

Mikhail Belov

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About

Mikhail Belov (<http://belov.global>) is an expert and empirical scientist in the field of information technology, he leads and successfully performs scientific guidance of the Master's degree program «*Business Analytics and Big Data Systems*» whose graduates are highly demanded not only in high tech industry, but also in leading research organizations including the Joint Institute for Nuclear Research (JINR), the European Organization for Nuclear Research (CERN) and etc.

For over 18 years, he has been teaching classes at Dubna State University, Higher School of Economics (HSE), Moscow Power Engineering Institute (Technical University); under his leadership, over 200 bachelor's and master's works have been written.

As director of telecommunication center (CTO), he developed the IT infrastructure of Plekhanov Russian University of Economics.

He was the first in Russia who created and implemented the *Virtual Computer Lab* based on the principles of entropy and self-organization. Played a leading role in the formation and development of a scientific school for the practical training of IT professionals while enabling remote development and adoption of multicomponent information systems using cloud computing technologies.

Founder and developer of the non-profit *Dictutor* project (<http://dictutor.com>), targeted both at a more productive study of foreign language and partial decrease of the level of the digital divide between the educational technologies in more than 100 world countries.

Mikhail's hobby is the creative literary oeuvre, which also found its reader. He created a beautiful collection of poems "*Azimuth of Dreams*" (<https://azimuth.belov.global>) that motivates, calls for self-improvement and spiritual development, allows them to look on the bright side, set new goals, and achieve them!

Mikhail always welcomes new contacts, experience exchange, and fruitful collaboration!

Education

DOCTOR OF PHILOSOPHY - PHD (K.T.H.) | 2001-2004 | DUBNA STATE UNIVERSITY

- Automated development of e-learning system

MASTER'S DEGREE | 2000-2001 | DUBNA STATE UNIVERSITY

- Computer Science «Information Systems»

BACHELOR'S DEGREE | 1996-2000 | DUBNA STATE UNIVERSITY

- Engineering and Technology

Professional Skills

- Programming languages (application development): C#, Java, Objective C, Swift, TypeScript as well as regular expressions.
 - Development of .NET applications (WPF, UWP), mobile applications for Android and iOS operating systems.
 - Development of REST/WEB API, WSDL/SOAP, WebSocket services using WCF, Spring, Node.js.
 - Multithreading programming, asynchronous processing techniques.
 - Fundamentals of Web programming: HTML, CSS, Bootstrap, JavaScript, jQuery, AngularJS, PHP, ASP.NET, JSON/XML. Understanding SEO essentials, the purpose and functionality of toolkits.
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- Programming languages (data analysis and machine learning): Java, Python, Scala.
 - Big Data analysis in the Hadoop environment (Cloudera, Horton Works) using MapReduce, Spark and utility tools HUE, HCatalog, Hive, Impala, Pig Latin, Sqoop, Solr, Oozie, Data Science Workbench.
 - Designing machine learning algorithms with TensorFlow, Pandas, Keras libraries.
 - Deploying web services based on trained machine learning models in Azure ML Studio.
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- Deployment of horizontally scalable clusters for distributed data storage Cassandra, HBase, Riak.
 - Deployment of failover clusters Microsoft Failover Cluster, Oracle Real Application Clusters with the Automatic Storage Management option.
 - Designing real-time heterogeneous replication solutions in high availability mode using Oracle GoldenGate, Attunity Replicate, Quest SharePlex.
 - Deployment of network load balancing clusters HAProxy, Balance, Pound, Microsoft NLB.
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- Structured Query Language (SQL) – DDL, DML, DCL, TCL; PL/SQL, JavaScript/JSON in MongoDB.
 - Programming techniques and application programming interfaces for accessing database management systems: ODBC/JDBC, ADO.NET, ORM, LINQ.
Graphical Database Management Tools: DevArt dbForge Studio, EMS SQL Management Studio, Navicat, SQLite Expert, Oracle SQL Developer, Quest (Toad, Spotlight, SQL Optimizer), Attunity Compose, Attunity Enterprise Manager, Oracle Enterprise Manager.
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- Database Design: relational data model, aggregate data models (key-value and document models, column-family stores), distribution models (single-server replication, sharding, master-slave replication, peer-to-peer replication, combining sharding and replication), consistency, version stamps, partitioned tables and indexes.
 - Experience in Relational DBMS: Oracle Database, Microsoft SQL Server, MySQL (MariaDB), PostgreSQL, IBM DB/2, SQLite.
 - Experience in NoSQL DBMS: Cassandra, HBase, MongoDB, LevelDB, Riak, Memcached.
 - Experience in Cloud DBMS: Oracle Autonomous Database Cloud, Amazon RDS, Amazon Redshift, Amazon DynamoDB, Azure SQL Databases, Azure Cosmos DB, Redis Cache.
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- Knowledge of the ARIS business process modeling methodology and its technical implementation at the expert level.
- Use of the BSC method and the theory of Goldratt constraints in optimizing business processes.
- Automation of analysis and documentation of business processes and management of the corporate knowledge.

Implementation of the process approach when constructing IT management systems of an enterprise.

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- Constructing analytical systems based on the principles of multidimensional analysis and OLAP technology.
 - Data extraction, transformation and loading (ETL), Data Warehouse design.
 - Experience in BI-analysis and reporting solutions: Oracle Business Intelligence, Microsoft SQL Server Analysis, Microsoft Report Services, Tableau, Telerik Reporting.
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- Software Design (selecting methods, selecting integrated development environment, selecting frameworks, developing data presentation, developing algorithms, developing tests, writing specifications, scheduling).
 - Designing real-time data pipelines and streaming apps using Apache Kafka, a distributed event streaming platform.
 - Developing integration solutions, including experience with Microsoft BizTalk Server.
 - Experience in applying graphic notations: UML (Business System View, IT-System View, Integration View), ERM, DFD, BPMN.
 - Change management with version control systems: Git (GitHub, Bitbucket, GitLab), Microsoft Team Foundation.
 - Understanding the basics of application lifecycle management, including experience with Microfocus and IBM Rational software products.
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- Deployment of server virtualization systems VMware vSphere, Microsoft Hyper-V, Citrix VDI and Docker containerization platform.
 - Creating hybrid solutions based on integration with cloud services Amazon AWS, Microsoft Azure, IBM Bluemix (Watson), Google Firebase.
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- IT-infrastructure and service strategy management using ITIL, ITSM, MOF, as well as process approach.
 - Use of IT-infrastructure management and monitoring systems IBM Omnibus, Ivanti (ex-LANDesks Management Suite), Microsoft Operations Management Suite, Paessler PRTG, Ipswich WhatsApp Gold, Zabbix, etc.
 - Web application security audit: IBM Rational AppScan, Microfocus Fortify Web Inspect, Accunetix Vulnerability Scanner.
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- Installation, configuration and tuning of server equipment Lenovo (IBM), Super Micro, Dell, HP, Intel, ASUS.
 - Linux and Windows Server administration including network services, protocols, public key infrastructure, application policy management, security and vulnerability management, identity and access management.
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Experience

ASSOCIATE PROFESSOR | DUBNA STATE UNIVERSITY | 2001 – PRESENT

- Scientific guidance of the master's degree program «*Business Analytics and Big Data Systems*».
- *Department of System Analysis and Control; Department of Information Technologies; Department of Distributed Computing Systems*: Educational courses – «Data Mining», «Big Data Analysis», «Cloud Computing Technologies for Big Data Processing», «Distributed Information Systems», «Information Infrastructure Audit», «Design and Development of Information Systems», «Service-Oriented

Architectures and Applications», «Modeling in UML», «Cloud Services and Virtual Environments», «Management of Business Processes and Services», «Information Technologies in Business», «IT Efficiency», «Information Processes Modeling», «Business Analysis Technologies», «Business Intelligence and Advanced Analytics Toolkits», «Knowledge Management».

- *Virtual Computer Lab*: Played a leading role in the formation and development of a scientific school for the practical training of IT professionals while enabling remote development and adoption of multi-component information systems and IDEs using cloud computing technologies. Was the first in Russia to create an integrated hardware and software facility «Virtual Computer Lab», which allowed to train a significant number of high-demand graduates during the 12 years of successful work.
- *IBM Competency Center*: Implementation of IBM software products and services into the process of IT specialist training, conducting open lectures and webinars. Participation in joint research on the design of virtual enterprises.

FOUNDER, DEVELOPER | DICTUTOR | 2014 – 2019

- Development of the concept and architecture. Technical design. Implementation of functionality. Formation of content. Building and releasing application versions. Development and support of the project site.

ASSOCIATE PROFESSOR | NATIONAL RESEARCH UNIVERSITY — HIGHER SCHOOL OF ECONOMICS (HSE) | 2007 – 2014

- *Department of Modeling and Optimization of Business Processes; IDS-Scheer Department of Vocational Relationships*: Training courses on business process modeling, strategic management, risk analysis, and business architecture using ARIS software suite.
- *Department of Corporate Information Systems; HSBI (MBA)*: Training courses on IT infrastructure management, IT audit, integration of information systems.

ASSOCIATE PROFESSOR | MOSCOW POWER ENGINEERING INSTITUTE (TECHNICAL UNIVERSITY) | 2009 – 2010

- *Department of Informational and Economic Safety*: Training courses on ensuring the security of e-business.

DIRECTOR OF TELECOMMUNICATION CENTER (CTO) | PLEKHANOV RUSSIAN UNIVERSITY OF ECONOMICS | 2002 – 2003

- Development and implementation of IT strategy; optimizing IT infrastructure costs; provide reliable operation of equipment; implementation of software and technology solutions; providing technical support; development and coordination of schedules, as well as financial and project documentation; participation in the formation of the budget and control of its implementation; improvement of internal business processes.

Patent

- Integrated Virtual Computer Lab Management System based on Cloud Computing Technologies (Virtual Computer Lab Management Information System).

Patent date: issued Feb 17, 2012. Patent issuer and number: ru 2011660171

ИНТЕГРИРОВАННАЯ СИСТЕМА УПРАВЛЕНИЯ ВИРТУАЛЬНОЙ КОМПЬЮТЕРНОЙ ЛАБОРАТОРИЕЙ НА ОСНОВЕ ТЕХНОЛОГИЙ ОБЛАЧНЫХ ВЫЧИСЛЕНИЙ (ИСУ ВКЛ).

"Date of receipt Dec 29, 2011.

Projects

VIRTUAL COMPUTER LAB | [HTTP://BELOV.GLOBAL/VCL.PNG](http://BELOV.GLOBAL/VCL.PNG) | 2007 – PRESENT

- Student Segment of the Virtual Computer Lab on VMware vSphere Software Platform, Jul 2019, State Dubna University, System Analysis, and Control Department.
- The Virtual Computer Lab provides a set of software and hardware-based virtualization and containerizations tools that enable the flexible and on-demand provision and use of computing resources in the form of cloud Internet services with an integrated knowledge management system based on the principles of self-organization, functioning as a homogeneous environment with elements of cognitive representation of internal operational resources based on visual models and partial automation of fundamental technological operations with the expert system for carrying out research projects, resource-intensive computational calculations and tasks related to the development of sophisticated corporate and other distributed information systems. The service also provides dedicated virtual servers for innovative projects that are carried out by students and staff at the Institute of System Analysis and Control. The main features of the Virtual Computer Lab are the principles of self-organization, which make the transition from a complex system of granular group security policies with a large number of restrictions to the formation of personal responsibility and respect for colleagues, which should be a solid foundation for strengthening and developing classical cultural values in the educational environment.

DICTUTOR | [HTTP://DICTUTOR.COM](http://DICTUTOR.COM) | 2014 – 2019

- Free offline multilingual dictionaries with the e-tutor for English, Chinese, Czech, Dutch, Finnish, French, German, Greek, Hindi, Indonesian, Italian, Japanese, Korean, Malay, Polish, Portuguese, Russian, Spanish, Swedish, Thai, Turkish, Vietnamese.

AZIMUTH OF DREAMS | [HTTP://AZIMUTH.BELOV.GLOBAL](http://AZIMUTH.BELOV.GLOBAL) | 2017

- The beautiful collection of poems that motivates calls for self-improvement and spiritual development, forcing to look at life with optimism, set new goals, and achieve them!

Languages

ENGLISH

- Professional working proficiency.

RUSSIAN

- Native proficiency.

Publications

- 1) Methodical aspects of training Data Scientists using the Data GRID in a Virtual Computer Lab environment, 2019 (in publishing).
- 2) The Architecture of the Compact Data GRID Cluster for Teaching Modern Methods of Data Mining in the Virtual Computer Lab, 2019 (in publishing).
- 3) Virtual infrastructure management based on visual models in the Virtual Computer Lab environment, 2019.
- 4) Essential aspects of it training technology for processing, storage and data mining using the Virtual Computer Lab, 2018.
- 5) The concept of cognitive interaction with the Virtual Computer Lab based on visual models and expert systems, 2018.
- 6) Training of Big Data processing and analysis with the use of the Virtual Computer Lab at the Dubna State University, 2018.
- 7) Improving the efficiency of mastering distributed information systems in a virtual computer lab based on the use of containerization and container orchestration technologies, 2018.
- 8) The use of the Virtual Computer Lab in the training of IT-professionals in the field of storage, processing, and mining Big Data, 2018.
- 9) The use of cloud bot services in the Virtual Computer Lab environment to improve the cognition of the educational process, 2018.
- 10) Embedding of containerization technology in the core of the Virtual Computing Lab, 2017.
- 11) The concept of advanced architecture of the Virtual Computer Lab for practical training of specialists in the field of distributed information systems and DevOps, 2017.
- 12) The practice of using containerization technology in the training of IT professionals, 2017.
- 13) Distance learning through distributed information systems using a Virtual Computer Lab and knowledge management system, 2016.
- 14) The introduction of container virtualization (containerization) technologies in the process of training of IT-professionals, 2016.
- 15) The experience of deploying the Virtual Computer Lab in education — running failover clusters in a virtualized environment, 2016.
- 16) Educational experience of using the knowledge management system based on Virtual Computer Lab on the platform of cloud technologies, 2015.
- 17) Conceptual model of a knowledge management system for training professional IT-skills in the Virtual Computer Lab, 2015.
- 18) Virtual Computer Laboratory 2.0. 3D Graphics as Service. Methodological aspects of the use in research and education, 2015.
- 19) Implementation of knowledge control elements into educational environment of «Dubna» university. Experiences and perspectives, 2014.
- 20) The concept of innovative training for IT professionals using the Virtual Computer Lab based on cloud computing technologies and virtual knowledge space, 2014.
- 21) From Virtual Computer Lab to knowledge management. Results and prospects, 2014.
- 22) The role of IBM Academic Competence Center in the training of demanded IT-professionals at the Dubna University, 2014.
- 23) Research of crucial activities of the life cycle of knowledge management in the university and the development of a conceptual model of the architecture of the knowledge management system, 2013.
- 24) Technology of application lifecycle management for satellite in-orbit tests, 2013.
- 25) Comprehensive e-learning systems as the tools for evaluating students' skills, 2013.

- 26) The innovative practice of computer education at the Dubna State University using the Virtual Computer Lab based on cloud computing technologies, 2012.
- 27) The gauging system for evaluating the quality of learning in the Virtual Computer Lab, 2012.
- 28) The role of Virtual Computer Lab based on cloud computing technologies in contemporary IT-education, 2012.
- 29) The technology of using the Virtual Computer Lab in the training courses of a university, 2012.
- 30) The cloud-based Virtual Computer Laboratory - an innovative tool for training, 2012.
- 31) Tutorial «Practical system analysis. Building a model of concepts in projects to improve the efficiency of business processes in an organization», 2012.
- 32) The architecture of the virtual computer laboratory for training of IT-specialists, 2011.
- 33) The problems of the process approach and balanced scorecard in the management of the high-tech instrument engineering enterprise, 2011.
- 34) New approaches to performance management of commercial and industrial companies based on Business Intelligence and BPM, 2011.
- 35) Deployment and maintenance of the Virtual Computer Class as a component of the Virtual Computer Lab using servers of the blade architecture, 2011.
- 36) Tutorial «Information systems in administrative management», 2011.
- 37) Experience of using open source software in the Virtual Computer Lab based on cloud computing technology, 2010.
- 38) Software components of the core of the virtual computer lab and the virtual computer class, 2010.
- 39) Development and deployment of a hardware and software platform of the Virtual Computer Lab in the educational process of higher education, 2010.
- 40) The role of a virtual computer class as a component of the Virtual Computer Lab in the contemporary educational process, 2010.
- 41) Virtual Computer Lab as an innovative tool in IT-education, 2010.
- 42) Overview of business process modeling tools for generating requirements for the knowledge management system on the example of the System Analysis, and Control Department of Dubna State University, 2007.
- 43) Development of Internet-based knowledge management system on SharePoint Portal Server, 2007.
- 44) Implementation of ARIS Web Designer in the e-learning system, 2005.
- 45) Metadata management in e-learning system based on software agent technology, 2005.
- 46) Validation and verification of software on the example of the core of the distance learning system, 2004.
- 47) E-learning as a critical element of the knowledge management system, 2004.
- 48) Generating requirements for the development and support of e-learning courses on CALS, 2004.
- 49) Information provision in the e-learning system, 2004.
- 50) General approaches to the e-learning system development, 2004.
- 51) Fundamentals of designing a e-learning system, 2004.
- 52) Semantic model of e-learning system, 2004.
- 53) Technology of preparation of test tasks to check knowledge in the e-learning system, 2004.
- 54) The technology of software requirements development on the example of the core of the e-learning system, 2004.
- 55) Measurement and quality control of e-learning, 2002.
- 56) The project of the e-learning system for the course "Theory of systems", 2001.