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***ITHEA International Scientific Society***



***ITA 2023***

***XXVI-th Joint International Scientific Events on Informatics***

***September 25 - October 08, 2023***  
***Sofia, Bulgaria, with Internet on-line sessions***

***[www.ithea.org](http://www.ithea.org)***  
***[office@ithea.org](mailto:office@ithea.org)***

*ITA 2023 is organized by:*

**ITHEA International Scientific Society (ITHEA ISS)**

**New Bulgarian University, Sofia (Bulgaria)**

**Institute of Information Theories and Applications FOI ITHEA (Bulgaria)**

*in tight collaboration with:*

- Spanish Network on Biomolecular and Biocellular Computing (Spain)
- National Academy of Sciences of Ukraine
- FIS Foundations of Information Science (Spain)
- Association of Developers and Users of Intelligent Systems (ADUIS)
  
- Institute of Mathematics and Informatics of BAS (Bulgaria)
- V.M.Glushkov Institute of Cybernetics of NASU (Ukraine)
- Institute for Informatics and Automation Problems, NAS (Armenia)
- Instituto Aragonés de Ciencias de la Salud (Spain)
- Institute of Mathematical Problems and Systems of NASU (Ukraine)
  
- National Aviation University, Kyiv (Ukraine)
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- Ain Shams University, Cairo (Egypt)
- Rzeszow University of Technology (Poland)
- Educational-scientific complex “Institute for applied system analysis” (Ukraine)
- Kharkiv National University of Radio Electronics (Ukraine)
- Ben-Gurion University (Israel)

**ITA 2023 Conferences**

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## *Deadlines for ITA 2023*

**For all conferences:**

- August 15, 2023:** submission of **paper** by the ITHEA ISS Submission Web System: <http://ita.ithea.org>  
submission of proposals for ISSI **workshops** by e-mail: [office@ithea.org](mailto:office@ithea.org)
- August 31, 2023:** notification of the **paper acceptance** by the [ITHEA ISS Submission Web System](http://ita.ithea.org)  
notification of the workshop **acceptance** to authors e-mail
- August 20, 2023:** submission of proposals for ISSI **doctoral consortium** by e-mail: [office@ithea.org](mailto:office@ithea.org)
- August 31, 2023:** **reservation of hotel**, submission of **registration forms** and **visa application forms**  
by e-mail: [office@ithea.org](mailto:office@ithea.org) and [office@hit-tourism.com](mailto:office@hit-tourism.com)

## *Manuscripts*

ITHEA rules for preparing the manuscripts are compulsory.

Responsibility for manuscripts published in ITHEA International Journals and Book Series belongs to authors. Please *get permission to reprint* any copyrighted material.

Not acceptable manuscripts will be returned to authors with recommendations. After authors' editing and refinement, if the manuscripts are reviewed positively, they will be published.

**Manuscripts** need to be formatted in DOC or TeX formats according the sample sheets given at:

- DOC template: [http://www.ithea.org/conferences/ithea\\_doc\\_template.doc](http://www.ithea.org/conferences/ithea_doc_template.doc)
- TeX template: [http://www.ithea.org/conferences/ithea\\_tex\\_template.tex](http://www.ithea.org/conferences/ithea_tex_template.tex)

Accepted manuscripts will be published by ITHEA® in the peer reviewed ITHEA International Journals:

- "Information Theories and Applications" (IJ ITA);
- "Information Technologies and Knowledge" (IJ ITK);
- "Information Models and Analyses" (IJ IMA);
- "Information Content and Processing" (IJ ICP).

The ITHEA International Journals are indexed by DOI, Crossref, Worldcat, ROAD Directory of Open Access scholarly Resources, Google Scholar, CiteseerX, ITHEA, and are planned to be indexed in WoS.

## *Submission*

The camera-ready copy of the manuscript should be received by the ITHEA Conference Submission System (<http://ita.ithea.org>) or by the ITHEA Journal Submission System (<http://ij.ithea.org>); e-mail for questions: [office@ithea.org](mailto:office@ithea.org).

***Please observe the rules and deadlines!***

Submit registration cards and visa forms to e-mail: [office@ithea.org](mailto:office@ithea.org).

## *Fees (including 20% VAT)*

**Non-student Registration Fee** is **EURO 100** for participation in person and **EURO 70** for online participation.

Registration fee includes presentation of one **online only published paper** and *access* to all conference events.

**PhD Student Registration Fee** is **EURO 60** for participation in person and **EURO 40** for online participation.

Registration fee includes *participation* for one PhD student and permits *presentation of one PhD thesis or paper* in **Doctoral Consortium** with *afterward online only publishing of paper* and *access* to all conference events.

**Printed journal issue:** One printed exemplar of a journal issue costs **EURO 90**.

## *Language*

The official language of the conference is English.

**Important information for participants in ITA 2023, Sofia, Bulgaria**

**Please read carefully!**

**1. Contacts**

Mobile numbers of the Organizing committee to be used during conference time:  
+359 878 89 07 07, +359 878 89 07 25

**2. Medicines**

We want to remind if you use some special medicines not to forget them.

**3. Currency**

The fixed official exchange rate: 1 EUR = 1.95583 BGN (leva).

In the change offices the exchange rate may vary from 1.9 to 1.95.

When you change money, please be careful when choosing the change office. At the airport usually the rates are not preferable.

Some change offices use on their front tables fixings which aren't used for the standard procedures – it might be for write the fixing on the front table, which is not the real rate for usual exchange (it may be the rate for checks or for exchanged amount more than 10,000 lv.). Please, always read the all the notices (usually written with smaller letters) and ask the clerk for the exact total you'll receive from the exchange.

We recommend exchanging not more than 50 EUR or USD at a time.

**Caution!**

**Be careful with your money, documents and other important personal belongings.**

**Make sure you keep them safe with yourself, not putting them in your luggage, as you can easily become a victim of pickpockets or thieves otherwise.**

**Please be alert in the city public transport as well as in the bus/train when approached by strangers and never leave your baggage unattended.**



## **CSAI 2023**

VIII-th International Conference

### **Cognitive Science - Approaches and Results towards Artificial Intelligence**

#### *Aims and Scope*

The conference is centered on approaches and results obtained through the study of Cognition and Consciousness, their interpretation and application towards Artificial Intelligence.

#### *Topics of interest*

Researches, models in Cognitive Science as well as applications are welcomed.

The topics of interest include but are not limited to:

- Mental representations and mental operations
- Learning and Memory
- Perception in humans, animals, and machines (vision and machine vision, auditory perception, etc.)
- Natural language (psycholinguistics, language acquisition, conceptualization, meaning, etc.) and Natural Language Processing
- Emotions and emotion recognition
- Sentiment analyses
- Cognition and Consciousness
- Social cognition and consciousness
- Rethinking intelligence, including artificial

This large spectrum includes results and models in cognitive science, cognitive neuroscience, biometrics, brain imaging etc. as well as developed applications in neurocomputing, signal processing, pattern recognition, brain-computer interfaces, biometric technologies for human identification, models of society and human behavior etc.

#### *Steering Committee*

Velina Slavova, Department of Computer Science, New Bulgarian University, Sofia, Bulgaria  
Krassimir Markov, Department of Informational Modeling, Institute of Mathematics and Informatics at BAS, Sofia, Bulgaria

#### *Program Committee*

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**ITHEA International Scientific Society**  
**ITA 2023**  
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Alona Soschen	Chief Scientist cognitive linguistics, Amerge Software Inc., Otawwa, Canada
Vassil Vassilev	School of Computing, London Metropolitan University, London, UK



## **MeL 2023**

XVIII-th International Conference

### **Modern (e-) Learning**

#### *Aims and Scope*

The conference is devoted to discussion of current research and applications regarding the basic directions of Modern (e-) Learning: Philosophy, Methodologies and Technologies.

#### *Topics of interest*

##### ***Philosophy and Methodology of the Modern (e-) Learning***

- Accreditation and Validation of Modern (e-) Learning Materials
- Learning Communities and Virtual Spaces for Modern (e-) Learning Communities
- Copyright Regulations and Intellectual Property
- Evolution in Teacher Roles through Technology
- Experience and Problems of Implementation of Distance Learning Systems
- Informatics of the Modern Learning
- Instructional Design Theories of Modern (e-) Learning
- Institutional Issues on Technology-based Learning
- Interaction of Classical and Modern (e-) Learning
- Knowledge Market
- Modern (e-) Learning Paradigms
- Organizational Problems of Distance Learning
- Pedagogical and Organizational Frameworks of Modern (e-) Learning
- Pedagogical Approaches - Classical and Modern Didactic Principles of Modern (e-) Learning
- Policies on Technology-based Learning
- Psychological and Ergonomic Aspects of Modern (e-) Learning
- Social Aspects of Modern (e-) Learning
- Standardization of the Modern (e-) Learning Materials
- Standards and Quality Requirements for the Certification and Assessment of the Learners' Progress
- Teaching Aspects of Modern (e-) Learning

##### ***Modern e-Learning Technologies***

- Information Retrieval and Visualization in e-Learning
- Multimedia Educational Systems
- Media for Learning in Multicultural Settings
- Mobile e-Learning Applications
- P2P e-Learning Applications
- Social Aspects in Collaborative e-Learning Systems
- Standardization in e-Learning Technologies (Learning Objects, Designs, Modeling Languages)
- Technology-based Blended, Distance and Open Learning
- Technology-Facilitated Learning in Complex Domains
- Technologies for advanced Teacher Training
- Technology and Human Resource Issues
- Using AI/Semantic Web Technologies for Personalized and Contextual Learning
- Web-based Educational Information Systems



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## **SoftEngine 2023**

XVII-th International Conference

### **Software Engineering**

#### *Conference Organizations*

Software Engineering Department of National Aviation University in collaboration with

- Artificial Intelligence and Knowledge Engineering Research Lab (Cairo, Egypt):
- Association of Developers and Users of Intellectualized Systems (ADUIS):
- Faculty of Computer and Information Sciences, Ain Shams University (Cairo, Egypt):
- ITHEA® International Scientific Society (ITHEA® ISS):
- Institute of Information Theories and Applications (ITHEA®, Bulgaria):
- V. M. Glushkov Institute of Cybernetics of the NAS of Ukraine.

#### *The aim of the conference*

The conference is devoted to organize the environment for researches, teachers and students for representing results of research and practical achievements in the “Software Engineering” area.

#### *Conference topics*

##### ***Theoretical Basics of Software Engineering***

- AGILE and Model-Driven Approaches to Software Development.
- Approaches to Software Development Life Cycle Processes Improvement;
- Business Process Management and Engineering
- Empirical Software Engineering;
- Formal Foundations of Software Engineering;
- Frameworks and Middleware;
- Model-Driven Engineering;
- Software Development Technologies;
- Software Engineering Standards;
- Software Patterns and Refactoring;

##### ***Applied Aspects of Software Engineering***

- Approaches and Models to Estimate Expenses of Future Software Project;
- Component-Based Software Engineering;
- Requirements Engineering;
- Service-Oriented Software Engineering;
- Software Designing;
- Software Quality;
- Software Maintains and Evolution;
- Software Testing.

***Software Engineering Application Domains***

- Agent and Multi-Agent Systems;
- Biotechnologies and Smart Health Technologies;
- Cloud Computing;
- Data Bases and Knowledge Bases;
- Image Processing and Computer Vision;
- Internet;
- Security;
- Software Development for Mobile Operation Systems.
- Real-Time Systems;
- Network and Data Communications;
- User-Centered Software Engineering.

**Steering committee**

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Mail to: office@ithea.org



## **MIM 2023**

XIII-th International Conference

### **Mathematics of Informational Modeling**

#### *Aims and Scope*

The basic objective of the conference is the formulation and analysis of adequate mathematical models for the description and solution of practical engineering and related problems based on the understanding of their underlying informational structures, i.e. the mathematical foundation of information science (informatics). It includes Mathematical Logic (for Computer Science), Empirical Engineering, Theory of Algorithms, Information Theory, Coding Theory, Cryptology, Mathematical foundation of network processes and so on.

#### *Topics of interest*

- Automata theory and models
- Chaos and self-organization models
- Complex systems modeling and complexity of algorithms
- Intuitionist logic and Substructural logic
- Learning and Intelligence algorithms
- Modeling, Simulation, and Emulation: Mathematical theory, Formal verification
- Multisets theory and its applications
- Parallel algorithms, scientific computation and clouds
- Theory of named sets and its applications
- Uncertainty, Intuitionist Fuzzy Sets: Theory and Applications
- Cryptographic methods and protocols, Reliable and Secure Telecommunications
- Discrete geometry, Distances and Similarities, Tomography
- Financial mathematics, serious games
- Generalized nets and models
- Connectionism and Neural nets, Wavelet-neurons, and Emerging modeling objects

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## **i-i-i 2023**

### XIV-th International Conference **Information - Interaction - Intellect**

#### *Aims and Scope*

The conference is devoted to discussion of current research and applications regarding the intelligent systems development:

#### *Topics of interest*

- Artificial Engineering
- Decision Making
- NL Text Processing
- Intelligent Technologies in Control and Design
- Multi-agent Structures and Systems
- Neural Networks

#### *Steering Committee*

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## **GIT 2023**

### XXI-th International Conference **General Information Theory**

#### *Aims and Scope*

The conference objective is to present and discuss current achievement in the fields of the General Information Theory.

General Information Theory (GIT) is considered here not only as a pure theoretical discipline. While matter and energy are the foundation of material World, information is the foundation of the mental world as well as of the interactions in alive beings and within their communities. It is the leading factor in evolution and genetics. It is the basis of intellectual activity. Studying intelligence, we should take broader approach discovering the role of information, generally speaking, in life. The time has come to work out more uniform and general, deeper understanding of information processes which support the noosphere.

In this, broader sense, we should again and again turn our attention to the philosophy, interrelations between material and mental, correlate the notion of information in communication, biology, humanitarian areas and the physics of micro world.

We strongly believe that the progress in Artificial Intelligence is tightly tied with our deeper understanding of informational processes, in general. The conference is dedicated to this broad issue.

#### *Topics of interest*

Include, but are not limited to the main areas of GIT: (1) Theory of the Information, (2) Theory of the Information Subject (INFOS), and (3) Theory of the Information Interaction (INFORACTION):

#### *Philosophy*

- Philosophical background: material and mental – their coexistence and cooperation the role of humanitarian and natural science knowledge
- Creation of paradigms by intellectual systems
- Information and knowledge
- Information and life
- Non-forceful interaction

#### *Cognitology, Gnoseology and Semiotics*

- Theory and methodology of World cognition by intellectual systems and communities
- Intellectual instruments of cognition: hypothesis, theories, experimental verification and falsification
- Role of knowledge systems: knowledge, experience, beliefs, conventions, prejudices, religions, myths, formal and metaphorical reasoning consciousness and self-consciousness
- Semiotics of knowledge acquisition and model construction
- Evolution and informational processes

#### *Modern Physics*

- Physics of information processes and informational background of physics
- What give quantum mechanics and other theories of micro world to our understanding of information exchange; principle of non locality, “spooky action at a distance”

#### *Noosphere*

- Noosphere and its informational component, simulated objects with different noosphere statuses
- AI systems' creation within the frame of integrated interaction with environment and goal oriented activity

#### *Humanitarian Aspects*

- Modeling Informational interaction in Nature and society: physical, social systems (psychology, egregors, sociopsychology) and beyond.

*Steering Committee*

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## **i.TECH 2023**

### XXI-th International Conference **Information Technologies**

#### *Aims and Scope*

The conference is aimed is to represent research results and development activities in fields of Information Technologies and Software Engineering.

#### *Topics of interest*

##### Information Technologies

- Information Systems
- Mobile and Multimedia Systems
- Distributed and Telecommunication Systems
- Cyber Security

##### Software Engineering

- Fundamentals of Software Engineering
  - Software Engineering Standards Discussions and Reviews
  - Theoretical Aspects of Software Engineering
  - Domain Analysis and Engineering
  - Software Modeling Standards (UML, BPMN and Others)
  - Patterns in Software Engineering
- Software Life Cycle Management
  - Software Development Life Cycles Processes
  - Tools, Techniques, Algorithms and Methods for Management Software Development Life Cycle
  - AGILE and Model-Driven Development (MDD)
  - Software Product Lines
  - Reverse Software Engineering
  - Software and System Interoperability
- Software Applications and Development
  - Service-oriented Software Engineering
  - Distributed Application Development
  - Mobile Development
  - Software Technologies

#### *Steering Committee*

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Krassimir Markov (Bulgaria)  
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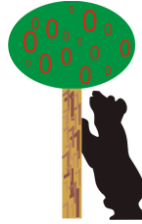
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Olexii Voloshyn (Ukraine)

Olry Yadid-Pecht (Israel)  
Tea Munjishvili (Georgia)  
Vladimir Talalaev (Ukraine)  
Volodymyr Opanasenko (Ukraine)





## **NIT 2023**

XV -th International Conference

### **Natural Information Technologies**

#### *Aims and Scope*

Natural Computing can be broadly defined as the development of computer programs and computational algorithms using metaphorical inspiration from system and phenomena that occur in the natural world. Fundamentals of Natural Computing: Basic Concepts, Algorithms, and Applications present a wide-ranging survey of novel techniques and important applications of nature-based computing.

The goal of NIT International Conference is to offer a platform to critically assess present findings in the field, and to outline future developments in nature-inspired computing.

Original papers describing current research in the areas given below are invited, but other relevant areas also welcome. Papers in application areas of the same fields will also be considered.

#### *Topics of interest*

Topics of interest include, but are not limited to:

##### NATURAL COMPUTING

- Cellular Computing
- DNA Computing
- Evolutionary Computation
- Membrane Computing
- Molecular Computing
- Neural Computing
- Quantum Computing

##### APPLICATIONS OF NIT

- Bioinformatics
- Data Mining and Knowledge Discovery
- Decision Making and Decision Support Systems
- Evolvable Hardware
- Information Retrieval
- Knowledge Management
- Multi-agent Structures and Systems
- Natural Language Processing
- Robotics
- Synthetic Biology
- Web Intelligence

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Erzsebet Csuhanj-Varju, Hungarian Academy of Sciences, Hungary  
Fernando Arroyo, Universidad Politécnica de Madrid, Spain  
Fivos Panetsos, Universidad Complutense, Spain  
Gheorghe Paun, Romanian Academy, Romania  
Giancarlo Mauri, Università di Milano-Bicocca, Italy  
Hasmik Sahakyan, Institute for Informatics and Automation Problems, Armenia  
José María Sempere, Universidad Politécnica de Valencia, Spain  
Koen Vanhoof, Hasselt University, Belgium  
Kostas Chrysagis, Center for Technology Research and Innovation - CETRI, Greece  
Luis Fernando de Mingo, Universidad Politécnica de Madrid, Spain  
Marian Gheorghe, University of Sheffield, United Kingdom  
Mario Pérez Jiménez, Universidad de Sevilla, Spain  
Marion Oswald, Hungarian Academy of Sciences, Hungary  
Martyr Amos, Manchester Metropolitan University, United Kingdom  
Pedro Clemente Marijuan Fernandez, Aragon Institute of Health Sciences (I+CS), Spain  
Rudolf Freund, Technische Universität Wien, Austria  
Sandra Gómez Canaval, Universidad Politécnica de Madrid  
Tasos Bezerianos, University of Patras, Greece  
Victor Mitrana, University of Bucharest, Romania  
Vincenzo Manca, Università di Verona, Italy  
Yevgeniy Bodyanskiy, Kharkiv University, Ukraine



## **KDS 2023**

XXIX-th International Conference

### **Knowledge - Dialogue - Solution**

#### *Aims and Scope*

The Conference continues the series of annual international KDS events organized by V.M. Glushkov Institute of Cybernetics of National Academy of Sciences of Ukraine and Association of Developers and Users of Intelligent Systems (ADUIS).

#### *Topics of interest*

- Applied Information Systems
- Data Mining and Knowledge Discovery
- Decision Making
- Intelligent information technology
- Interdisciplinary Scientific Research
- Logical Inference
- NL Text Processing
- Neural and Growing Networks
- Mathematical methods research of complex systems
- Modern (e-) Learning and intelligent systems
- Philosophy and Methodology of Informatics
- Problems of Computer Intellectualization

#### *Steering Committee*

Ivan Sergienko(Ukraine)	Krassimir Markov (Bulgaria)
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Natalia Pankratova (Ukraine)	Olexii Voloshyn (Ukraine)
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## **INFOS 2023**

### XVI-th International Conference **Intelligent Information and Engineering Systems**

#### *Aims and Scope*

The conference is devoted to the discussion of current research, development and applications of the knowledge-based intelligent information and engineering systems.

#### *Topics of interest*

##### **Theoretical foundations:**

Genetic Algorithms and Evolutionary Computing  
Expert Systems, Hybrid Intelligent Systems  
Fuzzy Techniques and Systems  
Intelligent Agents and Multi-Agent Systems  
Data Mining, Knowledge Acquisition  
Knowledge Discovery, Knowledge-Based Systems  
Knowledge Representation and Management  
Natural Language Processing, Speech Understanding  
Neural Networks, Machine Learning  
Software engineering and computing techniques

##### **Intelligent Applications:**

Artificial Intelligence in Modeling and Simulation  
Bioinformatics using Intelligent and Machine Learning  
Business Intelligence Systems  
Human-Robot interaction, Image Processing  
Industrial Control and Monitoring  
Intelligent Agents Applications  
Intelligent Manufacturing Systems  
Intelligent Natural Language Systems  
Intelligent Robots  
Intelligent Tutoring Systems  
Intelligent Web Mining and Applications  
Medical and Diagnostic Systems  
Mobile Computing and Systems  
Multi-Media Intelligent Information Systems

#### *Steering Committee*

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Krassimir Markov, Institute on Information Theories and Applications, (Bulgaria)

#### *Program Committee*

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Alfredo Milani (Italy)	Marek Orkisz (Poland)
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Juan Penuella Castellanos (Spain)	Olena Chebanyuk (Ukraine)
Koen Vanhoof (Belgium)	Olexii Voloshyn (Ukraine)
Krzysztof Kubiak (Poland)	Olry Yadid-Pecht (Israel)
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	Yuriy Zaichenko (Ukraine)



## **KEBIDH 2023**

X-th International Conference

### **Knowledge Engineering in BioMedical Informatics and Digital Health**

Organized by:

**Prof. Dr. Abdel-Badeeh M. Salem**

Head of Bio-Medical Informatics & e-health Group  
Artificial Intelligence & Knowledge Engineering Labs  
Faculty of Computer and Information Sciences  
Ain Shams University, Cairo, Egypt

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<http://www.shams.edu.eg/staff/profile.php?action=show&pid=8256>



#### *Aims and Scope*

KEBIDH 2023 will bring researchers, practitioners, developers, and users to present their latest ideas and research and in all areas of neuroinformatics, bioinformatics, medical informatics, bioengineering, machine learning and artificial intelligence in all areas of digital health and life sciences.

KEBIDH 2023 will provide a forum for the exchange of ideas between knowledge engineers, biologists, physicians and computer scientists. Papers related to methodologies, techniques and applications in bioinformatics, medical informatics, telemedicine, and Health care are especially solicited.

#### *Topics of interest*

The topics of interest include, but are not limited to:

- Health Care Information Systems
- Clinical Information Systems
- Medical Image Processing and Techniques
- Medical Intelligent Systems for different medical tasks
- Medical Expert Systems
- Applications in Medical and Health Sciences
- Bioinformatics and Biostatistics
- Telemedicine Software, Portals, Devices and Telehealth
- Web-based and Remote Medicine
- Data Mining and Knowledge Discovery in Medicine
- Machine Learning-based Medical Systems
- Artificial Intelligence Techniques in Health Sciences
- Medical Databanks, Databases, and Knowledge Bases
- Neurocomputing in Medicine
- Ontology and Medical Information Science
- Bioethics and Health informatics

#### *Steering Committee*

Christina Siontorou, University of Piraeus, Greece  
Francesco Sicurello, University of Milan Bicocca, Italy  
Isabelle Ellis, Department of Health and Human Services, University of Tasmania, Australia  
Klaus Kayser, University of Berlin, Germany  
Nataliya Pankratova, National Technical University of Ukraine, Ukraine  
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Yukako Yagi, Harvard Medical School, Boston, MA, USA

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Monica Leba, University of Petrosani, Romania  
Nouhad Rizk, University of Houston, USA  
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Todor Stoilov, Bulgarian Academy of Sciences, Bulgaria  
Valérie Monfort, SOIE Tunis, Univ. Paris1 Panthéon Sorbonne, Tunisia  
Veska Georgieva, Technical University Sofia, Faculty of Telecommunications, Bulgaria  
Xiao-Zhi Gao, School of Electrical Engineering, Aalto University, Finland



## **IM 2023**

### XIII-th International Conference **Informational Modeling**

#### *Aims and Scope*

The conference is devoted to the representing of current research in the fields of concepts, methods, languages and tools of Informational Modeling and Simulation and their applications. The aim of the Conference is exchange the ideas and expertise among researches in industry, science and education and not formal coordination of their efforts.

#### *Topics of the conference*

1. AGILE and Model-Driven Development
  - Processing and Analysis of Software Models
  - Modeling Languages and Tools
  - Software Model Checking and Verification
  - Model-Driven Engineering
  - Model Execution and Simulation
  - Metamodels and Metamodeling
2. Informational Modeling and Simulation (IM&S) - Concepts, Paradigms, Approaches and Languages
  - Modeling and Simulation (M&S) Body of Knowledge
  - Knowledge Based IM&S. IM&S languages
  - IM&S Heterogeneous Structures and Scalability. High Level Architecture (HLA), Agent Base IM&S
3. IM&S Efficiency Enhancements
  - Methods for Efficiency Estimation, Comparison and Enhancement, Cooperative, Parallel and Distributed IM&S Efficiency
  - Accuracy enhancement and simulation speeding Simulation Experiments Design
  - Real and IM&S Information Storage and Transmission Formats Data Analysis and Comparison Methods
  - Data Mining
  - Dynamic Adaptation and Personalization of the Human–Computer–Model Interaction
4. IM&S Efficacy Estimation and Life Cycle Management
  - Meta-modeling. Econometrical Meta-models M&S Efficacy Indicators
  - M&S Detailness and Life Cycle Optimization in respect of Designed Product Life Cycle
  - Management, Emergency Cases
  - Verification and Validation in IM&S Life Cycle.
5. IM&S Application Development Methods and Best Practices in Industry, Education and Science
  - IM&S Impact in Industry
  - IM&S in Science and Technology (S&T), Specifics in Information and Communication S&T
  - IM&S in and for Education
  - IM&S in Knowledge Market & Business Informatics

*Steering Committee*

Krassimir Markov (Bulgaria)

Olena Chebanyuk (Ukraine)

*Program Committee*

Alexander Palagin (Ukraine)

Anatoliy Krissilov (Ukraine)

Benoa Depaire (Belgium)

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Levon Aslanyan (Armenia)

Natalia Kussul (Ukraine)

Natalia Pankratova (Ukraine)

Olexii Voloshyn (Ukraine)

Olga Kalynychenko (Ukraine)

Tea Munjishvili (Georgia)

Vira Golyan (Ukraine)

Vitalii Velychko (Ukraine)

Vladimir Romanov (Ukraine)

Vladimir Shelestov (Ukraine)

Yurii Zaichenko (Ukraine)





## **CFDM 2023**

XV-th International Conference

### **Classification, Forecasting, Data Mining**

#### *Aims and Scope*

The conference is devoted to the current research and applications in the fields of Classification, Clustering, Pattern Recognition, Forecasting, Features Processing, Transformations, Data Mining, and Knowledge Discovery.

#### *Topics of interest*

Pattern Recognition and Forecasting  
Machine Learning  
Data Mining  
Classification and Clustering  
Inductive Modeling  
Features Processing and Transformations Applications  
Image, Speech, Document and Signal Analysis  
Knowledge-Based Decision Support Systems

#### *Steering Committee*

Levon Aslanyan (Armenia)  
Gurgen Khachatryan (Armenia)  
Krassimir Markov (Bulgaria)  
Ivan Sergienko (Ukraine)

#### *Program Committee*

Abdel-Badeeh M. Salem (Egipt)  
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## **ISSI 2023**

### **XVII-th International School on Informatics**

#### *Aims and Scope*

The International School of Informatics is devoted to discussion of current researches, applications and education regarding the basic directions of information technologies, and business informatics:

- **Theoretical Foundations of Informatics:** Conceptions, Modern approaches of Software Development, and Advanced Information Technologies;
- **Tools and Applications:** Tools for Information Modeling, Applied Systems for Information Service, Information Access Methods and Collaboration Tools, Information Security and Reliability, New customer engagement models enabled by Informatics Tools;
- **Informatics of/in Education (IE):** IE Conceptions, including relation to other/traditional fields of study, Computer Aided IE, Methodology of IE.

#### *Steering Committee*

Abdel-Badeeh M. Salem (Egypt)  
Olena Chebanyuk (Ukraine)  
Hasmik Sahakyan (Armenia)

Juan Castellanos (Spain)  
Koen Vanhoof (Belgium)  
Krassimir Markov (Bulgaria)  
Levon Aslanyan (Armenia)

Lyudmila Kirichenko (Ukraine)  
Luis Fernando de Mingo (Spain)  
Olexii Voloshyn (Ukraine)

#### *Languages*

The official languages of the Summer School are English and Russian.

#### *Certificates*

After passing finally tests successfully listeners of workshops will obtain *certificate* about training.

#### *Doctoral consortium*

Doctoral consortium proposes to PhD student opportunity to represent research results to ITHEA scientific council reviewers and discuss them in warm friendly atmosphere.

Also you may obtain constructive advices about fundamental research, relating to your PhD topic. It will allow you to improve your research ground to adopt it for collaboration of modern tools and environments variety.

To participate at doctoral consortium event prepare paper, reflecting main results of your PhD. It should be from 8 to 10 pages. Rules for preparing paper manuscript are the same as preparing papers to journals.

Manuscript should be submitted before 30 days to starting of ITA 2023. Then it will be resend to three council members, having experience both in fundamental research and aquanting with achievement in industry for detail aquaintes. Then author has to present his work at ITA 2023 during 30 minutes. After this, the constructive notes from the reviewers will be discussed.

After presenting and polishing, manuscript may be published in ITHEA International Journals.

After presenting scientific results author obtain ITHEA certificate about approbation of his work.

ITHEA reviewers that participate at PhD consideration also obtain certificate for consideration of scientific work in Internation doctoral consortium.