autonomously without involving a human-operator. The platform does not require powerful computational resources.

SOLUTION COMPONENTS:

- ◆ Logical kernel (RAZUMATOR)
- ◆ Autonomous control subsystems
- ◆ Drivers

RAZUMATOR is a logical scheduler and a kernel of the platform. RAZUMATOR allows autonomous robots to design algorithms autonomously, make decisions and solve problems without human involvement.

IF A ROBOT CAN BE CONTROLLED REMOTELY, WE WILL MAKE IT AUTONOMOUS!

