37th International Conference on Information Technologies (InfoTech-2023)
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Scientific Program of the virtual forum

InfoTech-2023 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)

Wednesday, 20th September 2023

10:00 – 15:00   Virtual Session (1)

Final discussion between all participants and authors of reports in sections [A], [B] and [C] by using the virtual forum on conference website and e-mails contacts.

Section A: Information Technologies

Software Technologies and Programming

A1   Building drawing simulation models for the purposes of industrial design
Yoana Ivanova (Bulgaria)

Digital Signal Processing and Applications

A2   Robust audio zoom for surveillance systems: A beamforming approach with reduced microphone array
Stephen Stroud, Karl O. Jones, Gerard Edwards, Colin Robinson, David Ellis, Sebastian Chandler-Crnigoj (United Kingdom)

A3   Generalization of the recursive methods for synthesis of complementary pairs of phase manipulated signals
Borislav Bedzhev, Dilyan Dimitrov (Bulgaria)

A4   A model of signal processing in software defined radio communication systems
Borislav Bedzhev, Dilyan Dimitrov (Bulgaria)

Hypermedia, Multimedia and Social Media

A5   Describing images using CNN and object features with attention
Varsha Singh, Km Khushaboo, Vipul Kumar Singh, Uma Shankar Tiwary (India)

A6   Performance analysis of GANs for de-noising images
Varsha Singh, Jayesh Ginnare, Mohit Rathour, Thanmai Deepthi, Kontham Pavani, Inder Sonu, Uma Shanker Tiwary (India)

Visualisation Methods and Technics

A7   Calibration and distortion compensation algorithms of digital cameras used in UAV
Tedora Petrova, Marin Marinov, Zhivo Petrov (Bulgaria)

Bioinformatics and Health Informatics

A8   Modelling the appearance and growth of cancer formations in the interactions between tissue cells
Tedora Petrova, Zhivo Petrov, Vladislav Todorov (Bulgaria)

Section B: Information Security

Security Policy, Methods and Tools

B1   Data leakage prevention in ISO 27001: Compliance and implementation
Veselin Monev (Switzerland)

B2   **Feature selection using bio-inspired optimization for IoT intrusion detection and prevention system**
Richa Singh, R.L. Ujjwal (India)

Section C: Networking and Communication Technologies

Internet of Things

C1   **Internet of Things and user privacy protection**
Radi Romansky (Bulgaria)

Thursday, 21st September 2023

10:00 – 15:00   Virtual Session (2)

Final discussion between all participants and authors of reports in sections [D], [E] and [F] by using the virtual forum on conference website and e-mails contacts.

Section D: Intelligent Systems and Applications

Intelligent and Agent Systems

D1   **An agent-based travel assistant for the Dutch railway network**
Leon Rothkrantz, Martijn Beelen (The Neterlands & Czech)

Ontology and Semantic Web

D2   **Knowledge-based semi-automatic selection of personalized learning paths**
Tatyana Ivanova (Bulgaria)

D3   **Semantics-based knowledge representation and personalized learning content development**
Tatyana Ivanova (Bulgaria)

Intellectual and Virtual Environment

D4   **Multi-aspect modelling of services for disability students in a smart city context**
Todorka Atanasova Glushkova, Dimitar Kostadinov Stoyanov (Bulgaria)

Intelligent Transport Systems

D5   **Analysis of the development of intelligent transport systems in the largest cities in Bulgaria**
Kamen Petrov, Nikolay Tsonkov (Bulgaria)

Section E: Technologies for System Design

Computer Architecture and Performance Evaluation

E1   **System software architecture for enhancing human-robot interaction by Conversational AI**
Anna Lekova, Paulina Tsvetkova, Anna Andreeva (Bulgaria)

Computer Modelling and System Investigation

E2	**Analytical approach to evaluating the performance of the OpenFlow protocol on Software Defined Networks** *Ilias Bobotsaris, Spiridoula V. Margariti, Ioanis Koulouras, Eleftherios Stergiou, Chrysostomos Stylios* (Greece)
E3	**A Python-based study of resonant processes in electric circuits** *Nikolay Hinov, Stoyan Popov* (Bulgaria)
E4	**Statistical modelling of network communications based on monitored data** *Radi Romansky* (Bulgaria)

CAD Systems

E5	**Comparative analysis of software environments for computer modelling in electrical and electronic engineering** *Stoyan Popov, Nikolay Hinov* (Bulgaria)

Testing, Diagnostic and System Reliability

E6	**Sustainable low-temperature stress soldering of specialized electronic components and process optimization through statistical analysis and machine learning** *Radostin Rusev, Valentin Tsenev, Miroslav Slavchev* (Bulgaria)
E7	**Statistical analysis of the influence of the amount of bismuth in a combined solder paste footprint on the content of voids in the solder** *Valentin Tsenev, Radostin Rusev, Valentin Videkov, Miroslav Slavchev* (Bulgaria)
E8	**Short-term load forecasting using artificial neural network techniques: A case study for Republic of North Macedonia** *Ana Kotevska, Nevenka Kiteva Rogleva* (North Macedonia)

Section F: Technological Aspects of e-Government and Privacy

e-Government and e-Municipality

F1	**Opportunities for IoT-based smart platforms for intelligent management of waste systems in Bulgarian municipalities** *Nikolay Tsonkov, Kamen Petrov* (Bulgaria)

e-Learning – Systems and Applications

F2	**An approach to the design of formal and informal education services for the system architecture: The lens of organization, competence, pedagogy, and technology** *Małgorzata Gawlik-Kobylińska* (Poland)

e-Business and e-Commerce

F3	**Features of e-business and e-commerce with a reflection on privacy in the digital age** *Irina Noninska, Radi Romansky* (Bulgaria)

15:00   Conference Closing