

InfoTech-2021, 16-17 September 2021

Scientific Program

Thursday, 16th September 2021

13:30 – 13:40 (Conference Hall)

Official Conference Opening

13:40 – 15:00 (Conference Hall)

Plenary Session

Chairperson: Prof. Radi Romansky, D.Sc. (Bulgaria)

- 13:40 **[01PL]** Presented by *Prof. D.Sc. Leon J. M. Rothkrantz* (The Netherlands)
Detecting Emotions in Communication via Social Media during Crisis Events
Leon J. M. Rothkrantz
Delft University of Technology (The Netherlands)
- 14:10 **[02PL]** Presented by *Prof. D.Sc. Dmitry Maevsky* (Ukraine)
Theoretical Foundations of Fractal Electrotechnic. Fractal Elements and its Properties
Dmitry Maevsky, Andriy Bojko, Elena Maevskaya, Aleksandr Besarab
Odessa National Polytechnic University, Odessa (Ukraine)
- 14:35 **[03PL]** Presented by *Prof. Dr. Borislav Bedzhev* (Bulgaria)
A Survey of Periodic Binary Nearly Perfect Signals with Lengths $N \equiv 0 \pmod{4}$
Mihail Iliev¹, Borislav Bedzhev², Nikolay Nikolov³, Kaloyan Kanchev⁴
¹ University of Ruse, ² NMU “V. Levski”, ³ State Agency of National Security ⁴ Konstantin Preslavsky University of Shumen (Bulgaria)

15:00 – 15:30 (Foyer)

Coffee Break & Discussion

15:30 – 18:00 (Conference Hall)

Report Session

Regular Reports in Section [A] “Information Technologies”

Chairperson: Prof. D.Sc. Leon Rothkrantz (The Netherlands)

- 15:30 **[A01] Computation of Source-to-site Distance Distributions for Seismic Hazard Analysis**
Radan Ivanov
National Institute of Geophysics, Geodesy and Geography - Bulgarian Academy of Sciences (Bulgaria)
- 15:40 **[A02] A Bloom Filter Application for Processing Big Datasets through MapReduce Framework**
Milko Marinov
University of Ruse (Bulgaria)
- 15:50 **[A03] Application of Image Analysis Techniques for Quality Assessment of Swiss-type of Cheese**
Atanaska Bosakova-Ardenska, Angel Danev, Petya Boyanova, Peter Panayotov
University of Food Technologies, Plovdiv (Bulgaria)

- 16:00 **[A04] Real-time Velocity Based Cloth Simulation with Ray-tracing Collision Detection on the Graphics Processor**
Tzvetomir Ivanov Vassilev
 Informatics Dept., University of Ruse (Bulgaria)
- 16:10 **[A05] Approaches for Implementation of Golay's Complementary Signals and Welti's Quaternary Signals in Radio-Communication Systems**
Mihail Iliev¹, Borislav Bedzhev², Monika Bedzheva³, Kaloyan Kanchev³
¹ University of Ruse, ² NMU "V. Levski", ³ K. Preslavsky University of Shumen (Bulgaria)
- 16:20 **[A06] An Electric Network Frequency Analysis Technology Demonstrator for Educational Purposes**
K.O. Jones, L. Hamilton, Dr. D.L. Ellis, C. Robinson, J. Reed-Jones and K. Morrison
 School of Engineering, Liverpool John Moores University, Liverpool (United Kingdom)
- 16:30 **[A07] Recognition of Handwritten Numbers with Data Sets**
M. Fatih Cambek, Pinar Kirci
 Istanbul University-Cerrahpaşa, Bursa Uludag University (Turkey)

16:40 – 16:50 Short Break

Regular Reports in Section [A] "Information Technologies"

Chairperson: Prof. D.Sc. Dmitry Maevsky (Ukraine)

Business Intelligence, CRM- and ERP-Systems

- 16:50 **[A08] Using Agile Methodology in ERP-System Implementation Projects**
Dmitry Yurievich Stepanov
 MIREA – Russian Technological University (Russian Federation)
- 17:00 **[A09] Analysing Performance of Clustering Algorithms on a Real Retail Dataset**
Ledion Lico, Indrit Enesi, Betim Cico
 Polytechnic University of Albania, Aba Business Center, Metropolitan University of Tirana (Albania)
- 17:10 **[A10] Digital Industry Transformation – Complex Analysis of Technologies, Benefits, Success Factors and Barriers**
Natalija Petrova, Vangel Fustik (North Macedonia)
Multimedia and Social Media

- 17:20 **[A11] The Educational Use of a Website in the Teaching of Chemistry Module on "Acids-Bases-Salts"**
A. Thysiadou¹, S. Christoforidis¹, D. Marmanis¹, A. Solomanidou², P. Giannakoudakis²
¹ International Hellenic University - Kavala; ² Aristotle University of Thessaloniki (Greece)
- 17:30 **[A12] Distance Learning for Teaching "Simple Colloid" with the Assistance of Moodle**
A. Thysiadou¹, D. Marmanis¹, S. Christoforidis², V. Gaki³, P. Giannakoudakis³, A. Mitropoulos¹, G. Kyzas¹
¹ International Hellenic University, Kavala, ² Manager of Department ICT of Library of International Hellenic University, Kavala, ³ Aristotle University of Thessaloniki (Greece)

Regular Reports in Section [C] "Networking – Social Computing"

Social Computing

- 17:40 **[C01] An Approach of Utilizing Exponential Rank and In-Inverse Closeness Centrality on Recommender Systems**
Korab Rrmoku¹, Besnik Selimi¹, Lule Ahmedi²
¹ South East Europe University, ² University of Prishtina (¹North Macedonia, ²Kosovo)
- 17:50 **[C02] Research on Web Applications for Remote Laboratory Exercises on Computer Networks**
Georgi Tsochev
 Technical University of Sofia (Bulgaria)

Friday, 17th September 2021

09:30 – 10:30 (Conference Hall)	Report Session
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Chairperson: Assoc. Prof. Dr. Dimitar Tzanev (Bulgaria)

Regular Reports in Section [B] "Information Security"

Security Policy, Methods and Tools

- 09:30 **[B01] The "Self-Assessment" Method within a Mature Third-Party Risk Management Process in the Context of Information Security**
Veselin Monev
New Bulgarian University (Switzerland)
- 09:40 **[B02] Mini-Cave Automatic Virtual Environment Application in Security, Safety, and Defence Studies**
Małgorzata Gawlik-Kobylińska¹, Paweł Maciejewski², Jacek Lebieź³
¹University of Warsaw, ²Czech Technical University in Prague, ³Gdańsk University of Technology (^{1,3}Poland, ²Czech Republic)
- 09:50 **[B03] A Model for Identification of Compromised Devices as a Result of Cyberattack on IoT Devices**
Aleksandar Hristov, Roumen Trifonov
Technical University of Sofia (Bulgaria)
- 10:00 **[B04] Cybersecurity Analysis of Wind Farm SCADA Systems**
Evgeni Sabev, Roumen Trifonov, Galya Pavlova, Kamelia Rainova
Technical University of Sofia (Bulgaria)
- 10:10 **[B05] People-centric Security Awareness Program**
Federico Giovannetti
University of South Florida (USA)

10:30 – 11:00 (Foyer)	Coffee Break & Discussion
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11:00 – 12:20 (Conference Hall)	Report Session
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Chairperson: Prof. D.Sc. Eugene Semenkin (Russian Federation)

Regular Reports in Section [D] "Intelligent Systems and Applications"

Intelligent and Agent Systems

- 11:00 **[D01] Toward Self-Aware Machines: Insights of Causal Reasoning in Artificial Intelligence**
Elis Pelivan¹, Betim Cico²
¹South East European University, ²Metropolitan Tirana University
(¹North Macedonia, ²Albania)
- 11:10 **[D02] The Aspects of Choosing the Time Series Length when Constructing a Fuzzy Regression Model**
Liliya Anatolievna Demidova¹, Maksim Anatolievich Stepanov²
¹Russian Technological University – MIREA, Moscow, ²Ryazan State Radio Engineering University named after V.F. Utkin, Ryazan (Russian Federation)

- 11:20 **[D03] Development of Multifactor Forecasting Model based on Fuzzy Time Series**
Liliya Anatolievna Demidova¹, Maksim Anatolievich Stepanov²
¹Russian Technological University – MIREA, Moscow, ²Ryazan State Radio Engineering University named after V.F. Utkin, Ryazan (Russian Federation)
- 11:30 **[D04] Intelligent Technologies in E-learning and Intelligent Tutoring Systems**
Tatyana Ivanova
 College of Energy and Electronics, Technical University of Sofia (Bulgaria)
- 11:40 **[D05] Component Based Development of Ontology-based Intelligent Tutoring Systems**
Tatyana Ivanova
 College of Energy and Electronics, Technical University of Sofia (Bulgaria)
- 11:50 **[D06] Multi-agent Consensus Convergence Study**
Vanya Markova, Ventseslav Shopov
 Institute of Robotics – BAS, Plovdiv (Bulgaria)
- 12:00 **[D07] Application of Hungarian Algorithm for Assignment Problem**
Ventseslav Shopov, Vanya Markova
 Institute of Robotics – BAS, Plovdiv (Bulgaria)
- 12:10 **[D08] Toward Robot-Assisted Psychosocial Techniques for Sound Stimulation of Children Born with Hearing Loss**
Anna Lekova, Paulina Tsvetkova
 Institute of Robotics, Bulgarian Academy of Sciences (Bulgaria)

12:20 – 14:00 Lunch Break

14:00 – 15:00 (Conference Hall)
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Report Session

Chairperson: Prof. Dr. Goran Rafajlovski (Germany)

Regular Reports in Section [E] “Technologies for System Design”

- 14:00 **[E01] Investigation of Communication Parameters in Multicomputer Architecture with Ring Topology**
Radi Romansky, Irina Noninska
 Technical University of Sofia (Bulgaria)
- 14:10 **[E02] Genetic Programming using Cooperative Coevolution and Problem Decomposition for Solving Large-scale Symbolic Regression Problems**
Evgenii Sopov¹, Mariia Semenkina²
¹ Reshetnev Siberian State University of Science and Technology; ² University of Applied Sciences Upper Austria (¹ Russian Federation, ²Austria)
- 14:20 **[E03] On the Automatic Identification of Differential Equations using a Hybrid Evolutionary Approach**
Tatiana Karaseva, Eugene Semenkin
 Siberian Federal University (Russian Federation)
- 14:30 **[E04] An Approach to Training Decision Trees with the Relearning of Nodes**
Sergei Mitrofanov and Eugene Semenkin
 Siberian State University of Science and Technology, Krasnoyarsk (Russian Federation)
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- Testing, Diagnostic and System Reliability*
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- 14:40 **[E05] Measurement of PCB (Printed Circuit Board Assembly) Deformation During Functional Testing of Electronic Modules**
Valentin Tsenev, Valentin Videkov, Nadejda Spasova
 Technical University of Sofia (Bulgaria)

- 14:50 **[E06] Installation of Electronic Modules in a Housing by Means of a Screw Assembly and Assessment of the Influence of the Deformation of the PCB on the Installed Components**

Valentin Tsenev, Valentin Videkov, Nadejda Spasova
Technical University of Sofia (Bulgaria)

15:00 – 15:30 (Foyer)

Coffee Break & Discussion

15:30 – 16:45 (Conference Hall)

Report Session

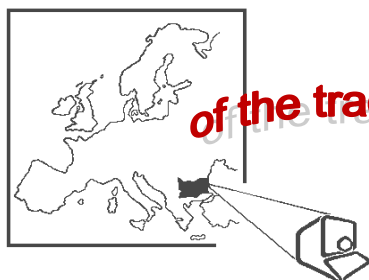
Chairperson: *Prof. D.Sc. Radi Romansky (Bulgaria)*

Regular Reports in Section [E] “Technologies for System Design”

Power Electronic Systems and Energy Efficiency

- 15:30 **[E07] Modelling and Representation of Power Electronic Converter Parameters**
Polya Gocheva¹, Valeri Gochev², Nikolay Hinov¹
¹ Technical University of Sofia; ² University of Telecommunications and Posts (Bulgaria)
- 15:40 **[E08] N-1 Security Constrained Short-Term Hydrothermal Scheduling by Self Adaptive Genetic Algorithm with PTDF**
Borce Postolov, Atanas Iliev, Dimitar Dimitrov, Natasa Dimishkoska
“Ss.Cyril and Methodius” University in Skopje (Republic of North Macedonia)
- 15:50 **[E09] Power Transformer No-Load Losses in Case of Non-Linear Loads**
Mihail Digalovski¹, Goran Rafajlovski^{1,2}, Krste Najdenkoski¹
^{1,2} “Ss.Cyril and Methodius” University in Skopje (Republic of North Macedonia)
² SRH Hochschule Berlin (Germany)
- 16:00 **[E10] Optimal Configuration Assessment of Hybrid Energy System**
Sofia Nikolova-Poceva
Ss. Cyril and Methodius University in Skopje (R. North Macedonia)
- 16:10 **[E11] Feasibility Analysis and Optimization of GRID-Connected Microturbine/Fuel Cell/PV Hybrid Energy System**
Sofia Nikolova-Poceva
Ss. Cyril and Methodius University in Skopje (R. North Macedonia)
- 16:20 **[E12] Unit Commitment and Economic Dispatch of Hybrid Microgrid with Residential Load**
Natasha Dimishkovska, Atanas Iliev, Sofija Nikolova-Poceva
Ss. Cyril and Methodius University in Skopje (R. North Macedonia)
- 16:30 **[E13] An Application that Separate Recyclable Materials**
Mustafa Sungur Polater, Pinar Kirci
Bursa Uludag University (Turkey)

16:45 Conference Closing



35th Issue
of the traditional scientific conference
InfoTech-2021