

**40th International Conference on Information
Technologies (InfoTech-2026)
IEEE Conference
10-11 September 2026**

Scientific Program of the virtual forum

InfoTech-2026 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>)

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Thursday, 10th September

10:00 – 10:10 Official Conference Opening

10:10 – 11:20 Virtual Session 1

Section A: Information Technologies

- A01 **Artificial Intelligence-Based Classification of Sinus and Non-Sinus Rhythms Using Heart Rate Variability**
Galya Georgieva-Tsaneva
- A02 **Signal Quality-Aware ECG and PPG Preprocessing for Reliable HRV and PRV Estimation in Wearable Monitoring Systems**
Galya Georgieva-Tsaneva
- A03 **Hybrid Gaussian–LSTM Modeling of Physiological Stress Using HRV Signals**
Galya Georgieva-Tsaneva, Ekaterina Popovska
- A04 **A Matrix-Based Approach to the Architectural Organization of University Data Building Blocks**
Vassil Milev, Pavel Petrov, Filipp Safronov
- A05 **SPEAK SMART AI - A Deep Learning-Based Intelligent Speech Therapy and Progress Monitoring System Using Automatic Speech Recognition and Generative AI**
Nithiya L M, Abinav Murukan, Athul Manikandan, Karkave Dharmalingam, Logesh Ganesan

11:35 – 14:15 Virtual Session 2

Section E: Technologies for System Design & Investigation

- E01 **Structure and operating algorithm of a microprocessor-controlled lighting system for simulating glare**
Petko Kostadinov, Dilyana Mitseva
- E02 **Optimal mixing of solder pastes under different combined footprint and reflow soldering conditions regarding solder joint shear strength and voids content**
Radostin Rusev, Valentin Tsenev, Miroslav Slavchev
- E03 **Investigation and Analysis of Airflows in Railway Tunnels**
Ilko Tarpov
- E04 **Development of an algorithm for a data logger for noise measurements and Global Navigation Satellite System data**
Martina Tomcheva, Chavdar Turlakov, Nina Gergova, Lyubomir Sekulov
- E05 **Characterization of base ceramic layers for the production of solid-state energy devices**
Yordan Vladov, Valentin Tsenev, Preslav Hristov
- E06 **Characterization of materials for manufacturing a multilayer ceramic battery (MLCB)**
Preslav Hristov, Valentin Tsenev, Yordan Vladov

- E07 **A Cross-Embodiment Robotics Data Platform for Standardized Physical AI Training**
Pancho Dachkinov
- E08 **Cross-Platform Simulation of a Low-Cost 6-DOF Robot Manipulator**
Pancho Dachkinov
- E09 **CAD-Informed Robotic Assembly Planning from Mechanical Connection Data**
Pancho Dachkinov
- E10 **Combined print - assessment of solder voids under different conditions for combined footprint and reflow temperature process**
Radostin Rusev, Valentin Tsenev
- E11 **Combined print - assessment of solder rupture strength under different conditions for combined footprint and reflow temperature process**
Radostin Rusev, Valentin Tsenev
- E12 **System of Hard and Soft Criteria in a Multi-Criteria Model for Automated University Timeta-bling**
Valentin Georgiev, Nikolay Yanev, Danail Stanev, Katia Rasheva-Yordanova
- E13 **Gamified Human-Centered Model for Behavioral Management under Water Stress in the Context of Industry 5.0**
DASKALOV Teodor, Neviana Krasteva

Friday, 11th September 2026

10:00 – 12:20 Virtual Session 3

Section B: Information Security

- B01 **Detection of Illegal Activities in Darknet Networks Through Traffic Analysis**
Reni Kabakchieva, Plamen Nakov, Evgeni Hristov, Adnan Redjeb
- B02 **Quantitative Analysis of Network Recoverability after Cyber Attacks**
Erkan Yakubov, Adnan Redjeb, Yavor Tomov
- B03 **Traffic Correlation Methods for Tracking in Darknet Networks**
Evgeni Hristov, Ognyan Nakov, Byulbyul Zyulyamova
- B04 **Impact of DoS Attacks on QoS and Recovery in Wind Farm Control Networks: Star vs Ring Topology**
Sinan Salim, Yavor Tomov, Byulbyul Zyulyamova
- B05 **AI-Based Cybersecurity Monitoring and Risk Assessment of Smart Grid Infrastructure**
Nikolay Hinov, Dmytro Ihorovych Prokopovych-Tkachenko, Yuliia Khokhlachova
- B06 **An Adaptive Policy Learning Firewall Model for Reinforcement Learning-Based Firewall Policy Optimization in High-Performance Network Environments**
Gautam Girish Chawla
- B07 **Information Protection in Communication Systems Employing Discrete Chaotic Signals**
Galina Cherneva, Elena Dimkina, Nina Gergova
- B08 **AFNet: An Attention-Driven Dual-Stream Network for Manipulation Chain Detection in JPEG-Compressed Images**
Sakshi Shakya, Anukriti Kaushal
- B09 **Comparative Evaluation Framework for IT/OT Cybersecurity Architectures in Electrical Substations Based on IEC 62443 and IEC 62351**
Juan Pablo Baron Arias, Angelica Maria Salazar Madrigal, William Fabian Chaparro Becerra, Cristian David Camacho Parra
- B10 **QUANTUM-ENHANCED CYBERSECURITY: A Hybrid Quantum-Classical Framework for Multi-Class Attack Detection on CIC-IDS-2017, CICIOT2023, and UNSW-NB15 Datasets**
Mouhamed Masmoudi, Williams Ololade Daisi, Chiagoziem Mushinwa, R. Naveen Nithya Kalyan, Momchil Kurtev, Yancho Yordanov, Mariana Filipova, Anton Mladenov
- B11 **Secure Audio Encryption Using Cubic Maps**
Borislav Stoyanov
- B12 **Novel hyperchaotic cipher for STL files**
Tonislav Troev, Borislav Stoyanov
- B13 **A Methodological Framework for Geospatial Tracking of Cyberattacks Using Real IP Address Data**
Yoana Ivanova

- B14 **Assessing the Impact of AI Amplifiers on Cyber Risk Management for Unmanned Aircraft Systems**

Yoana Ivanova

- B15 **Control Prioritisation in Information Security: Cost-Benefit Analysis vs a Multi-Criteria Decision Model**

Veselin Monev

Section C: Networking and Communication Technologies

- C01 **Multi-parent Sharing MPTCP for Enhanced Load Balancing in RPL Networks**

Kanabadee Srisomboon, Luepol Pipanmekaporn, Akara Prayote, WILAIORN SAELEE

- C02 **Supervised Contrastive Encoder for Cost-Sensitive LightGBM of NOMA Spectrum Sensing under Fading Environment**

Kanabadee Srisomboon, Luepol Pipanmekaporn, Akara Prayote, WILAIORN SAELEE

13:30 – 15:45 Virtual Session 4
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Section D: Intelligent Systems and Applications

- D01 **Intelligent Fault Diagnosis of SEPIC and Ćuk Converters Using Machine Learning Techniques**

Mirjana Kocaleva Vitanova, Zoran Zlatev, Elena Gelova, Biljana Zlatanovska, Nikolay Hinov

- D02 **Simulation-Based Optimization of Urban Traffic Using Reinforcement Learning**

Yordan Petkov, Silvia Ivanova, Reni Kabakchieva, Adnan Redjeb

- D03 **AI-based Software Optimization Framework for Battery Lifetime Extension in Renewable Energy Systems**

Ognyan Nakov, Roumen Trifonov, Dimitar Gerov, Byulbyul Zyulyamova

- D04 **AI-Assisted Optimization Algorithm for Battery Lifetime Extension in Renewable Energy Systems**

Dimitar Gerov, Plamen Nakov, Atakan Salimov, Plamen Stanchev

- D05 **Predictive and Self-Learning Control Framework for Hybrid Renewable Microgrids Based on Machine Learning Forecasting and Reinforcement Learning**

Angel Busarov, Daniela Gotseva, Atakan Salimov

- D06 **Intelligent Energy Management of Hybrid Renewable Energy Systems Using Deep Reinforcement Learning and Battery Storage Optimization**

Plamen Stanchev, Daniela Gotseva, Angel Busarov, Atakan Salimov

- D07 **Resilient Formation Control of Nonholonomic Mobile Robots under Malicious Agent Insertion**

Vanya Markova, Ventseslav Shopov

- D08 **Recognition of Robot Trajectories Using Deep Recurrent Learning Methods**

Vanya Markova, Ventseslav Shopov

- D09 **AI-Based Process Bottleneck Detection and Optimization in ERP Systems: An Odoo Use Case**

Anton Genchev, Galina Momcheva

- D10 **Interpretability Constrained Comparative Analysis of Classical and Hybrid Quantum Machine Learning Models for Credit Risk Classification**

Mouhamed Masmoudi, Winny Babu, Mariana Filipova, Anton Mladenov, Momchil Kurtev, Yancho Yordanov

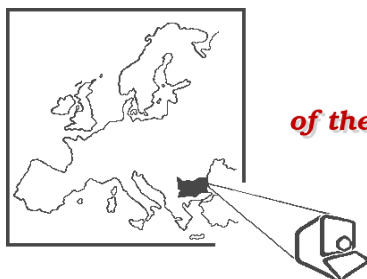
- D11 **Predicting the translaminar fracture toughness of CRFPs using an artificial neural network**
Tahir Soyuguzel, EGNAR OZDIKILILER
- D12 **Image segmentation and change detection of Satellite Imagery with U-Net 3+ Convolutional Neural Network for Flood Analysis**
Denis Byalev, EGNAR OZDIKILILER
- D13 **The Use of Explainable Artificial Intelligence in Mathematical Problem Solving of Tasks at Secondary School Exams**
Leon Rothkrantz, Siska Fitrianie
- D14 **Multi-Agent Context-Aware Modeling of a Smart Home Cyber-Physical System Using the Calculus of Context-Aware Ambients**
Todorka Glushkova, Konstantin Rusev
- D15 **Layer-Wise Hybrid Training of Neural Networks with Sparse L1 Feature Selection and Adam Optimization**
Ekaterina Gribanova, Darja Chervjakova

16:00 – 16:50 Virtual Session 5

Section F: Technological Aspects of e-Governance & Privacy

- F01 **Verifying the Consent-Elicitation Interface: An Observable-Predicate Decomposition of GDPR Article 4(11)**
Anshuman Sahoo
- F02 **Implementation of Regional Policies for Smart Cities and Digital Municipalities (A Comparative Analysis of Sofia and Amsterdam)**
Nikolay Tsonkov, Kamen Petrov
- F03 **Improving Communication, Connectivity, and 5G Infrastructure in the Plovdiv Agglomeration Area**
Nikolay Tsonkov, Kamen Petrov
- F04 **Pedagogical Mediation Gaps in STEM Higher Education: Diagnostic Evidence for an Interactive Humanoid Robotic Mediator**
Douglas Adalberto Aguilar Montoya

16:50 – 17:00 Conference Closing



40th Issue
of the traditional scientific conference
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