The 20th International Conference on Informatics in Economy (IE 2021)

Education, Research & Business Technologies

Conference Program

Online Conference
Bucharest, Romania
May 14th, 2021

Conference Organizers

Bucharest University of
Economic Studies

Department of Economic
Informatics
and Cybernetics

INFOREC Association

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IE 2021 Conference Chair
Acad. Florin Gheorghe Filip, Romanian Academy, Romania

IE 2021 Keynote Speaker
Prof. Janus Kacprzyk, Polish Academy of Sciences, Poland
Prof. Gang Kou, Southwestern University of Finance and Economics, PR China

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Preface

This year, the 20th International Conference on INFORMATICS in ECONOMY (IE 2021), Education, Research & Business Technologies, will be held online in Bucharest, Romania, on 14th May 2021, using Zoom video conference meeting solution. The Conference promoted research results in Business Informatics and related Computer Science topics:

- *Cloud, Distributed and Parallel Computing*
- *IoT, Mobile-Embedded and Multimedia Solutions*
- *E-Society, Enterprise and Business Solutions*
- *Databases & Big Data*
- *Audit and Project Management*
- *Artificial Intelligence, Data mining & Machine Learning*
- *Quantitative Economics*

The Conference has represented a meeting point for participants from all over the world, both from academia and from industry.

The conference was first organized in 1993 in collaboration with researchers from Institut National des Sciences Appliquées de Lyon (INSA de Lion), France. From 1993 to 2011, the conference has been organized once every two years, publishing in ten editions high quality papers and bringing together specialists from around the world. Starting with 2012, the conference takes place annually, the 11th, 12th, 14th, 15th and 16th edition volumes have been indexed by ISI Thomson Reuters in its ISI Proceedings directory.

Now, the conference proceedings is under evaluation from SCOPUS and will be sent continuously to Clarivate for evaluation and possible indexing.

The International Conference on Informatics in Economy is one of the first scientific events on this subject in Romania and during the last ten years has gained an international scientific recognition. At national level, remains one of the most important scientific events that gather the entire Romanian Economic Informatics community.

The conference has made partnerships with international journals like *Economic Computation and Economic Cybernetics Studies and Research, Informatica Economică, Economy Informatics, Database Systems Journal, Journal of Logistics, Informatics and Service Science, Journal of System and Management Sciences* to publish an extended format of the conference best papers.

A Conference such as this can only succeed as a team effort, so the Editors want to thank the International Scientific Committee and the Reviewers for their excellent work in reviewing the papers as well as their invaluable input and advice.

The Conference Team

Conference Important Events

Friday, May 14st, 2021		
Time	**Event**	**Hall name**
09:00 – 09:15	**Registration**	Online via Zoom
09:15 – 10:00	**IE 2021 Opening Ceremony** Prof. Alina Mihaela DIMA Vice-Rector, Scientific Research, Development and Innovation Bucharest University of Economic Studies Prof. Marian DÂRDALĂ – Dean of the Faculty of Cybernetics, Statistics and Economic Informatics Acad. Florin Gheorghe FILIP – Romanian Academy, Information Sciences and Technology Section	Online via Zoom
10:00 – 10:30	**Credit scoring for SMEs using transactional data: a profit- and risk-driven approach** Prof. Gang KOU, School of Business Administration, Southwestern University of Finance and Economics, PR China	Online via Zoom
10:30 – 11:00	**Towards trustworthy and human acceptable decision making and optimization models reflecting cognitive biases** Prof. Janus KACPRZYK, Systems Research Institute, Polish Academy of Sciences, Poland	Online via Zoom
11:00 – 11:30	**Break**	
11:30 - 15:00	**Paper presentations**	Online Section Rooms

Registered participants will receive customized details regarding accessing Zoom sessions through direct email messages.

Conference Presentations Program

IoT, Mobile-Embedded & Multimedia Solutions
Cloud & Distributed and Parallel Computing
Databases & Big Data

SECTION 1 Friday, May 14th, 11:30 - 15:00 – Zoom Conference
Chairman: Florin Gheorghe FILIP, Paul POCATILU

1. **U-HEALTHCARE SOLUTIONS' ACCEPTANCE FOR ADULTS -** Sorin Câlea, Sergiu Jecan, Mihaela Luțaș, Lucia Rusu
2. **THE EFFECTIVENESS OF A MULTIMEDIA MOBILE APPLICATION,** Dinu Mihail-Văduva
3. **AN ANALYSIS OF DIFFERENT BROWSER ATTACKS AND EXPLOITATION TECHNIQUES -** Stefan Nicula, Răzvan-Daniel Zota
4. **A GENERAL COST MODEL IN A CLOUD DATA CENTER –** Constanta Zoie Radulescu, Delia Mihaela Radulescu, Gheorghe Lazaroiu, Alexandru Sipica, Dragos Barbu
5. **OPPORTUNITIES AND DISADVANTAGES OF USING MOBILE TECHNOLOGIES BASED ON CLOUD IN LEARNING –** Rares Constantin Ciobanu, Alexis Valentin Zaharia
6. **CLOUD AUTHENTIFICATION USING FIDO COMPLIANT JAVA CARD TECHNOLOGY SECURE ELEMENTS –** Cristian TOMA, Marius POPA, Mihai DOINEA
7. **RESEARCH ON BIG DATA ANALYTICS USING A SCIENTOMETRIC APPROACH -** Mihaela Muntean
8. **ALERTS AND FRAUD DETECTION IN ELECTRICITY CONSUMPTION RECORDED BY SMART METERING SYSTEMS -** Simona Vasilica Oprea, Adela Bara, Vlad Diaconita, Niculae Oprea
9. **ANALYTICAL CAPABILITIES OF GRAPHS IN ORACLE MULTI-MODEL DATABASE -** Iuliana Șimonca (Botha), Alexandra Corbea (Florea), Anda Belciu (Velicanu)
10. **DISTRIBUTED LEDGER TECHNOLOGY ECONOMY** – Felician Alecu, Paul Pocatilu, Silviu Ojog, Petru Simon Mot
11. **DIGITAL HUMANISM: VIRTUAL EXHIBITIONS IN THE TIME OF PANDEMIC AND EVOLVING COLLABORATION OF RELEVANT ACTANTS** – Cristian Ciurea, Florin Gheorghe Filip, Alin Zamfiroiu, Lorena Bătăgan

Audit, Project Management and Quantitative Economics

SECTION 2 Friday, May 14th, 11:30 - 15:00 – Zoom Conference
Chairman : Marian Pompiliu CRISTESCU, Nora CHIRIȚĂ

1. **RESEARCH ON DATA ANALYSIS (ENVIRONMENTAL, SOCIAL AND ECONOMIC) IN THE CONTEXT OF IMPLEMENTING THE CIRCULAR ECONOMY -** Denis-Alexandru Dragomir
2. **APPLYING A SUSTAINABLE VECTOR MODEL TO GENERATE INNOVATION -** Marian Pompiliu Cristescu, Maria Flori, Raluca Andreea Nerisanu
3. **OPTIMAL EMPLOYMENT CONTRACTS WITH SEVERAL TYPES OF AGENTS** - Laura-Stefania Constantin, Dana Luiza Grigorescu
4. **LABOR MARKET TRENDS DURING THE COVID-19 PANDEMIC -** Florin-Valeriu Pantelimon, Bogdan-Ștefan Posedaru, Tiberiu-Marian Georgescu, Răzvan Bologa
5. **THE LABOR MARKET IN RELATION TO DIGITALIZATION - PERSPECTIVES ON THE EUROPEAN UNION -** Ioana Andreea Bogoslov, Eduard Alexandru Stoica, Mircea Radu Georgescu
6. **THE IMPACT OF BITCOIN IN THE FINANCIAL MARKET. A CYBERNETICS APPROACH -** Nora Chiriță, Ionuț Nica, Mihaela Popescu
7. **CHALLENGES OF IT PROJECT MANAGEMENT –** Cătălina Sitnikov, Ionela Staneci (Drinceanu), Mariana Paraschiva Olaru (Staicu), Aurel Dincă, Alina Mădălina Belu
8. **THE IMPORTANCE OF CORRELATING THE ELEMENTS OF THE AUDIT MISSION FROM THE PERSPECTIVE OF IT PROJECTS –** Anca Băndoi, Silvia Mioara Ilie (Troi), Costinel Cristian Militaru, Ionuț Riza

Artificial Intelligence, Data-mining & Machine Learning

SECTION 3 Friday, May 14th, 11:30 - 15:00 – Zoom Conference
Chairman: Jan W. OWSIŃSKI, Ana-Ramona BOLOGA

1. **PRIVACY-PRESERVING FRAMEWORK FOR DEEP LEARNING CYBERSECURITY SOLUTIONS** - Constantin Nilă, Marius Preda, Victor Patriciu
2. **CYBER SECURITY MATURITY MODEL FOR CRITICAL INFRASTRUCTURES** - Aurelian Buzdugan, Gheorghe Capatana
3. **A GIS-BASED APPROACH IN SUPPORT OF MONITORING SUSTAINABLE URBAN CONSUMPTION VARIABLES -** Julian Vasilev, Maria Kehayova-Stoycheva, Boryana Serbezova
4. **INVESTIGATING THE IMPACT OF ORGANIZATIONAL ETHICS ON THE OPTIMIZATION OF ARTIFICIAL INTELLIGENCE MODELS -** Bassel Diab
5. **DATA MINING IN SMART AGRICULTURE** - Andreea-Elena Ogrezeanu
6. **MACHINE LEARNING AND DATA MINING TECHNIQUES FOR HUMAN RESOURCE OPTIMIZATION PROCESS – EMPLOYEE ATTRITION** – Laura-Gabriela Tanasescu, Ana-Ramona Bologa
7. **MACHINE LEARNING TECHNIQUES FOR NETWORK INTRUSION DETECTION – A SYSTEMATIC ANALYSIS -** George – Bogdan Mertoiu, Gabriela Meșniță
8. **WEB SCRAPING AND ETHICS IN AUTOMATED DATA COLLECTION** - Marius Cristian Mazilu
9. **CLASSICAL MACHINE LEARNING CLASSIFIERS TO PREDICT EMPLOYEE TURNOVER** - Maria Carmen Lesan
10. **ASSESSING THE SHARE OF THE ARTIFICIAL AD-RELATED TRAFFIC: SOME GENERAL OBSERVATIONS** – Marek Gajewski, Olgierd Hryniewicz, Agnieszka Jastrzebska, Mariusz Kozakiewicz, Karol Opara, Jan W. Owsinski, Sławomir Zadrozny, Tomasz Zwierzchowski

E-Society, Enterprise and Business Solutions

SECTION 4 Friday, May 14th, 11:30 - 15:00 – Zoom Conference
Chairman: Mihaela MUNTEAN, Constanta-Nicoleta BODEA

1. **EXPERIMENTAL RESULTS REGARDING THE EFFICIENCY OF BUSINESS ACTIVITIES THROUGH THE USE OF CHATBOTS -** Ionuț-Alexandru Cîmpeanu
2. **ASSESSING STUDENTS' KNOWLEDGE THROUGH E-LEARNING PLATFORMS -** Svetlozar Stefanov
3. **AGILE PERSPECTIVES IN HIGHER EDUCATION** - Margarita Bogdanova, Evelina Parashkevova-Velikova
4. **DIGITALIZATION OF BUSINESS AND PUBLIC ORGANIZATIONS – COMMUNICATION PROBLEMS WITH IT COMPANIES AND POSSIBLE SOLUTIONS -** Desislava Serafimova, Andriyana Andreeva, Vanya Banabakova
5. **AN ASSISTED INSTRUCTION SYSTEM DESIGNED FOR ONLINE TEACHING AND LEARNING** - Gabriel ZAMFIR
6. **BUILDING RESILIENCE THROUGH DIGITAL TRANSFORMATION -** Iulia Daniela Postolea, Constanta-Nicoleta Bodea
7. **CRYPTOCURRENCY WALLET PASSWORDLESS AUTHENTICATION -** Dominic Bucerzan, Bogdan George Gros, Crina Anina Bejan
8. **VISUAL TOOL FOR STIMULATING EMPLOYEE INTELLIGENT ATTITUDE -** Smaranda Derscanu, Vasile Paul Bresfelean, Liana Stanca, Monica Ciaca, Alexandru Vancea
9. **MANAGEMENT INFORMATION SYSTEMS IN KNOWLEDGE SOCIETY -** Marian Stoica, Elena Mircea, Bogdan Ghilic-Micu, Marinela Mircea
10. **BUSINESS ANALYTICS FOR VISUAL MANAGEMENT -** Mihaela Muntean, Claudiu Brândaș, Otniel Didraga, Florin Daniel Militaru
11. **CLASSIFICATION OF SOFTWARE METHODS EXTRACTED FROM BUSINESS USE CASE DESCRIPTIONS WITH NATURAL LANGUAGE PROCESSING -** Sabina-Cristiana Necula, Florin Dumitriu
12. **ANALYZING BUSINESS PERFORMANCES WITH A MULTICRITERIA DECISION METHOD -** Catalin Marcu, Luminita Duta, Marinela Daniela Manea

13. **MEASURING REAL TIME OCCUPATIONAL STRESS IN ORGANIZATIONS VIA A DIGITALIZED RISK MANAGEMENT APP -** Magali Dubosson, Emmanuel Fragnière, Arnaud Fournier, Samuele Meier, Sacha Varone