
57th INTERNATIONAL SCIENTIFIC CONFERENCE ON
INFORMATION, COMMUNICATION AND ENERGY SYSTEMS AND
TECHNOLOGIES



**16 - 18 June 2022, Ohrid,
North Macedonia**

www.icestconf.org

Organized by



Faculty of Technical Sciences, Bitola, North
Macedonia



Faculty of Electronic Engineering, Niš, Serbia



Faculty of Communications and
Communication Technologies, Sofia, Bulgaria

Under auspices of

Macedonian Ministry of Education and Science

In cooperation with:

Faculty of Tourism and Organizational Sciences – Ohrid

ICEST 2022 conference is supported by



КОМОРА НА ОВЛАСТЕНИ АРХИТЕКТИ И
ОВЛАСТЕНИ ИНЖЕНЕРИ



WELCOME TO ICEST 2022



Dear Colleagues,

On behalf of the Technical Program Committee it is my pleasure to invite you to attend the 57th International Scientific Conference on Information, Communication and Energy Systems and Technology ICEST 2022, which will be held from 16 to 18 June at the Faculty of Tourism and Organizational Sciences - Ohrid, North Macedonia.

The ICEST Conference gained its acronym as a successor of EIST Conference in 2002, when the Faculty of Electronics from Niš, Serbia, joined the Faculty of Communication and Communication Technologies from Sofia, Bulgaria and the Faculty of Technical Sciences from Bitola, North Macedonia, in organizing the series of Conferences.

As to the previous ICEST Conferences, we have papers and authors from institutions all over the world. This year we have 230 authors (and coauthors) from 16 countries with 92 scientific and application oriented papers for oral and poster presentations.

In spite of the tight Conference schedule I hope that there will be enough time for social activities which will enable further strengthening of the professional and personal relations among the ICEST participants for the benefit of the institutions and the countries they are coming from.

At last, in the name of the Conference Technical and Program Committee I want to express my gratitude to the authors and reviewers who have contributed to maintain the high standards for ICEST, and to all others who were involved in organization of the Conference.

I am sure that the beautiful and picturesque Ohrid will give you all, an inspiration for fruitful work and pleasant time during the ICEST Conference.

I am looking forward for seeing you in Ohrid.

Prof. D-r Mitko Kostov

Conference Chairman

CONTENT

TECHNICAL PROGRAM COMMITTEE	2
ORGANIZING COMMITTEE	4
CORRESPONDENCE	4
UPDATED INFORMATION	4
ICEST HISTORY	5
VENUE	5
CLIMATE	6
REGISTRATION AND INFORMATION DESKS	6
LANGUAGE	6
CONFERENCE FEE	6
SOCIAL PROGRAM	7
CONFERENCE TOPICS	7
OPENING SESSION	8
PLENARY SESSION	8
COCTAIL	8
Radio Communications, Microwaves, Antennas & Telecommunication Systems and Technology	9
Computer Systems and Internet Technologies & Informatics and Computer Science	10
Electronics, Control Systems & Measurement Science and Technology	11
Energy Systems and Efficiency	12
Signal Processing & Digital Image Processing	13
ONLINE SESSION	14
POSTER SESSIONS	15
Poster 1 - Radio Communications, Microwaves, Antennas & Telecommunications Systems and Technology	15
Poster 2 - Computer Systems and Internet Technologies & Informatics and Computer Science	16
Poster 3 – Electronics, Control Systems & Measurement Science and Technology	17
Poster 6 - Engineering Education & Other	18
Poster 4 - Energy Systems and Efficiency	19
Poster 5 - Signal Processing & Digital Image Processing	19
Editorial team meeting	20

TECHNICAL PROGRAM COMMITTEE**GENERAL CHAIRMAN:**

Mitko Kostov, St. Kliment Ohridski University, Bitola, N.Macedonia

VICE CHAIRMEN:

Nebojša Dončov, University of Niš, Serbia

Kalin Dimitrov, Technical University of Sofia, Bulgaria

HONORARY CHAIRMEN:

Cvetko Mitrovski, St. Kliment Ohridski University, Bitola, N.Macedonia

Bratislav Milovanović, Singidunum University, Niš, Serbia

MEMBERS OF 2022 PROGRAM COMMITTEE

Agata Manolova, Technical University of Sofia, Bulgaria

Biljana Stošić, University of Niš, Serbia

Blagoj Risteovski, St. Kliment Ohridski University Bitola, North Macedonia

Boyanka Nikolova, Technical University of Sofia, Bulgaria

Brian Barsky, University of California, Berkeley, USA

Chrysostomos Stylios, Technological Education Institute of Epiros, Greece

Đani Juričić, Jožef Stefan Institute, Slovenia

Désiré Dauphin Rasolomampionona, Warsaw University of Technology, Poland

Dimitar Taskovski, Ss. Cyril and Methodius University Skopje, N. Macedonia

Dimiter Alexandrov, Lakehead University, Canada

Dragan Denić, University of Niš, Serbia

Dragan Stojanović, University of Niš, Serbia

Dužanka Bošković, University of Sarajevo, Bosnia and Herzegovina

Eduard Ivanjko, University of Zagreb, Croatia

Evelin Krmac, University of Ljubljana, Slovenia

Evelina Pencheva, Technical University of Sofia, Bulgaria

Fernando Alvarez, University of Extremadura, Spain

Filiz Güneş, Yildiz Technical University, Turkey

Ismail Altas, Karadeniz Technical University, Turkey

Ivan Corbev, Ss. Cyril and Methodius University Skopje, N.Macedonia

J.A.R.P. de Carvalho, University Beira Interior, Portugal

Jair Minoro Abe, Paulista University, Brazil

Jan Machac, Czech Technical University, Prague, Czech Republic

Jugoslav Joković, University of Niš, Serbia

Karel Raz, University of West Bohemia, Czech Republic

Kazumi Nakamatsu, University of Hyogo, Japan

Ljupčo Trpezanovski, St. Kliment Ohridski University Bitola, N.Macedonia

Mariofanna Milanova, University of Arkansas at Little Rock, USA

Mikolaj Bartłomiejczyk, Gdańsk University of Technology, Poland

Mikolaj Leszczuk, AGH University of Science and Technology, Poland

Nikola Donato, University of Messina, Italy

Pece Mitrevski, St. Kliment Ohridski University Bitola, N.Macedonia

Petar Popovski, Aalborg University, Denmark

Peter Planinšič, University of Maribor, Slovenia

Slavko Rupčić, University of Osijek, Croatia

Stanimir Valtchev, New University of Lisbon, Portugal

Stefan Stancescu, Polytechnic University of Bucharest, Romania

Stevo Bozinovski, South Carolina State University, USA

Szilvia Nagy, University of Gyor, Hungary

Urban Burnik, University of Ljubljana, Slovenia

Uwe Siart, Technical University of Munich, Germany

Vincenzo Piuri, University of Milan, Italy

Wojciech Krzysztofik, Wroclaw University of Technology, Poland

Wojtek Bock, University of Ottawa, Canada

Zdenka Babić, University of Banja Luka, Bosnia and Herzegovina

Zoran Jovanović, University of Niš, Serbia

Zoran Stanković, University of Niš, Serbia

ORGANIZING COMMITTEE

University St. Kliment Ohridski, Bitola, North Macedonia:

M. Atanasovski, B. Arapinoski, G. Janevska, N. Mojsovska, M. Spirovski, I. Andreevski, D. Koltovska Nechovska, J. Bunevska -Taleska

University of Niš, Serbia:

A. Atanasković, T. Dimitrijević, J. Joković, D. Mančić, N. Maleš-Ilić, Z. Marinković, V. Marković, M. Milijić, O. Pronić-Rančić, B. Stošić, B. Veselić, L. Stoimenov, J. Milošević

Technical University of Sofia, Bulgaria:

I. Draganov, K. Stoyanova, L. Laskov, S. Antonov, N. Hristova, D. Kireva-Mihova, T. Brusev, V. Shterev, M. Stoyanova

CORRESPONDENCE

Conference Chairman: Prof. Dr. Mitko Kostov

St. Kliment Ohridski University, Bitola, N. Macedonia

Makedonska Falanga 37, 7000 Bitola, N. Macedonia

phone: +389 47 207 702

e-mail: mitko.kostov@uklo.edu.mk

Technical Editor: Metodija Atanasovski,

St. Kliment Ohridski University, Bitola, N. Macedonia

e-mail: metodija.atanasovski@uklo.edu.mk

Secretary: Blagoja Arapinoski,

St. Kliment Ohridski University, Bitola, N. Macedonia

e-mail: blagoja.arapinoski@uklo.edu.mk

UPDATED INFORMATION

Updated information can be obtained from the official

Conference web site: <http://www.icestconf.org>

ICEST HISTORY

The ICEST Conference appears to succeed a series of conferences started from 1963 under the name "Day of the Radio". In 1977 the name of the Conference was changed into "Communication, Electronic and Computer Systems". Since 2000 it has become an international conference under the name EIST (Energy and Information Systems and Technologies). The first two EIST Conferences were successfully organized by the Faculty of Communications and Communication Technologies Sofia and the Faculty of Technical Sciences Bitola.

In 2002, for the first time, the Faculty of Electronic Engineering Niš has accompanied the Conference organizers. Also, the Conference changed its name becoming ICEST (International Scientific Conference on Information, Communication and Energy Systems and Technologies). Since then, on a rotational principle, the conference has been organized by the Faculty of Telecommunications, Technical University of Sofia, Bulgaria, the Faculty of Electronic Engineering, University of Niš, Serbia, and the Faculty of Technical Sciences, St. Kliment Ohridski University, Bitola, N. Macedonia. This year host of the conference is the Faculty of Technical Sciences Bitola.

VENUE

ICEST 2022 will be held from June 16 through June 18, Faculty of Tourism and Organizational Sciences - Ohrid, North Macedonia.

Ohrid is a city in the Republic of N. Macedonia with continuity and around two and a half millenniums old marks of existence. Within the very heart of the present city of Ohrid, the antique city of Lichnid lies, significant and rich, as is its successor. The metamorphoses of the antique Lichnid into medieval Ohrid lasted for several centuries (VI-IX), thus being created one of the most significant medieval cities on the Balkan.

Through the pages of the Ohrid saga we will find the memories of the birth of the Slavic literacy and culture in the works of St. Clement and St. Naum, students of Thessaloniki brothers Sts. Cyril and Metodij. St. Clement is worshiped as a patron of the city, and his three-decade work in the city (886-916) initiated the foundation of the Clement Slavic University. The Ohrid saga cherries the memories of the Samuel Empire, too, as its capitol at the beginning of the XI century. It nourishes the testimonies of the Ohrid Archibishopry - a significant church organization, which pedestal was shared by influential philosophers, writers and theologians. Its worthy successor is the present Macedonian Orthodox Church. The Ohrid saga was composed by the stormy pages of the past, and the testimonies for some of them have reached the present days; the Monastery of St. Clement - St. Pantelejmon, the Monastery of St. Naum, the cathedral church of St. Sophia, the church of St. Clement, the church of St. John the Baptist, as many other pieces of art: frescoes, icons, manuscripts, all of them woven in the City of UNESCO - Ohrid.

CLIMATE

MICRO CLIMATE (local climate): MODIFIED MEDITERRANEAN (maritime) - TEMPERATE CONTINENTAL (because of the high mountains - 2000m and altitude - 695m there is also mountain climate)

distance from Adriatic Sea.....110 km

annual average air temp11 °C

winter average temp..... 2.7 °C

summer average temp..... 19.6 °C

absolute maximum..... 35.5 °C in July

insolation (sunny hours).....2300 h per year

REGISTRATION AND INFORMATION DESKS

The Registration Desk, Information Desk, as well as Secretariat Office, will be open during the following hours:

Thursday	June 16 09:00 – 18:00
Friday	June 17 09:00 – 15:00

LANGUAGE

Official language of the Conference will be English.

CONFERENCE FEE

The registration fee includes publication of one paper in the Conference proceedings, conference kit and conference dinner.

Authors: 200 euro or 12.300 MKD denars

Additional ticket for conference dinner: 35 euro or 2.000 MKD denars.

Company presentations: 350 EUR or 20.000 MKD denars

IMPORTANT: Paper that is not covered by registration fee will not be published in the Conference Proceedings.

SOCIAL PROGRAM

Thursday, June 16, 2022, 12.00

After Conference opening and plenary session, a Welcome cocktail will be offered to all Conference participants.

Thursday, June 16, 2022, 20.00

Conference Dinner - Restaurant Millennium

CONFERENCE TOPICS

- [1] Radio Communications, Microwaves, Antennas
- [2] Telecommunication Systems and Technology
- [3] Signal Processing
- [4] Digital Image Processing
- [5] Computer Systems and Internet Technologies
- [6] Informatics and Computer Science
- [7] Electronics
- [8] Energy Systems and Efficiency
- [9] Control Systems
- [10] Measurement Science and Technology
- [11] Remote Ecological Monitoring
- [12] Engineering Education
- [13] Other

CONFERENCE PROGRAM

Thursday, June 16

12:00 – 13:00

Lecture Hall

OPENING SESSION

Chairman: **Prof. Mitko Kostov**

University St. Kliment Ohridski Bitola, North Macedonia

Prof. Nebojša Dončov, University of Niš, Serbia

Prof. Kalin Dimitrov, Technical University of Sofia, Bulgaria

Prof. Igor Nedelkovski

Vice-Rector of University St. Kliment Ohridski-Bitola, North Macedonia

13:00 – 14:00

Lecture Hall

PLENARY SESSION

Chairman

Prof. Mitko Kostov

PL.1 – Aspects of Time and Space in Wireless Connectivity Beyond 5G and 6G

PETAR POPOVSKI

Department of Electronic Systems, Aalborg University Denmark

14:00 – 16:00

Hall

COCTAIL

Thursday, June 16**16:00 – 19:00****Room A**Chairman: **Biljana Stošić & Kamelia Nikolova****Radio Communications, Microwaves, Antennas & Telecommunication Systems and Technology**

- 1. MLP Neural Model of Dual-Band Slotted Square Patch Antenna with Variable Slot Geometry**
Ksenija Pesic, Zoran Stanković and Nebojsa Doncov
- 2. Outage Probability of Mixed Satellite RF / Terrestrial FSO Cooperative System**
Goran Djordjevic, Nenad Milosevic, Jaroslaw Makal and Dejan Milic
- 3. High-Gain Crossed Slot Antenna Array Fed by CPW Rat-Race Coupler**
Marija Milijic and Branka Jokanovic
- 4. Investigation of the Influence of the Distance and the Angle of Observation in Radiometric Measurements in the Infrared Spectrum**
Hristo Hristov, Kalin Dimitrov
- 5. Optical Method for Collecting and Examining the Dynamic Range of Signals by Displacement of MMF**
Tsvetan Valkovski, Kalin Dimitrov
- 6. The Role of Edge Artificial Intelligence in 6G Networks**
Stojan Kitanov, Vladimir Nikolikj
- 7. Yagi Antenna with Minimal Side-Lobe Levels for Sattelite Communications**
Miroslav Bozhkov and Peter Petkov
- 8. Influence of Cut-off Level and α - κ - μ Distribution Parameters on Outage Probability and Amount of Fading**
Dejan Milić, Marko Smilić, Zorica Nikolić, Srđan Milosavljević and Ana Tošković
- 9. Load Balancing Implementation in Software Defined Networks**
Nikolay Prodanov, Kamelia Nikolova and Dimitar Atamian

Thursday, June 16**16:00 – 19:00****Room B**Chairman: **Mehmet Akif Şahman & Nikola Rendeovski****Computer Systems and Internet Technologies & Informatics and
Computer Science**

- 1. Design and Implementation of a Configurable Software Architecture for Peer Learning**
Milen Petrov
- 2. On the Requirements for Successful Business Continuity in the Context of Disaster Recovery**
Saso Nikolovski and Pece Mitrevski
- 3. PC VR vs Standalone VR Fully-Immersive Applications: History, Technical Aspects and Performance**
Nikola Rendeovski, Diana Trajcevska, Mario Dimovski, Konstantin Veljanovski, Aleksandar Popov, Naile Emimi and Dimitar Veljanovski
- 4. Differential Search Algorithm by XOR gate in Binary Optimization Problems**
Mehmet Akif Şahman and Ahmet Cevahir Cinar
- 5. Visualization of Music - MIDI Content**
Ivana Milošević, Živanka Miladinović Bogavac, Dušan Regodić and Borivoje Milošević
- 6. Developing A Pre-Assessment System for Consumer Loan Applications Via the Simplification of Logical Functions Method**
Fatih Basciftci and Erkan Yeşil
- 7. Performance Comparison of Machine Learning Algorithms in Movie Recommender Systems**
Nora Pireci Sejdiu, Blagoj Risteovski and Ilija Jolevski
- 8. Review on E-management Approach, Methods and Implementation Platforms**
Galia Marinova and Krisel Tola

Thursday, June 16**16.00 – 19:00****Room C**Chairman: **Mare Srbinovska & Ismail Saritas****Electronics, Control Systems & Measurement Science and
Technology**

- 1. Design and Implementation of Pulse Oximeter Synchronized with Respirators**
Serafetdin Baloglu, Ismail Saritas and Adem Golcuk
- 2. Design of Fuzzy Logic Controller for a Risley Prism Imaging System**
Mahmut Sami Güç and Ali Yaşar
- 3. Location Impact on Particulate Matter (PM) Concentration Reduction During COVID-19 Pandemic**
Mare Srbinovska, Aleksandra Krkoleva Mateska, Maja Celeska Krstevska and Vesna Andova
- 4. Comparative Measurements of Sound Insulation of Materials Placed in Small Size Acoustic Chamber**
Svetlana Djambova, Natalia Ivanova and Snezhana Pleshkova-Bekiarska

Thursday, June 16**20.00 – 24:00****RESTAURANT
HOTEL
MILENIUM****CONFERENCE SOCIAL DINNER**

Friday, June 17**11:00 – 13:00****Room A**Chairman: **Metodija Atanasovski & Bogdan Hnatiuc****Energy Systems and Efficiency**

- 1. A Study on Optimum Tilt Angle of PV Panels for Konya, Turkey**
Mehmet Cunkas and Mustafa Arslan
- 2. Power Quality Improvement in Grid Connected Solar Energy For Harmonic Analysis**
Anjali Patel and Ranjana Singh
- 3. Impact of PV Type Dispersed Generation on Harmonic Distortion in Distribution Networks**
Martina Korlevska, Metodija Atanasovski, Mitko Kostov and Ljupco Trpezanovski
- 4. Red Deer Algorithm Based Harmonic Mitigation for Asymmetric Cascaded Multilevel Inverters**
Yasin Bektaş and Hulusi Karaca
- 5. System for Automatic Control on Technological Processes by Asynchronous Electrical Drive**
Vasil Dimitrov and Emiliya Dimitrova
- 6. Implementation of Neural Networks and Feature Selection for Short Term Load Forecast**
Goran Veljanovski, Pande Popovski, Metodija Atanasovski and Mitko Kostov
- 7. Optimizing Short Term Load Forecast: A study on Machine Learning Model Accuracy and Predictor Selection**
Pande Popovski, Goran Veljanovski, Mitko Kostov and Metodija Atanasovski
- 8. Real Study Case of Loss Allocation in Distribution Systems with RES**
Metodija Atanasovski, Tomce Mijoski, Mitko Kostov and Blagoja Arapinoski
- 9. Models for Integration of Flexibility Sources in Regional Electricity Markets**
Petar Krstevski, Aleksandra Krkoleva Mateska and Stefan Borozan
- 10. Detection of Parallel Electric Arc Faults by AFDD**
Bogdan Hnatiuc, Mihaela Hnatiuc, Sorin Sinteana and Gabriel Vavilov

Friday, June 17**11:00 - 14:00****Room B**Chairman: **Biljana Stošić & Ivo Draganov****Signal Processing & Digital Image Processing**

- 1. Sound Based DC Motor Classification by a Convolution Neural Network**
Dejan Ćirić, Marko Janković and Miljan Miletić
- 2. Performances of CNN Architectures on Diabetic Retinopathy Detection Using Transfer Learning**
Esra Kaya and Ismail Saritas
- 3. Some of the Factors that Affect the Performance of Newly Designed CIC Filter Functions**
Biljana Stošić
- 4. Analysis of Neural Network Accuracy Degradation due to Uniform Weight Quantization of One or More Layers**
Jelena Nikolić, Stefan Tomić, Zoran Perić and Danijela Aleksić
- 5. Application of Artificial Intelligence for Traffic Data Analysis, Simulations and Adaptation**
Daniela Koltovska Nechoska, Renata Petrevska Nechoska and Renata Duma
- 6. Unified graph-based method for instance separation from foreground-background segmentation**
Milica Spasic, Igor Mihajlovic, Nikola Spasic and Dragan Jankovic
- 7. Model of Improved Floating Point 32-bits Quantizer**
Nikola Vucic, Zoran Peric and Aleksandra Jovanovic
- 8. Filtering of X-Ray Images using Nonlinear Isotropic Diffusion**
Ivo Draganov and Rumen Mironov
- 9. The Effect of Different Consequent Setting on the Effectiveness of Kóczy-Hirota Fuzzy Rule Interpolation in Colonoscopy Image Classification**
Szilvia Nagy, Raneem Ismail, Brigita Sziová and Hussein Taha
- 10. Impact Crater Rim Extraction Algorithm Based on Principal Curvature Directions**
Hristo Hristov and Nicole Christoff

ONLINE SESSION**Thursday, June 16****16:00 – 19:00****Po. A**Chairman: **Goran Nikolić & Boro Sitnikovski**

- 1. From Single CPU to Multicore Systems**
Tatjana Nikolic, Goran Nikolic, Bojan Dimitrijevic and Mile Stojcev
- 2. Integrating a Virtual Machine on a system-on-a-chip**
Boro Sitnikovski and Biljana Stojcevska
- 3. A Comparison of Computing Spectral Transforms of Logic Functions using Python Frameworks on GPU**
Miloš Radmanović
- 4. Efficiency of the Method of Separation of Variables for Analyzing the Influence of External Body of Isotropic and Bi-isotropic Material on Homogeneous Electric Field Generated Using Two Toroidal Electrodes**
Žaklina Mančić and Zlata Cvetković
- 5. Teacher's Assistant Application**
Aleksandar Janjickj, Ana Madevska Bogdanova and Vladimir Trajkovik
- 6. COVID-19 Prevention Systems within Hardware and Software Design Computer Science Courses**
Nenad Petrović
- 7. A Survey of Three Types of Processing Units: CPU, GPU and TPU**
Goran Nikolic, Bojan Dimitrijevic, Tatjana Nikolic and Mile Stojcev
- 5. Wiener Filter based Predictive Control of Wind Turbine**
Teofana Puleva, Ognjana Ognjanova and Elena Haralanova
- 8. Application of fleet management in intelligent transport systems**
Predrag Brlek, Ivan Cvitkovic, Nikola Kolarevic, Katarina Stojanovic and Zlatko Sovreski
- 9. Education for Resource Efficiency in Manufacturing Industries EREMI**
Georgi Georgiev, Tanya Titova, Rosen Kosturkov, Axel Sikora, Gordana Janevska, Mitko Kostov, Simona Halunga and Octavian Fratu

POSTER SESSIONS**Thursday, June 16****16:00 – 19:00****Po. A**Chairman: **Zoran Stanković & Denitsa Kireva – Mihova****Poster 1 - Radio Communications, Microwaves, Antennas & Telecommunications Systems and Technology**

- 1. Computational Intelligent method for Cloud Layer Classification Using Millimeter Wave Technology for Designing of 6G Network**
Hitesh Singh, Vivek Kumar, Kumud Saxena, Boncho Bonev, Ramjee Prasad and Vinod Kapse
- 2. ANN Model for DoA Estimation of the Signal Received by Crumpled Textile Wearable Antenna Array**
Zoran Stanković, Olivera Pronic Rancic and Nebojsa Doncov
- 3. Linearization of the 5G Power Amplifier Below 6 GHz by DPD Compensation Technique**
Aleksandar Atanasković, Nataša Maleš-Ilić and Djuradj Budimir
- 4. Linearly Polarized Phased Antenna Array with an Application for the Automatic Landing of Unmanned Flying Vehicle**
Ivaylo Nachev and Ilia Iliev
- 5. Propagation Loss Model for Mobile Wireless Communication Systems**
Ilia Iliev and Boncho Bonev
- 6. Secrecy Outage Probability and Intercept Probability Analysis over Alpha-F Fading Channels**
Jelena Anastasov, Aleksandra Panajotović, Nikola Sekulović, Dejan Milić and Daniela Milović
- 7. Adaptive Routing with Probability Response Function of the Service Time**
Tashko Nikolov, Denitsa Kireva – Mihova, Borislav Boyadjiev
- 8. Comparative Analysis of AODV, DSDV and DSR Routing Protocols in VANET**
Tsvetan Marinov
- 9. Security and Privacy Protection Obstacles with 3D Reconstructed Models of People in Applications and the Metaverse: A Survey**
Ivaylo Vladimirov, Maria Nenova, Desislava Nikolova and Zornitsa Terneva

Thursday, June 16**16:00 – 19:00****Po. B**Chairman: **Ivan Ivanov & Milos Stojanovic****Poster 2 - Computer Systems and Internet Technologies & Informatics and Computer Science**

- 1. ERP Systems in Corrugated Packaging Industry**
Radoslav Hrishev
- 2. Cyberattack Types - Methods and Technics for Protection of Communication Resources**
Zornitsa Terneva, Maria Nenova, Viktoria Terneva, Ivaylo Vladimirov and Desislava Nikolova
- 3. A Comparison of Machine Learning Classification Algorithms and Methods for English Author's Works and their Translations into Bulgarian**
Neli Kalcheva and Milena Karova
- 4. Educational Model-based Evaluation of Buck DC/DC Converter Controllers**
Tsveti Hranov and Nikolay Hinov
- 5. Distress Study Through Machine-Learning Techniques**
Ginka Marinova and Neli Kalcheva
- 6. Modified Training Models Based on Medical Data Sets**
Ivan Ivanov, Borislava Toleva and Nikolay Netov
- 7. Time Series Prediction with Neural Networks: a Review**
Vasil Shterev, Nikolay Metchkarski and Kiril Koparanov
- 8. A review of machine learning methods for long-term time series prediction**
Milan Protic, Milos Stojanovic and Predrag Popovic
- 9. Concentration Testing and Data Collection System**
Gergana Spasova and Iliyan Boychev
- 10. Design and Implementation of a Field Level of an Industrial Communication Network for the Needs of the Industry**
Daniel Denev and Tsvetoslav Tsankov

Thursday, June 16

16:00 – 19:00

Po. C

Chairman: **Gordana Janevska & Tihomir Brusev**

Poster 3 – Electronics, Control Systems & Measurement Science and Technology

- 1. Improving Piezo Effect of Egg Shell Composition by Rochelle Salt Nanocrystals**
Rostislav Rusev, George Angelov, Boriana Tzaneva and Mariya Aleksandrova
- 2. Power Losses in High Frequency Switching-Mode Regulator for Integrated Circuit Applications**
Tihomir Brusev
- 3. Landslide Monitoring Methods Based on RTK Navigation**
Rosen Miletiev and Emil Iontchev
- 4. FMEA as a Tool in Supply Chain - Automotive Industry, Case Study in Republic North Macedonia**
Aleksandar Stevanoski, Ivo Kuzmanov and Silvana Angelevska
- 5. A state-of-the-art review of ultra-wideband localization**
Rosen Vitanov and Dimitar Nikolov

Friday, June 17**16:00 – 18:00****Po. A**Chairman: **Elena Kotevska & Valentina Rankovska****Poster 6 - Engineering Education & Other**

- 1. Applying Free and Open-Source Tools in Microcontroller Laboratory Classes**
Valentina Rankovska and Goran Goranov
- 2. Teaching of Bayes formula**
Neli Kalcheva
- 3. Experimental Results of Breakdown Voltage and Electrical Breakdown Time Delay of Geiger-Muller Chamber**
Milić Pejović
- 4. Some Conditions on Total Boundness $(3,2,\rho)$ -Symmetric Spaces**
Sonja Chalamani, Marzanna Seweryn-Kuzmanovska and Elena T. Kotevska
- 5. Classification of oncological medical institutions on the basis of patient survival and topographic code of the disease**
Maya Todorova, Neli Kalcheva and Ginka Marinova
- 6. Investigation of the Fiber-Forming Properties from Ternary Solutions Containing PVA and Nutraceuticals Additives on Electrospinning Process**
Margarita Neznakomova and Dilyana Gospodinnova
- 7. Identification of Characteristic Descriptors and Creation of a Model for Predicting the Stage of Cancer**
Maya Todorova and Neli Kalcheva

Friday, June 17

16:00 – 18:00

Po. B

Chairman: **Blagoja Arapinoski & Gergana Vacheva**

Poster 4 - Energy Systems and Efficiency

1. **Modern Approach to Distribution Transformer Designing**
Trajche Stenkovski and Blagoja Arapinoski
2. **Methods of Analysis of Dissolved Gasses in Transformer Oil**
Trajche Stenkovski, Natasha Mojsoska and Blagoja Arapinoski
3. **Evaluation of the Life Cycle of a Hydropower Plant**
Gergana Vacheva, Plamen Stanchev and Nikolay Hinov
4. **Methodology for Reliability Assessment of Power System with Decentralized Energy Resources Connected**
Evgeniya Vasileva
5. **Modeling of Hybrid Autonomous Power System with PV, Fuel cell and Supercapacitor**
Gergana Vacheva, Plamen Stanchev and Nikolay Hinov
6. **Wireless Power Transfer System with Four Degrees of Freedom**
Nikolay Madzharov and Desislav Iliev
6. **Modeling and Simulation of DC-DC Push-Pull Converter**
Gergana Vacheva, Kiril Genev and Nikolay Hinov

Friday, June 17

16:00 – 18:00

Po. C

Chairman: **Zoran Velickovic & Ivo Kuzmanov**

Poster 5 - Signal Processing & Digital Image Processing

1. **3D Machine Vision System for Defect Inspection and Robot Guidance**
Danail Slavov and Vladimir Hristov
2. **Artificial Humans: an Overview of Photorealistic Synthetic Datasets and Possible Applications**
Desislava Nikolova, Ivaylo Vladimirov and Zornitsa Terneva
3. **Application of QR code as a watermark in multi-modal person's identification**
Zoran Velickovic, Sladjana Velickovic and Marko Velickovic
4. **Comparison of algorithms for elimination the outliers in the process of 3D modelling from video**
Svetlana Mijakovska, Filip Popovski, Roberto Pasic and Ivo Kuzmanov

Saturday, June 18

10:00 – 13:00

Room A

Chairman: **Mitko Kostov**

Editorial team meeting

Conclusions

