

**36th International Conference on Information
Technologies (InfoTech-2022)
IEEE Conference, Rec. # 55606
15-16 September 2022**

Scientific Program of the virtual forum

InfoTech-2022 Organizers



Technical University of Sofia
(<http://www.tu-sofia.bg/>)



**Union of Electronics, Electrical Engineering and
Communications**
(<http://ceec.fnts-bg.org>)



**Institute of Electrical and Electronics Engineers,
Section Bulgaria** (<http://www.ieee.bg>)



Union of Scientists in Bulgaria
(<http://www.usb-bg.org>)

Copyright © 2022

All rights reserved for SAER Forum Group. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the copyright owner.



Thursday, 15th September 2022

10:00 – 10:05 Official Conference Opening

10:05 – 12:00 Virtual Session 1

Section A: Information Technologies

Software Technologies and Digital Signal Processing

- A01 **Methods for synthesis of almost perfect and complementary phase manipulated signals with lengths $N \equiv 2 \pmod{4}$**
Borislav Bedzhev, Dilyan Dimitrov
Dept. of Communication Networks and Systems, Faculty of Artillery, Air-Defence and Communication-Information Systems, Vasil Levski National Military University, Shumen (Bulgaria)
- A02 **A general method for synthesis of constant-amplitude ideal periodic autocorrelation phase manipulated signals**
Borislav Bedzhev, Dilyan Dimitrov
Dept. of Communication Networks and Systems, Faculty of Artillery, Air-Defence and Communication-Information Systems, Vasil Levski National Military University, Shumen (Bulgaria)
- A03 **Generalized nets representing C based programming constructs**
Valeri Petrov Gochev¹, Nikolay Lyuboslavov Hinov²
¹ University of Telecommunications and Posts; ² Technical University of Sofia (Bulgaria)

Computational Social Science and Social Media

- A04 **Categorization of the requirements of social commerce platforms**
Iman Al-Jassasi, Youcef Baghdadi
Faculty of Computer Science, Sultan Qaboos University, Muscat (Sultanate of Oman)
- A05 **How robust is the United Kingdom justice system against the advance of deepfake audio and video?**
Karl O. Jones, Bethan S. Jones
Liverpool John Moores University (United Kingdom)

Bioinformatics and Health Informatics

- A06 **Algorithmization of the process of recognition of biological objects by computed tomography**
Teodora Petrova, Zhivo Petrov
Trakia University (Bulgaria)

14:00 – 16:30 Virtual Session 2

Section E: Technologies for System Design and Investigation

Automation of Design and System Investigation

- E01 **Study of the operation of an automatic robotic line for assembly of electromechanical products using statistics and machine learning**
Valentin Tsenev
College of Energy and Electronics, Technical University of Sofia (Bulgaria)
- E02 **Improving the tensile strength of solders by stabilizing them with coatings and using statistics**
Valentin Tsenev, Nedyalko Peshev, Valentin Videkov
Technical University of Sofia (Bulgaria)
- E03 **Fuzzy production rules on estimations of buck DC-DC power converter parameters**
Polya Vassileva Gocheva¹, Valeri Petrov Gochev², Nikolay Lyuboslavov Hinov¹
¹ Technical University-Sofia, ² University of Telecommunications and Posts (Bulgaria)
- E04 **Audio restoration of dub plates: Cleaning and digital processing lacquer records from reggae/dancehall culture**
Jeremy Blades, Karl O. Jones, Colin Roninson
Liverpool John Moores University (United Kingdom)

Computer Architecture and Performance Evaluation

- E05 **Omega multistage interconnection network with high-speed forwarding technique handling a double-pattern load**
Eleftherios Stergiou, Dimitrios Liarokapis, Spiridoula V. Margariti, Ilias Bobotsaris
University of Ioannina (Greece)

Parallel Systems and Technologies

- E06 **Formalization and investigation of parallel processes dispatching**
Radi Romansky
Technical University of Sofia (Bulgaria)

Power Systems and Energy Efficiency

- E07 **Energy efficiency improvements in electric drives with centrifugal load**
Mihail Digalovski, Goran Rafajlovski, Krste Najdenkoski
Sts. Cyril and Methodius University in Skopje (North Macedonia)
- E08 **Novel self-adaptive genetic algorithm for solving AC security constrained short-term hydrothermal scheduling**
B. Postolov, A. Iliev, D. Dimitrov, A. Causevski and S. Nikolova-Poceva
Sts. Cyril and Methodius University in Skopje (North Macedonia)

Renewable Energy, Smart Systems and Energy Efficiency.

- E09 **Energy management and voltage regulation of grid-connected micro grid using genetic algorithm**
Natasha Dimishkovska Krsteski, Atanas Iliev
Sts. Cyril and Methodius University in Skopje (North Macedonia)

Friday, 16th September 2022

10:30 – 12:00 Virtual Session 3

Section B: Information Security

Security Policy, Methods and Tools

B01 **ISO 27001 framework for securing election infrastructure and machine voting**
Veselin Monev (Switzerland)

Cyber-attacks and Security

B02 **Applications of simulation modelling method in prevention of jamming attacks**
Yoana Ivanova
New Bulgarian University (Bulgaria)

Section C: Network and Communication Technologies

Networking – Protocols, Design, Investigation

C01 **Investigation of network communications by using statistical processing of monitored data**
Radi Romansky
Technical University of Sofia (Bulgaria)

Cloud Computing and Internet of Things

C02 **EEG Brain-computer interfaces for Internet of Everything (IoE)**
Adelina Georgieva Kremenska, Anna Kostadinova Lekova, Georgi Dimitrov
Institute of Robotics, Bulgarian Academy of Science (Bulgaria)

C03 **Brain-robot communications in the Internet of Things**
Svetoslav Emilov Kremenski, Anna Kostadinova Lekova
Institute of Robotics, Bulgarian Academy of Science (Bulgaria)

14:00 – 16:15 Virtual Session 4

Section D: Intelligent System and Applications

Intelligent and Agent Systems

D01 **Implementation of smart public sector governance systems in the large cities in South-eastern planning region of Bulgaria**
Kamen Petrov, Nikolay Tsonkov,
University of National and World Economy (Bulgaria)

D02 **Data pre-processing for ecosystem behaviour analysis**
Natalya Rezova, Lev Kazakovtsev, Guzel Shkaberina, Denis Demidko, Andrey Goroshko
Reshetnev Siberian State University of Science and Technology (Russian Federation)

- D03 **Development of a classifier for the diagnosis of oncological diseases based on blood protein markers**
Liliya Anatolyevna Demidova, Andrey Konstantinovich Gornostaev
MIREA – Russian Technological University (Russian Federation)
- D04 **Optimization of hyper parameters with constraints on time and memory for the classification model of the hard drives states**
Liliya Anatolyevna Demidova, Anton Vladimirovich Filatov
MIREA – Russian Technological University (Russian Federation)

Knowledge-Based Applications

- D05 **Automated access control via license plate recognition using Neocognitron Neural Network**
Leon Rothkrantz
Department of Intelligent Systems, Faculty of Electrical Engineering, Mathematics and Computer Science, Delft University of Technology (The Netherlands)

Section F: Technological Aspects of e-Governance & Privacy

E-Government and e-Municipality

- F01 **Analysis of the implementation of smart cities initiatives in Northeast Bulgaria's Districts**
Nikolay Tsonkov, Kamen Petrov
University of National and World Economy (Bulgaria)

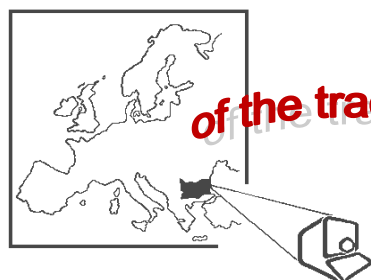
E-Learning – Systems and Applications

- F02 **Ontology mapping for personalization in adaptive e-learning**
Tatyana Ivanova
Technical University - Sofia, KEE-Botevgrad (Bulgaria)
- F03 **A methodology for mapping educational domain ontologies using top level ontologies**
Tatyana Ivanova
Technical University - Sofia, KEE-Botevgrad (Bulgaria)

Interoperability in e-Governance

- F04 **A set of registers supporting semantic interoperability in the e-governance's environment**
Lyubomir Blagoev¹, Roument Trifonov¹, Kamen Spasov²
¹ Technical University - Sofia; ² Sofia University (Bulgaria)

16:15 Conference Closing



**36th Issue
of the traditional scientific conference
InfoTech-2022**