# ITHEA International Scientific Society



# ITA 2021

# XXIV-th Joint International Scientific Events on Informatics www.ithea.org

Summer Session: July 01 - July 10, 2021

Hotel ''KORAL'' in the resort "St. Constantine & St. Helena", Varna, Bulgaria
with Internet on-line sessions

# Papers from ITA 2021 will be published by:

The ITHEA International Journal

"Information Theories and Applications" (IJ ITA)

The ITHEA International Journal

"Information Technologies and Knowledge" (IJ ITK)

The ITHEA International Journal

"Information Models and Analyses" (IJ IMA)

The ITHEA International Journal

"Information Content and Processing" (IJ ICP)

The ITHEA International Book Series

"Information Science and Computing" (IBS ISC)

The ITHEA International Digital Library with Referative Scientific Index (RSI)

A Collection of best papers, written in English and presented at ITA 2021, will be sent for publishing at CEUR-WS.org, which is planned to be indexed in Scopus.

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.

#### ITA 2021 is organized by:

# ITHEA International Scientific Society (ITHEA ISS)

# Association of Developers and Users of Intelligent Systems (ADUIS)

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

# University of Tlecomunnications and Post, Sofia (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)
- V.M.Glushkov Institute of Cybernetics of NASU (Ukraine)
- Institute for Informatics and Automation Problems, NAS (Armenia)
- Dorodnicyn Computing Centre of the Russian Academy of Sciences (Russia)
- St.Petersburg Institute for Informatics and Automation of RAS (Russia)
- Research Institute of Applied Semiotics of Tatarstan Academy of Sciences (Russia)
- Instituto Aragonés de Ciencias de la Salud (Spain)
- Institute of Informatics Problems of the RAS (Russia)
- Institute of Mathematics and Informatics of BAS (Bulgaria)
- Institute of Mathematical Problems and Systems of NASU (Ukraine)
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- Universidad Politecnica de Madrid (Spain)
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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)
- Astrakhan State University (Russia)

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# **Deadlines for ITA 2021**

#### For all summer session conferences:

June 30, 2021: reservation of hotel, submission of registration forms and visa application forms

by e-mail: office@ithea.org and office@hit-tourism.com

June 20, 2021: submission of proposals for ISSI doctoral consortium by e-mail: <a href="mailto:office@ithea.org">office@ithea.org</a>
June 10, 2021: 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

**June 20, 2021:** notification of the **paper acceptance** by the <u>ITHEA ISS Submission Web System</u> notification of the workshop **acceptance** to authors e-mail

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# **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: <a href="http://www.ithea.org/conferences/ithea\_doc\_template.doc">http://www.ithea.org/conferences/ithea\_doc\_template.doc</a>
- TeX template: <a href="http://www.ithea.org/conferences/ithea\_tex\_template.tex">http://www.ithea.org/conferences/ithea\_tex\_template.tex</a>

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).

A Collection of best papers, written in English and presented at ITA 2021, will be sent for publishing at CEUR-WS.org, which is planned to be indexed in Scopus.

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 (<a href="http://ita.ithea.org">http://ita.ithea.org</a>) or by the ITHEA Journal Submission System (<a href="http://ij.ithea.org">http://ij.ithea.org</a>); e-mail for questions: office@ithea.org.

# Please observe the rules and deadlines!

Submit registration cards and visa forms to e-mail: office@ithea.org.

# **Fees** (including 20% VAT)

#### Registration Fee is EURO 180.

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

#### Printed journal issue

One printed exemplar of a journal issue costs EURO 90.

#### Registration Fee for a PhD student is EURO 90.

Registration fee for Internation Summer School on Informatics includes *participation* for one PhD student and permits *presentation of one PhD* in *Doctoral Consortium* with *afterward online only publishing* and *access* to all conference events and ITHEA Evening.

Contact for ITA 2021: office@ithea.org

Accomodation for ITA 2021 Summer Session



# HIT-Tourism Tur Operator, Varna, Bulgaria Licence number: 04482

www.hit-tourism.com ; e-mail: office@hit-tourism.com ; +359 52 361 900; +359 89945185 Skype: hit\_mira

#### ITA 2021 HOTELS WITH SPECIAL DISCOUNTS

Resort "St. Constantine & St. Helena", Varna, Bulgaria

#### **MAIN HOTELS**

Hotel "**KORAL** \*\*\*\*" , *ITA 2021 Conference place*, 400m far from sea https://hotel-koral.com/

Hotel "Gloria \*\*\*", 300m far from sea; 100m far from ITA 2021 Conference place http://gloria.golden-hotelbg.com/

Hotel "**Rusalka** \*\*", 300m far from sea; 100m far from ITA 2021 Conference place http://www.hotelroussalka.com/

To use special hotels' prices with *discounts* from the official prices for all hotels, participants have to make reservation and payment *only* by HIT-Tourism Tour Operator.

It is possible to book in every hotel in the resort as well as in Varna town using special discounts for ITA 2021 if one book via "HIT Tourism" Tour Operator.

Before using any booking system, please ask ITA 2021 for actual prices. As a rule, Booking.com, as well as other booking systems, offers pices higher more than at least 15% than ours.

#### **Transfer airport - hotel:**

- car (1-4 sits): EURO 24 per car in one direction;
- minivan (4-7 sits): EURO 30 per bus *in one direction*.

Send your requests for reservation and questions to both e-mails: <a href="mailto:office@hit-tourism.com">office@hit-tourism.com</a> and <a href="mailto:office@ithea.org">office@ithea.org</a>.

If you not receive answer in a couple of days, please resend request! NOTE: After pointed hotels' deadlines prices for booking will rise!

# VISAS for ITA 2021

To receive Bulgarian visa for ITA 2021 Summer Session one has to have:

- Voucher from HIT-Tourism Tur Operator for hotel accommodation. Send your requests for hotel reservation to both e-mails: office@hit-tourism.com and office@ithea.org.
- Invitation letter from ITHEA. In order to obtain invitation letter, fill visa and registration forms and send them to <a href="mailto:office@ithea.org">office@ithea.org</a>.
- Other documents that Bulgarian embassy in your contry requires.

International passports must be *valid* at least six months after the conference time.

Please pay attention to rules for entering Bulgaria.
Possibly a valid COVID-19 vaccination sertificate or
a valid 72 hours old negative COVID-19 PCR test will be needed!



#### XXVII-th International Conference

# **Knowledge - Dialogue - Solution**

July 01 – July 10, 2021, Varna (Bulgaria)

#### 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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#### Language

The official languages of the conference are Russian and English.



# **CFDM 2021**

# XIII-th International Conference

# Classification, Forecasting, Data Mining

July 01 – July 10, 2021, Varna (Bulgaria)

#### 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

#### Features Processing and Transformations Applications Image, Speech, Document and Signal Analysis Knowledge-Based Decision Support Systems

#### Steering Committee

Yurii Zhuravlev (Russia) Vladimir Ryazanov (Russia) Levon Aslanyan (Armenia)

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**Inductive Modeling** 

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#### Language

The official languages of the conference are Russian and English.



# **i.TECH 2021**

#### XIX-th International Conference

# **Information Technologies and Software Engineering**

July 01 – July 10, 2021, Varna (Bulgaria)

Supported by ITHEA Software Engineering Forum http://idr.ithea.org/tiki-view\_forum.php?forumId=1

#### 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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Olry Yadid-Pecht (Israel)

#### Language

The official languages of the conference are English and Russian.



#### XVI-th International Conference

# Modern (e-) Learning

July 01 – July 10, 2021, Varna (Bulgaria)

#### 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

#### **Steering Committee**

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#### Language

The official languages of the conference are Russian and English.



XIII -th International Conference

# **Natural Information Technologies**

July 01 – July 10, 2021, Varna (Bulgaria)

#### 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

#### **ITA 2021**

#### Joint International Scientific Events on Informatics

#### Steering Committee

Krassimir Markov, University of Telecommunications and Post & Institute on Information Theories and Applications, Bulgaria

Juan Castellanos, Universidad Politécnica de Madrid, Spain

Levon Aslanyan, Institute for Informatics and Automation Problems, Armenia

#### Program Committee

Abraham Gutierrez, Universidad Politécnica de Madrid, Spain

Carmen Vidaurre, Berlin Institute of Technology, Germany

Olena Chebanyuk, National Aviation University, Ukraine

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Victor Mitrana, University of Bucharest, Romania

Vincenzo Manca, Università di Verona, Italy

Vladimir Ryazanov, Dorodnicyn Computing Centre of RAS, Russia

Yevgeniy Bodyanskiy, Kharkiv University, Ukraine

#### Language

The official language of the conference is English.

#### For contacts

- Juan Castellanos, e-mail: <u>jcastellanos@fi.upm.es</u>
- Krassimir Markov, e-mail: office@ithea.org



#### XI-th International Conference

# **Informational Modeling**

July 01 – July 10, 2021, Varna (Bulgaria)

The conference is supported by ITHEA Software Engineering Forum http://idr.ithea.org/tiki-view\_forum.php?forumId

#### 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-Drivem 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) Elena Zamyatina (Russia) Galina Gaivoronskaya (Ukraine) Gurgen Khachatryan (Armenia) Hasmik Sahakyan (Armenia) Igor Galeluka (Ukraine) Juan Castellanos (Spain) Koen Vanhoof (Belgium) Krassimira Ivanova (Bulgaria) Leonid Hulyanitsliy (Ukraine) Levon Aslanyan (Armenia) Liudmila Lyadova (Russia) 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)

#### Language

The official languages of the conference are English and Russian.



#### XI-th International Conference

# **Mathematics of Informational Modeling**

July 01 – July 10, 2021, Varna (Bulgaria)

#### 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

#### Steering Committee

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Yevgeniy Bodyanskiy (Ukraine)

#### Language

The official languages of the conference are English and Russian.



# i-i-i 2021

#### XII-th International Conference

# **Information - Interaction - Intellect**

July 01 – July 10, 2021, Varna (Bulgaria)

#### 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

Krassimir Markov (Bulgaria) Vitalii Velychko (Ukraine) Alexander Palagin (Ukraine) Olexii Voloshyn (Ukraine)

#### **Program Committee**

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Tatyana Gavrilova (Russia)
Tea Munjishvili (Georgia)
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Vassil Sgurev (Bulgaria)
Vitalii Vishnevskiy (Ukraine)
Yevgeniy Bodyanskiy (Ukraine)
Yury Zaychenko (Ukraine)

#### Language

The official languages of the conference are Russian and English.

# ITA 2021

Joint International Scientific Events on Informatics



#### VIII-th International Conference

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

July 01 – July 10, 2021, Varna (Bulgaria)

# 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

> *Contact*: absalem@cis.asu.edu.eg; abmsalem@yahoo.com http://www.shams.edu.eg/staff/profile.php?action=show&pid=8256

#### Aims and Scope

KEBIDH 2021 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 2021 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

Nikitchenko Mykola, Taras Shevchenko National University of Kyiv, Ukraine

Roumen Kountchev, Technical University of Sofia, Bulgaria

#### **ITA 2021**

#### Joint International Scientific Events on Informatics

Sarma Cakula, Vidzeme University of Applied Sciences, Valmiera, Latvia Tatiana A. Gavrilova, Graduate School of Management, St. Petersburg State University, Russia Yukako Yagi, Harvard Medical School, Boston, MA, USA

#### Program Committee

Andreea Ionica, University of Petrosani, Romania

Arzu Baloglu, Faculty of Engineering, Computer Engineering, Marmara University, Turkey

Elena Nechita, Vasile Alecsandri University, Bacau, Romania

Hassan Ghazal, Moroccan Society for Telemedicine and eHealth, Morocco

Hisham S. Katoua, King Abdulaziz University, Jeddah, Kingdom of Saudi Arabia

Jeanne Schreurs, Faculty of Economic Sciences, Hasselt University, Belgium

Kateryna Solovyova, Kharkiv National University of Radioelectronics, Ukraine

Ketevan Gochitashvili, Ivane Javakhishvili Tbilisi State University, Georgia

Kidiyo Kpalma, National Institute of Applied Sciences of Rennes, Rennes Cedex, France

Tatjana Zrimec, Univ of Primorska, Slovenia

Klimis Ntalianis, Technological Educational Institute of Athens, Greece

Krasimira Stoilova, Bulgarian Academy of Sciences, Bulgaria

M. Madheswaran, Muthayammal Engineering College, India

Mariam Manjgaladze, Ivane Javakhishvili Tbilisi State University, Georgia

Marina Gorunescu, University of Craiova, Romania

Mohamed Roushdy, Ain Shams University, Egypt

Monica Leba, University of Petrosani, Romania

Nouhad Rizk, University of Houston, USA

Roumiana Kountcheva, Technical University of Sofia, Bulgaria

Sharon Condon, Rural Clinical School, University of Tasmania, Australia

Smaranda Belciug, Faculty of Sciences, University of Craiova, Romania

Svitlana Chebanyuk, Research and Practical Centre of Endovascular Neuradoisurgery at NAMS, Ukraine

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

#### Language

The official language of the conference is English.



# **CSAI 2021**

#### VI-th International Conference

# Cognitive Science - Approaches and Results towards Artificial Intelligence

July 01 – July 10, 2021, Sofia (Bulgaria)

#### Aims and Scope

The conference is centered on approaches and results obtained though 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

Philip Andonov Department of Computer Science, New Bulgarian University, Sofia, Bulgaria Dimitar Atanasov Department of Computer Science, New Bulgarian University, Sofia, Bulgaria

Jenny Benois-Pinaut UFR Mathématiques et Informatique Université Bordeaux, France

Entcho Gerganov Department of Cognitive Science and Psychology, New Bulgarian University, Sofia,

Bulgaria

Maurice Grinberg Department of Cognitive Science and Psychology, New Bulgarian University, Sofia,

Bulgaria

Borislav L. Gueorguiev Southeast European Center for Semiotic Studies, New Bulgarian University, Sofia,

Bulgaria

# ITHEA International Scientific Society ITA 2021

# Joint International Scientific Events on Informatics

Iiro P Jääskeläinen	Department of Biomedical Engineering and Computational Science, Aalto University, Helsinki, Finland	
Fernando Luis-Ferreira	Department of Electrical Engineering, New University of Lisbon, Portugal	
Christophe Paoli	Department of Computer Engineering, Galatasaray Üniversitesi and UMR CNRS 6134 (France), İstanbul, Turkey	
Ekaterina Pechenkova	Research Institute of Neuropsychology of Speech and Writing, Moscow, Russia	
Hichem Sahli	ETRO-Audio-Visual Signal Processing, Vrije Universiteit Brussel, Belgium	
Albert Ali Salah	Department of Computer Engineering, Bogazici University, Istanbul, Turkey	
Abdel-Badeeh M. Salem	Artificial Intelligence and Knowledge Engineering Research Labs, Faculty of Computer an Information sciences, Ain Shams University Abbasia, Cairo-Egypt	
Hussein Samani	Institute for Cognitive Sciences Studies, Tehrān, Iran	
Alona Soschen	Chief Scientist cognitive linguistics, Amerge Software Inc., Otawwa, Canada	
Vassil Vassilev	School of Computing, London Metropolitan University, London, UK	

# Language

The official language of the conference is English.



# **INFOS 2021**

# XIV-th International Conference

# **Intelligent Information and Engineering Systems**

July 01 – July 10, 2021, Varna (Bulgaria)

#### 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

Galina Setlak, Rzeszow University of Technology, (Poland)

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

#### Program Committee

Alexander Troussov (IBM Research, Ireland)

Alfredo Milani (Italy)

Arcadiy Yuschenko (Russia)

Feliks Stachowicz (Poland)

Jacek Kluska (Poland)

Juan Penuella Castellanos (Spain)

Koen Vanhoof (Belgium)

Krzysztof Kubiak (Poland)

Leon Bobrowski (Poland)

Leonid Lubchyk (Ukraine)

Levon Aslanyan (Armenia)

Luis Fernando de Mingo Lopez (Spain)

Marek Orkisz (Poland)

#### Language

The official language is English.

Marian Wysocki (Poland)

Martin Mintchev (Canada)

Mikhail Alexandrov (Russia, Spain)

Olena Chebanyuk (Ukraine)

Olexii Voloshyn (Ukraine)

Olry Yadid-Pecht (Israel)

Sergey Maruev (Russia)

Vladimir Ryazanov (Russia)

Volodymyr Stepashko (Ukraine)

Xavier Blanco (Spain)

Yevgeniy Bodyanskiy (Ukraine)

Yuriy Zaichenko (Ukraine)



#### XIX-th International Conference

# **General Information Theory**

July 01 – July 10, 2021, Varna (Bulgaria)

#### 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

Alexander Palagin (Ukraine)
Anatoly Krissilov (Ukraine)
Krassimir Markov (Bulgaria)
Mark Burgin (USA)
Pedro C. Marijuán (Spain)

Rafael Yusupov (Russia)
Vassil Sgurev (Bulgaria)
Vitaliy Lozovskiy (Ukraine)
Vitalii Velychko (Ukraine)
Yi Xin Zhong (China)

#### Program Committee

Leonid Svyatogor (Ukraine) Alexey Petrovskiy (Russia) Liudmila Cheremisinova (Belarus) Anatoliy Gupal (Ukraine) Loet Leydesdorff (Netherlands) Ekaterina Solovyova (Ukraine) Michel Petitjean (France) Gordana Dodig Crnkovic (Sweden) Qiao Tian-qing (China) Gurgen Khachatryan (Armenia) Sergey Krivii (Ukraine) Guy A Hoelzer (USA) Søren Brier (Denmark) Igor Gurevich (Russia) Stanley N Salthe (USA) Jerry LR Chandler (USA) Tatyana Gavrilova (Russia) Joseph Brenner (Switzerland) Walter Riofrio (Peru) Karl Javorszky (Austria) Wolfgang Hofkirchner (Austria) Koichiro Matsuno (Japan) Yevgeniy Bodyanskiy (Ukraine) Krassimira Ivanova (Bulgaria) Christophe Menant (France)

#### Language

The official languages of the conference are English and Russian.



#### **XV-th International Summer School on Informatics**

July 01 – July 10, 2021, Varna (Bulgaria)

#### Aims and Scope

The Summer 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)	Juan Castellanos (Spain)	Lyudmila Kirichenko (Ukraine)
Olena Chebanyuk (Ukraine)	Koen Vanhoof (Belgium)	Lyudmila Lyadova (Russia)
Evgeny Eremin (Russia)	Krassimir Markov (Bulgaria)	Luis Fernando de Mingo (Spain)
Hasmik Sahakyan (Armenia)	Levon Aslanyan (Armenia)	Olexii Voloshyn (Ukraine)

#### Languages

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

#### Sertificates

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

#### Doctoral consortium

Doctoral consortium proposes to PhD student oportunity to represent research results to ITHEA scientific counsil reviewers and disscuss 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 staring of ITA 2021. Then it will be resend to three counsil 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 2021 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.

The cost of doctoral concorcium event for author is 60 euro to be paid directly at conference desk.

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

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

# Applications under Android operating system for Tablet PCs and Smart phones about Varna

Application	Detailed information
feature	

Direct Link <a href="https://play.google.com/store/apps/details?id=com.gpsmycity.android.u161&hl=uk">https://play.google.com/store/apps/details?id=com.gpsmycity.android.u161&hl=uk</a>

# Icon

# Purpose Varna city guide following your interests

This handy application presents you several self-guided walking tours to see the best of the Varna, Bulgaria, and it comes with detailed tour route maps and powerful navigation features to guide you from one sight to the next. No need to hop on a tour bus or join a tour group; now you can explore all of the best attractions on your own, at your own pace, and at a cost that is only a fraction of what you would normally pay for a guided tour.

Application Walking tours included in this application are:

description \* Varna Orientation Tour (8 sights)

- \* Museums in Varna (7 sights)
- \* Religious Sights (7 sights)
- \* Shopping Tour (8 sights)
- \* Sea Garden Tour (8 sights)
- \* Marca Nich differ (O. cich (c.)
- \* Varna Nightlife (8 sights)
- \* Daily Life in Varna (7 sights)

Icon Direct Link <a href="https://play.google.com/store/apps/details?id=com.travel.bulgaria.ru">https://play.google.com/store/apps/details?id=com.travel.bulgaria.ru</a>



Purpose Good Bulgarian phrase-book

Application Bulgarian phrasebook will help tourists in any situation. The program will be useful description for beginners (Bulgarian learners).



Direct Link <a href="https://play.google.com/store/apps/details?id=com.funeasylearn.phrasebook.bulgarian&hl=ru">https://play.google.com/store/apps/details?id=com.funeasylearn.phrasebook.bulgarian&hl=ru</a>

Purpose Excellent Bulgarian phrase-book with pictures

Application Bulgarian phrasebook when phrases are divided by topics. The program will be description useful for starting communication in bolgarian.

# Important information for participants in ITA 2021, Varna, 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. Travel to the conference

#### 2.1. From Varna

The Hotel "KORAL" of the "St. Constantine and St. Helena" resort is located less than 7 km by the way from Varna to the "Golden Sands" resort.

From Varna Airport and Bus station: bus No.: 409 to bus stop "Botanical Garden" (Botanicheska gradina).

From Varna Town Center the busses are: No.: 8 to the Center of "St. Constantine and St. Helena" resort and No.: 9 to bus stop "Botanical Garden" (Botanicheska gradina).

Please, see the map on the next page.

#### 2.2. From Sofia

Besides the direct flight to Varna and/or the transfer flight from Sofia, there are two possible variants to get from Sofia to Varna:

- by train from the Central Railway Station: www.bdz.bg
- by bus from the Central Bus Station (right beside the Central Railway Station: www.centralnaavtogara.bg)

# 2.3. In Sofia

The metropolitan line from the Sofia Airport to the Central Railway Station and the Central Bus Station is still under construction, so the transportation to these stations may be:

- By bus 84 or 284 from the Airport to "Hotel Pliska" stop, and then 213 or 214 to the Central Station; Note: Luggage bigger than the average will require an extra ticket as well.
- Shuttle-bus: from the airport to the station. The price is 1.60 BGN (possible additional taxes for the luggage).
- Taxicab: **we do not recommend** using this transport, or in case you do always check the prices on the stickers on the windows, because the foreigners especially are often offered incredibly high prices.

#### 3. Medicines

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

# 4. 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.

# ITHEA International Scientific Society ITA 2021

Joint International Scientific Events on Informatics

