

IEEE INTERNATIONAL CONFERENCE AUTOMATICS AND INFORMATICS'2025 (ICAI'25),

09 - 11 October 2025, VARNA (Technical University – Varna) (Hybrid)

<http://icai-conf.org>

CONFERENCE PROGRAM

THE GIVEN TIME IS ACCORDING TO THE BULGARIAN TIME ZONE - SOFIA UTC+3 HOURS

Thursday, October 9th

In the NUK gallery

08:00 – 09:00 REGISTRATION OF PARTICIPANTS

Stream 1 (Conference Hall NUK)

09:00 – 09:20 WELCOME AND OPENING CEREMONY

09:20 – 10:00 30 YEARS OF THE BULGARIAN SECTION OF IEEE

Chairman: Todor Ganchev

Stream 1 (Conference Hall NUK)

10:00 - 10:50 PLENARY SESSION 1 (PS1)

Chairman: Kosta Boshnakov

Neural Computation for Socioeconomic Forecasting in Turbulent Times



George Mengov
Sofia University St. Kliment Ohridski

10:50 - 11:00 DISCUSSION

Stream 1 In attendance (In-person) (Room A – Hall 109TV)	Stream 2 Online (Virtual) (Room B)	Stream 3 Online (Virtual) (Room C)
11:00 - 12:30 SESSION A11 “Control And Optimization” Chairman: Kamen Perv	11:00 - 12:30 SESSION B11 “Control Theory and PWM Systems” Chairman: Alexandar Ichtev	11:00 - 12:30 SESSION C11 “Search Algorithms and Optimization” Chairman: Valentina Markova
1. Feedback Control Structure for Nonlinear Plants, Kamen Perv (9492) 2. Algorithm for adaptive smoothing of contour curves in a Voronoi diagram,	1. Robust Control of PWM Inverter in Robotic System, Georgi Stefanov (3902) 2. Robust LMI based Model Predictive Control for discrete-time singular systems, Andrey Yonchev (9263)	1. Algorithmic Efficiency in Rubik’s Cube Solving: A Study of Timeout Rates, Solution Quality, and Heuristic Limitations, Miguel Angel Garcia Higueta,

<p>Ognyan Zhelezov and Valentina Petrova (8741)</p> <p>3. Parameter Optimization Using Experimental Design and Statistical Modeling for Injection Molding, Todor Todorov, Georgi Todorov and Borislav Romanov (5581)</p> <p>4. Testing the Case of Knapsack-like Portfolio Optimization Using Various Evolutionary Algorithms, Nikolay Penchev and Angel Marchev (0625)</p>	<p>3. Network Flows with Potentials at the Network Vertices, Vassil Sgurev and Lyubka Doukovska (9213)</p> <p>4. Computational Fluid Dynamics usage for development of Digital Twin for Chemical Reactor with Periodical Action, Plamen Vasilev and Nedko Perchemliev (7516)</p>	<p>Loubna Ali, Shan Faiz, Rand Koutaly and Meerah Karunanithi (0556)</p> <p>2. A Comparative Analysis of Informed and Uninformed Search Algorithms for the 8-Puzzle Problem with a Novel Hybrid Approach, Petar Mileski, Dijana Capeska Bogatinoska and Aleksandar Karadimche (1633)</p> <p>3. Visualizing Search Algorithms: A Practical Approach Using the Rubik's Cube, Eslam Aly, Loubna Ali, Syed Arslan Abbas Rizvi, Ahmed Hassan and Pratik Rughe (9105)</p> <p>4. N-Queens using Genetic Algorithm: a comparative study, Mehul Jain, Syed Arslan Abbas Rizvi, Somesh Rewadkar, Rand Kouatly, Ahmed Hassan and Muhmmad Saqib (6650)</p>
<p>12:30 – 13:30 LUNCH in the UNIVERSITY CANTEEN</p>		
<p>13:30 - 15:00 SESSION A12</p> <p>“Machine Learning and Data Analysis”</p> <p>Chairman: George Mengov</p>	<p>13:30 - 15:00 SESSION B12</p> <p>“Robotics and Control Systems”</p> <p>Chairman: Vladimir Hristov</p>	<p>13:30 - 15:00 SESSION C12</p> <p>“Optimization and Metaheuristics”</p> <p>Chairman: Alexandra Grancharova</p>
<p>1. Predictive Limits, Imposed by Likert-type Data, George Mengov, Dimitar Gotchev, Irina Zinovieva and Iliyan Nenov (0299)</p> <p>2. Predicting Student Placement Status Using Tree-Based Ensemble Classifiers,</p>	<p>1. Model-Free Super-Twisting Control for Rigid-Flexible Coupled Robotic Mechanisms with Time-Delay Estimation, Yang Shen, Haoping Wang and Yang Tian (1551)</p>	<p>1. Metaheuristic Algorithms for Transport Planning: Simulated Annealing and Ant Colony Optimization, Adelina Petkova, Martin Vassilev and Alexander Penev (5998)</p>

<p>Ivo Vladimirov Rakitin, Evgeniya Vladimirova Rakitina-Qureshi, Neli Ananieva Arabadzhieva-Kalcheva, Maya Petrova Todorova, Ivaylo Plamenov Penev and Daniela Ivanova Petrova (1476)</p> <p>3. Random Forest versus Logistic Regression for Student Placement Prediction in Complex Educational Data, Evgeniya Vladimirova Rakitina-Qureshi, Ivo Vladimirov Rakitin, Neli Ananieva Arabadzhieva-Kalcheva, Hristo Bozhidarov Nenov, Stefka Popova and Velislav Kolesnichenko (2463)</p> <p>4. Decision Trees, Random Forests, and Hybrid Ensembles for Ordinal Survey Data Analysis, Evgeniya Vladimirova Rakitina-Qureshi, Ivo Vladimirov Rakitin, Neli Ananieva Arabadzhieva-Kalcheva, Maya Petrova Todorova, Donika Georgieva Stoyanova and Dimitrichka Zheleva Nikolaeva (4739)</p>	<p>2. Adaptive Performance-Guaranteed Control with Safety Constraints for Continuum Robots: A 6-DoF Elephant Trunk Robot System, Dong Zhang, Haoping Wang and Yang Tian (6724)</p> <p>3. A framework for trajectory optimization of an industrial KUKA robot, Georgi Georgiev (3459)</p> <p>4. Mathematical Modeling of an Automated Assembling Machine for Door Locks, Ilian Iliev, Reneta Parvanova and Desislava Mihaylova (9650)</p>	<p>2. A derivative free algorithm for function minimization with application in economics, Iliia Atanasov (4709)</p> <p>3. Use of Neural Networks for the Modelling and Optimization of the Manganese Ions Adsorption from Aqueous Solutions, Alexandra Grancharova and Silviya Lavrova (3479)</p> <p>4. Minimizing Road Curvature Through Parallel Computing in Pathfinding Algorithms, Filip Bosilkov and Vladimir Zdraveski (9186)</p>
<p>15:00 - 16:30 SESSION A13</p> <p>“Robotics and Control Systems I”</p> <p>Chairman: Javanshir Mammadov</p>	<p>15:00 - 16:30 SESSION B13</p> <p>“CNC Machining and Industrial Automation”</p> <p>Chairman: Mariyana Todorova</p>	<p>15:00 - 16:30 SESSION C13</p> <p>“Deep Learning and Reinforcement Learning”</p> <p>Chairman: Gancho Vachkov</p>
<p>1. Diagnostics of Industrial Robot Applied in Flexible Manufacturing System, Javanshir Mammadov, Aminaga Sadigov, Ulduz Agayev, Natig Talibov,</p>	<p>1. Multi-Purpose Optimization of the Turning Process on CNC Machines with Robotic Loading, Irina Aleksandrova, Hristo Metev and Nikolay Kolev (1237)</p>	<p>1. Integrating Deep Learning and Reinforcement Learning: A Case Study on the Chrome Dino Game, Krish Anish</p>

<p>Nadir Hajibalayev and Banovha Veliyeva (4565)</p> <p>2. Modeling of the innovation construction mobile industrial robot applied in technology park, Gulshan Orujova, Ulduz Agayev, Gulnara Genjeliyeva, Yusif Huseynov, Metanet Ahmadova and Ahmad Ahmadzada (4719)</p> <p>3. Control of a two-joint planar robot through machine vision, Elena Vasileva and Zhivko Zhekov (1540)</p> <p>4. Modeling of Inverse Kinematics of a 3R Robotic Arm with Adaptive Neuro-Fuzzy Inference System, Iliyan Iliev and Viktor Iliev (8773)</p>	<p>2. Determining the Number of Cutting Tools, Ensuring a Continuous Work Cycle in CNC Turning Machines with Robotic Loading, Irina Aleksandrova, Hristo Metev and Nikolay Kolev (2218)</p> <p>3. Automatic Controlled Liquid Filling System: Loadcell And Servo Motor Controlled Approach, Hilmi Kuşçu and Kubilay Özyalçın (1494)</p> <p>4. Synthesis of a MIMO Model of an Electro-Hydraulic System with Temperature Compensation, Stanimir Yordanov, Georgi Mihalev, Krasimir Ormandzhiev and Hristina Stoycheva (2268)</p>	<p>Shah, Loubna Ali, Rand Kouatly, Meerah Karunanithi and Debopriya Das (1049)</p> <p>2. MAARV: Multi-Agent Architecture for Runtime Verification, Ajitava Deb, Arush Jauhari, Mridangam Goswami, Dr. Usha G and Dr.Vinoth N.A.S. (0342)</p> <p>3. Improving Bullying Detection Through Feature Selection and Machine Learning Evaluation, Dimitrios Galiatsatos (9283)</p> <p>4. Enhancing Academic Performance Prediction Using Feature Transformation and Machine Learning Models, Dimitrios Galiatsatos (9328)</p>
16:30 – 17:00 COFFEE BREAK		
<p>17:00 - 18:30 SESSION A14</p> <p>“Cybersecurity and System Security”</p> <p>Chairman: Xuejun Zong</p>	<p>17:00 - 18:30 SESSION B14</p> <p>“ERP and Business Systems”</p> <p>Chairman: Idilia Batchkova</p>	<p>17:00 - 18:30 SESSION C14</p> <p>“Virtual Reality and Simulation”</p> <p>Chairman: Kosta Boshnakov</p>
<p>1. Analyzing Vulnerabilities in Desktop Operating Systems, Svetoslav Hadzhitodev and Valentina Petrova (0490)</p> <p>2. Technical Evolution and Practice of Industrial Internet Security Protection in the Era of Large language Models, Bowei Ning, Kan He, Xunjun Zong and Yifei Sun (5769)</p>	<p>1. ERP systems in the digital transformation era: A comparative study of leading solutions, Dilyana Dimitrova (3843)</p> <p>2. Modular Architecture For Financial Process Automation: From Excel/INI to API and ERP integrations, Ivan Ignev (1161)</p>	<p>1. Virtual Reality Driving Simulation System for Critical Situations, Elitsa Bakalova (1917)</p> <p>2. Comparative Analysis of Traditional and VR-Based Learning in Schools: Results and Challenges, Elitsa Bakalova (4634)</p>

<p>3. Entropy-Aware AI-Powered Ransomware Detection Using IBM FlashCore Module 4 in SAN Environments, Genka Slavova-Torres (6374)</p> <p>4. Bibliometric API Integrations: Combining Research Networks and Institutional Repositories, Boris Bankov and Olga Marinova (7577)</p>	<p>3. Implementation of E-logistics in Food Supply Chain Operations, Firuza Aghazada and Lala Bekirova (3551)</p> <p>4. Evaluation and Selection of Project Management Software for Secure Civil-Military Collaboration, Milen Sotirov, Valentina Petrova and Miroslav Tsvetkov (5199)</p>	<p>3. Conceptualization, modeling and simulation for 3D printed modular hand prosthesis, Vasil Lozanov, Radoslav Vasilev, Maya Staikova and Nayden Chivarov (6285)</p> <p>4. Simulation of large battery clusters based on multi-threaded programming using OpenMP and a hybrid-core CPU, Martin Minkov (9326)</p>
<p>18:30 - 19:30</p> <p>“COMPANY PRESENTATIONS”</p> <p>Chairman: Hristo Valchanov</p>		
<p>1.Siemens. Industrial Artificial Intelligence, Boyko Boykov</p> <p>2. Honeywell Protonium – design, control and optimization of green hydrogen production, Daniel Nikolov</p>		
<p>19:30 COCKTAIL in the NUK gallery</p>		

Friday, October 10th

Stream 1 (Online)

09.00 - 09:45 PLENARY SESSION 2 (PS2)

Chairman: Hristo Valchanov

Interpretable Machine learning methods for management of 5G networks



Petia Georgieva
University of Aveiro, Portugal

09.45 - 10:00 DISCUSSION

Stream 1 In attendance (In-person) (Room A – Hall 109TV)	Stream 2 Online (Virtual) (Room B)	Stream 3 Online (Virtual) (Room C)
10:00 - 11:30 SESSION A21 “Power Electronics and Motor Control” Chairman: Desislava Delicheva	10:00 - 11:30 SESSION B21 “Software Development and Programming” Chairman: Ivaylo Penev	10:00 - 11:30 SESSION C21 “Computer Vision and Image Processing” Chairman: Albena Taneva

<p>1. Research of a low-power single-phase induction motor, Zlatan Ganev (0799)</p> <p>2. Robust Repetitive Control of a PWM Inverter in a Robotic System, Nina Nikolova, Boris Grasiani and Vesela Karlova-Sergieva (1075)</p> <p>3. Modeling of Synchronous Reluctance EV Propulsion Drive, Nikolay Djararov, Nikolay Yanev, Valery Goldshtein and Vladimir Romanov (4412)</p> <p>4. Braking Mode Investigation of Synchronous Reluctance EV Propulsion Drive, Nikolay Djararov, Nikolay Yanev, Valery Goldshtein and Vladimir Romanov (7790)</p>	<p>1. Common Dependency Injection Errors in C# for .NET: How to avoid them?, Daniel Damyanov, Zlatko Varbanov and Atanas Hristov (4686)</p> <p>2. Comparison of Object-Relational Mapping Frameworks on C#, Python, Go, and Node.js using MSSQL With A Case Study, Rand Kouatly and Orkun Demirci (5360)</p> <p>3. A Modular Teaching-Oriented Chess Engine with Validated Move Generation and Classical Search Enhancements, Yulian Dashev, Martin Vassilev and Alexander Penev (4597)</p> <p>4. Accelerating Spell Checking with Parallel Processing Techniques, Nikola Petrushevski and Vladimir Zdraveski (6918)</p>	<p>1. Computational Limits and Breakthroughs in Deep Learning-Based Image Restoration, Debopriya Das, M. Kamran Asif, Moumita Mukherjee, Jose Luis Bueso Vega and Zeeshan Ali (3105)</p> <p>2. Wild Animals' Recognition System Based on Optimized YOLO Model and Camera Traps in Bulgarian Mountains, Petar Matov (6514)</p> <p>3. Microscopic Image-Based Classification of Honey Pollen Types Using Convolutional Neural Networks, Lyubomir Zaykov (8196)</p> <p>4. Vision Quality Inspection in a Flexible Assembly System, Ivanka Dimitrova, Albena Taneva, Michail Petrov and Yavor Boychev (9757)</p>
<p>11:30 - 13:00 SESSION A22</p> <p>“Signal Processing and Communications”</p> <p>Chairman: Aydan Haka</p>	<p>11:30 - 13:00 SESSION B22</p> <p>“Parallel Computing and Performance”</p> <p>Chairman: Todor Ganchev</p>	<p>11:30 - 13:00 SESSION C22</p> <p>“Energy Systems and Smart Grids”</p> <p>Chairman: Nikolay Djararov</p>
<p>1. A Method for Synthesis of Families of Orthogonal Matrix Signals, Processed by Mismatched Filters, Borislav Bedzhev and Dobri Stoyanov (5789)</p> <p>2. Simulation Environment for Studying EnOcean Communication Processes, Georgi Genev and Aydan Haka (5999)</p>	<p>1. Prime Generation and Factorization Parallelization: A comparative Study of CPU and GPU Parallelization, Sofija Tasevska, Viktor Kostadinovski and Vladimir Zdraveski (2362)</p> <p>2. Social Dynamics in Distributed Free and Open-Source Software</p>	<p>1. Unified, ontology-based information model for smart energy management systems, Tsvetelina Ivanova, Polina Kesova, Yordan Belev and Idilia Batchkova (0467)</p> <p>2. Simulation Model of a Solar Water Heating System with Vacuum Tubes Based on Real Data, Nikolay Komitov,</p>

<p>3. A Method for Synthesis of Complementary Quads of Binary Signals, Processed by Mismatched Filters, Borislav Bedzhev and Deyan Atanasov (6909)</p> <p>4. Machine learning dataset assembly interface, Georgi Enchev, Dimitar Tsvetanov and Nikolay Djagarov (8904)</p>	<p>Development: A Case Study, Gnanendra Bachu (8104)</p> <p>3. Analysis of spam detection techniques using machine learning, Ginka Marinova (2974)</p> <p>4. BAP-Blockchain-Assisted Attribute-Based Public Auditing for Secure and Transparent Cloud Storage, Vimala Manohara Ruth Padeti and Dr. Ujwala Rekha Jinugu (7244)</p>	<p>Margarita Terziyska and Zhelyazko Terziyski (3756)</p> <p>3. Lightweight CNN-Based Machine Learning Approach for Thermographic Anomaly Detection in Photovoltaic Panels, Antonio Karaganov and Filip Batalov (4547)</p> <p>4. Survey and analysis of different types of rechargeable batteries, applicable to EVs and hybrid EVs, Raycho Ilarionov, Ivan Simeonov, Hristo Kilifarev, Egnar Özdikililer and Borislav Nedev (6129)</p>
<p>13:00 – 14:00 LUNCH in the UNIVERSITY CANTEEN</p>		
<p>14:00 - 15:30 SESSION A23</p> <p>“Educational Technology and AI in Education”</p> <p>Chairman: Valentina Markova</p>	<p>14:00 - 15:30 SESSION B23</p> <p>“IoT and Surveillance Systems”</p> <p>Chairman: Delyan Genkov</p>	<p>14:00 - 15:30 SESSION C23</p> <p>“Artificial Intelligence and Machine Learning Applications”</p> <p>Chairman: Veneta Aleksieva</p>
<p>1. Constructive thinking of students in educational telematics: the potential of robotics, Nurassyl Kerimbayev, Arailym Meiran, Vladimir Jotsov and Aliya Akramova (2247)</p> <p>2. The influence of Generative AI on the transfer of algorithmic skills in students, Nurassyl Kerimbayev, Zhanbota Menlibay, Rustam Shadiey, Esenbek Mambetakunov, Sholpan Kolumbayeva, Ainar Nurymova and Karlygash Adamova (7651)</p>	<p>1. IoT Night Vision Goggles as a Multifunctional Surveillance and Real-Time Streaming Tool: Dual-Camera System Combining FPV, WiFi Streaming, and YOLO AI for Enhanced Detection and Live Streaming Applications, Paul Daniel Calimoso, Kyle Siegfried K. Sumicad and Joseph Bryan Ibarra (7277)</p> <p>2. Compact wireless sensors for energy consumption analysis and cost</p>	<p>1. Driving Disruptive LLM Adoption on Technology Markets with Bug Report-Enhanced Human-Value Alignment in RLHF, Teodora Nikolova and Miglena Molhova-Vladova (1290)</p> <p>2. LLM Implementation for Multi-Objective University Timetabling: Technical Description, Vitali Atias and Emil Doychev (2738)</p> <p>3. Integration of Large Language Model Agents with Robot Operating System for</p>

<p>3. Enhancing Accessibility with AI Algorithms: Simulating and Evaluating Human Typing Behaviour, Radka Nacheva (8751)</p> <p>4. Explainability of Multi-Agent AI Systems in Decentralized Educational Environments, Radka Nacheva and Otmane Azeroual (8878)</p>	<p>optimization in small, medium, and large enterprises, Petar Georgiev (1126)</p> <p>3. Emerging Sensing Technologies in Crime Investigation: Applications and Innovations - A Comprehensive Review, Dimitar Rangelov, Radoslav Miltchev and Jaap Knotter (2597)</p> <p>4. Detection of Sunflower Oil in Olive Oil Using a Multisensor System of the Artificial Nose Type, Stefan Ivanov, Todor Todorov, Toshko Nenov, Jacek Wilk-Jakubowski and Stanimir Yordanov (4314)</p>	<p>Human-Robot Interaction and Task Allocation in Complex Environments, Kaloyan Yovchev (4218)</p> <p>4. RAG augmented Large Language Models as a tool for Education, Samuel Teixeira, Mustafa Sonkaya and Petia Georgieva (9028)</p>
<p>15:30 – 17:00 SESSION A24</p> <p>“Industrial Instrumentation and Control”</p> <p>Chairman: Nikola Nikolov</p>	<p>15:30 - 17:00 SESSION B24</p> <p>“Network Architecture and Cloud Computing”</p> <p>Chairman: Ivaylo Penev</p>	<p>15:30 - 17:00 SESSION C24</p> <p>“Machine Learning in Healthcare and Biometrics”</p> <p>Chairman: Tzvetelina Georgieva</p>
<p>1. Accuracy Optimization of Electro-magnetic Flowmeter via Empty Pipe Diagnostic Calibration, Pavel Dimitrov (5202)</p> <p>2. Performance enhancement of PID control of nonlinear industrial plants via online fuzzy logic auto-tuning and genetic algorithms optimisation, Desislava Delicheva and Snejana Yordanova (5497)</p> <p>3. Design of a DCS-Based Experimental Platform for Evaluation of Industrial</p>	<p>1. Architectural Transformations in Networking: The Journey From Traditional Systems to Cloud-Based, Mohammad Al Rawajbeh, Evon Abu-Taieh and Issam Alhadid (1312)</p> <p>2. Architecture of an Application for Software Defined Network, Delyan Genkov, Tsvetan Raykov, Miroslav Slavov and Hristo Kilifarev (3705)</p> <p>3. Optimizing Zscaler SASE Disaster Recovery: region-aware and latency optimized load balancing, Tsvetomir</p>	<p>1. Using Deep Learning Applications to Predict Brain Tumor Presence, Hafsa Allauddin Shaikh, M. Kamran Asif, Moumita Mukherjee, Pratik Rughe and Shaurrya Baheti (3176)</p> <p>2. Automated COVID-19 Screening Using Convolutional Neural Networks: Performance and Interpretability Analysis, Nazar Zhanabergenov, Hafsa Allauddin Shaikh, Moumita Mukherjee, Muhammad Saqib and Meerah Karunanithi (8705)</p>

<p>Flowmeters, Pavel Dimitrov, Reneta Parvanova and Ivan Grigorov (7765)</p> <p>4. Model Predictive Control-based High-level Control of Active Car Seat Suspension System, Ivan Ružkan, Branimir Škugor, Joško Deur and Ivan Cvok (2178)</p>	<p>Bogdanov and Prof. Nayden Chivarov (1047)</p> <p>4. Deployment and Verification of an automated backup solution for Zscaler Private Access (ZPA), Tsvetomir Bogdanov and Nayden Chivarov (9065)</p>	<p>3. Deep-SimPPG: A GAN- Based Hybrid Framework for Realistic Photoplethysmographic Signal Synthesis, Galya Georgieva-Tsaneva, Yoan-Aleksandar Tsanev and Krasimir Cheshmedzhiev (3249)</p> <p>4. A Privacy-Preserving Architecture for Biomedical Signal Acquisition and Transmission Using Hybrid Cryptography and Regulatory-Aware Protocols, Galya Georgieva-Tsaneva, Krasimir Cheshmedzhiev, Miroslav Dechev and Yoan-Aleksandar Tsanev (2122)</p>
<p>17:00 – 17:30 COFFEE BREAK</p>		
<p>17:30 - 19:00 SESSION A25</p> <p>“Advanced Manufacturing and Materials”</p> <p>Chairman: Nikolay Djagarov</p>	<p>17:30 - 19:00 SESSION B25</p> <p>“5G Networks and Telecommunications”</p> <p>Chairman: Ventsislav Nikolov</p>	<p>17:30 - 19:00 SESSION C25</p> <p>“Financial Technology and Machine Learning”</p> <p>Chairman: Idilia Batchkova</p>
<p>1. Tensile Testing at Elevated Temperatures of Test Specimens Made of Polymer Materials Obtained by Fused Deposition Modeling, Miglena Paneva, Peter Panev and Veselin Tsonev (1103)</p> <p>2. The Role of Additive Manufacturing in Advanced Cooling Channel Design, Todor Todorov, Georgi Todorov and Borislav Romanov (1375)</p>	<p>1. Performance Analysis of 5G Advanced Synchronization Techniques using GNSS-Referenced Timing Analyzers, Teodor Iliev and Ivelin Penkov (2636)</p> <p>2. AI-Driven Trust Score-Based Synchronization Control for Robust 5G and Beyond Networks, Teodor Iliev and Ivelin Penkov (3807)</p> <p>3. Digital disruptor of communication and navigation systems using phase</p>	<p>1. Comparative Evaluation of Machine Learning Models for Credit Scoring in FinTech Applications, Sayyed Khawar Abbas (2318)</p> <p>2. Leveraging Language Models and Technical Analysis for Real-Time Crypto Trading Signal Generation, Muhammad Saqib, M. Kamran Asif, Ahmed Hassan, Somesh Rewadkar and Zeeshan Ali (3428)</p>

<p>3. Investigation of Optimal Parameters for PLA Printed Details, Kliment Georgiev (8513)</p> <p>4. Investigating the Hardness of Test Specimens Made of Fused Deposition Modeling Materials, Miglena Paneva, Peter Panev and Gabriela Kotseva (8569)</p>	<p>manipulation, Konstantin Nesterov, Nikolay Gueorguiev, Atanas Nachev, Ognyan Todorov and Yavor Boychev (3771)</p> <p>4. System for emitting radio signals with a fictitious electromagnetic center, Konstantin Nesterov, Nikolay Gueorguiev, Atanas Nachev, Yavor Boychev, Kamen Vasilev and Svetlana Yaneva (6965)</p>	<p>3. Ensemble Methods for Predicting Continuous Cash Flow in Credit Risk Assessment, Dimitre Tomov and Iveta Grigorova (3472)</p> <p>4. Comparison of Classification Algorithms for Notebook Fault Prediction System Using Machine Learning, Ralitza Raynova (2812)</p>
<p>20:00 GALA DINNER in the BM City restaurant (it is located behind the Festival and Congress Center)</p>		

Saturday, October 11th

Stream 1 In attendance (In-person) (Room A – Hall 109TV)	Stream 2 Online (Virtual) (Room B)	Stream 3 Online (Virtual) (Room C)
09:00 - 10:30 SESSION A31 “Neural Networks and AI Applications” Chairman: Aydan Haka	09:00 - 10:30 SESSION B31 “Cryptography and Security Systems” Chairman: Ventsislav Nikolov	09:00 - 10:30 SESSION C31 “E-Learning and Educational Technology” Chairman: Galina Ivanova
<p>1. Camera calibration by a neural network with parallel sub-layers with different activation functions for robotic lab setup, Zhivko Zhekov, Elena Vasileva and Dian Dzhubarov (1119)</p> <p>2. Impact Of Classifier Choice On Automated Spam Detection: An Experimental Analysis, Stefka Popova, Hristo Nenov and Velislav Kolesnichenko (2206)</p> <p>3. Evaluating Neural Network Parameter Effects on Spam Classification Accuracy, Stefka Popova, Hristo Nenov and Genoveva Dimitrova (5408)</p> <p>4. Comparison of Artificial Neural Networks with Dictionary-Based Approach in Aspect-Based Sentiment Analysis, Harun Aksaya, Sevinc Gulsecen and Natalija Lepkova (8409)</p>	<p>1. Simulation and evaluation of a quantum-aware chaotic OTP generator in MATLAB, Dilyana Dimitrova (1199)</p> <p>2. Design of a quantum-aware chaotic one-time password generator, Dilyana Dimitrova (4243)</p> <p>3. Secure communication scheme based on chaotic switching between non-identical systems, Hristina Stoycheva (4330)</p> <p>4. Comparative Analysis of Different Types of Chaotic Synchronization, Hristina Stoycheva (9175)</p>	<p>1. Development of an Information System for Accreditation and Assessment in Education, Baktygul Akulova, Burul Tashtobaeva, Tzvetomir Vassilev and Bibigul Koshoeva (0225)</p> <p>2. The Role of Intelligent Systems in E-Learning for Financial Education in the Digital Age, Angel Popgeorgiev, Elitsa Ibryamova and Galina Ivanova (0617)</p> <p>3. Assessment of the Use of E-learning Resources and Platforms in the Education of Students in General Education Schools, Milena Velikova and Galina Ivanova (1736)</p> <p>4. Gamification and AI: Rethinking E-Learning Experiences, Aleksandra Kovacheva, Neviana Krasteva and Tsvetan Davidkov (5040)</p>
10:30 - 12:00 SESSION A32	10:30 - 12:00 SESSION B32	10:30 - 12:00 SESSION C32

<p>“Software Architecture and Development”</p> <p>Chairman: Hristo Valchanov</p>	<p>“Network Security and Encryption”</p> <p>Chairman: Delyan Genkov</p>	<p>“Educational Assessment and Quality”</p> <p>Chairman: Milena Karova</p>
<p>1. Keeping Up When Disconnected: Applying Conflict-Free Replication to Digital Twin Architectures, Petar Chakalov and Svetoslav Enkov (2020)</p> <p>2. SASet: A Unified Approach for Modeling and Interaction of Multiple Architectures in Large Software Applications, Hristo Hristov (7180)</p> <p>3. Supply Chain Logistics Marine Simulator with Smart AI Assistant, Danail Dimitrov, Plamena Atanasova, Milena Karova, Gergana Spasova and Bozhidar Dyakov (9445)</p> <p>4. Structural Analysis of a Smart Home System in Accomodation Residence, Desislava Mihaylova and Miroslav Akbatirov (9716)</p>	<p>1. An Approach to Network Key Encryption in the Zigbee Network for IoT, Marieta Haka, Aydan Haka, Veneta Aleksieva and Hristo Valchanov (3471)</p> <p>2. Enhancing the Security of Computer Systems Through the Use of Specialized Supplementary Modules, Dako Dimov and Vladimir Sulov (2849)</p> <p>3. Development of experimental device for data acquisition from accelerometric sensor, Dimitar Dimitrov and Stefan Ivanov (8443)</p> <p>4. Algorithm for Generation of Bent Functions using Wavelet Transform, Alla Levina and Ilya Shibakin (8844)</p>	<p>1. Aware Foreign Language Assessment with Integrated Speech-to-Speech Translation and Multimodal Learning Analytics, George Pashev and Silvia Gaftandzhieva (1592)</p> <p>2. Using Software Solutions for Quality Assessment in School Education, Silvia Gaftandzhieva, Rositsa Doneva, Mariya Docheva, George Pashev and George Totkov (1705)</p> <p>3. Automated Analysis Of Results Obtained From The Most Widely Used Online Testing Platform, Monika Petrunova, Atanas Atanasov and Dimitar Pilev (2568)</p> <p>4. A Study of Affordable Online Proctoring Solutions with AI and Moodle Integration, Tzvetomir Vassilev and Hristo Beloev (8019)</p>
<p>12:00 - 13:30 SESSION A33</p> <p>“Healthcare Informatics and Medical Applications”</p> <p>Chairman: Nikola Shakev</p> <p>1. Comparative Analysis of Methods for ADHD Diagnosis Using EEG – systematic review, Elena Nikolova (1369)</p>	<p>12:00 - 13:30 SESSION B33</p> <p>“UAV and Radar Systems”</p> <p>Chairman: Ivan Garvanov</p> <p>1. Comparative Analysis of Algorithms for Detection and Classification of UAV in Video Surveillance, Ivan Garvanov,</p>	<p>12:00 - 13:30 SESSION C33</p> <p>“E-Government and Public Services”</p> <p>Chairman: Tzvetomir Vassilev</p> <p>1. Leveraging Open Data for Transparency and Efficiency in Katarungang Pambarangay in Malabon</p>

<p>2. Design and Evaluation of an Ergonomic Ultralight Face Shield for Enhanced Protection Against Aerosol Transmission in Children, Todor Todorov, Georgi Todorov and Yavor Sofronov (4083)</p> <p>3. Conveying respiratory care towards sub-symbolic models: Data-Centric Approaches to Mitigate VILI and Patient-Ventilator Asynchrony, Ivelin Karageorgiev, Sevil Ahmed-Shieva, Nikola Shakev and Ivaylo Minev (4920)</p> <p>4. Pre-processing and data analysis of Mechanical Ventilation parameters used in Mechanical Power, Ralitsa Petrova, Sevil Ahmed-Shieva, Nikola Shakev and Ivaylo Minev (9207)</p>	<p>Miroslav Tsintsarski and Magdalena Garvanova (2007)</p> <p>2. Moving Object Detection with Doppler Radar, Ivan Garvanov, Magdalena Garvanova, Georgi Tsonkov, Daniela Borissova, Gabriela Garvanova and Maria Mindova (2197)</p> <p>3. Logical Data Corruption in UAV Storage: Forensic Analysis and Recovery Techniques, Logical Data Corruption in UAV Storage: Forensic Analysis and Recovery Techniques, Azamat Baibussinov, Kaisarbek Yesbergenov and Gulnara Abitova (5647)</p> <p>4. Advanced Non-Volatile Memory Technologies for Military Robotics: Architecture, Applications, and Future Trends, Azamat Baibussinov, Kaisarbek Yesbergenov and Gulnara Abitova (3244)</p>	<p>City, Ezekiel Borja and Rodolfo Jr Raga (2831)</p> <p>2. Analysis of Learning Management System of Selected Private HEI: An Assessment, Ezekiel Borja, Cristine Erica Untalan, Mark Anthony Gipit, Irish Delos Santos, Cheryl Lou Tinaan and Michael Carlo Carriedo (5621)</p> <p>3. Information and Communication Technologies in Education: Challenges and Opportunities for the Classroom System, Julia Doncheva and Tzvetomir Vassilev (6104)</p> <p>4. Competency-Based Training in Artificial Intelligence - an Innovative Approach in E-Learning, Silvia Parusheva, Petya Strashimirova and Bistra Vassileva (7932)</p>
<p>13:30 – 14:30 LUNCH</p>		
<p>14:30 - 16:00 SESSION A34</p> <p>“Supply Chain and Agricultural Informatics”</p> <p>Chairman: Milena Karova</p> <p>1. Intelligent supply chain management, emphasizing the public procurement requirements for supplying food to kindergartens, Laska Kostadinova-Tsankova, Stanimir Stoyanov, Veneta</p>	<p>14:30 - 16:00 SESSION B34</p> <p>“Digital Innovation in Technical and Environmental Applications”</p> <p>Chairman: Kosta Boshnakov</p> <p>1. Democratizing IVDR Technology: Low-Cost Real-Time Driver Feedback Using Consumer Hardware, David Trajkoski, Aleksandar Karadimche and Dijana Capeska Bogatinoska (0861)</p>	<p>14:30 - 16:00 SESSION C34</p> <p>“Tourism and AI Applications”</p> <p>Chairman: Aldeniz Rashidov</p> <p>1. Contextual Sentiment Analysis for Tourism with Hybrid Models: Evidence from YouTube Reviews of Kazakhstan, Arseniy Bapanov, Aslanbek Murzakhmetov,</p>

<p>Tabakova-Komsalova, Ivan Stoyanov, Asya Stoyanova-Doycheva and Katharina Wassilew (3655)</p> <p>2. Power Supply Units in Bee Behaviour Monitoring Systems, Dimitar Avramov and Ivaylo Penev (5731)</p> <p>3. Cross-Platform Integration of Ontologies and Information Extraction for Plant Genetic Resources for the Bulgarian National GeneBank, Pencho Malinov, Sebiha Madanska, Emil Doychev, Laska Kostadinova-Tsankova, Ivan Stoyanov and Katharina Wassilew (6517)</p> <p>4. Generative Adversarial Network for Cold Nuclear Fusion Data Set Generation, Todor Malchev, Milena Lazarova, Yordan Paunov and Dimitar Alexandrov (0286)</p>	<p>2. Analysis and Validation of the Mechanical Ventilator performance, Arbnor Pajaziti and Petrit Abdyli (6993)</p> <p>3. Spatiotemporal Analysis of Forest Degradation and Avian Habitat Stress in the Varna Region Using Satellite Data, Philipa Aleksandrova, Chavdar Alexandrov and Miroslav Tsvetkov (9164)</p> <p>4. Stitch-agnostic, Technique-aware Data Model for Digital Embroidery Pattern Design, Stefan Bozov and Elena Zaharieva-Stoyanova (8643)</p>	<p>Nurbol Beisov and Maxatbek Satymbekov (6121)</p> <p>2. Multilingual Semantic Analysis of Tourist Destinations with Transformer-Based Language Models, Aslanbek Murzakhmetov, Nurbol Beisov, Arseniy Bapanov and Maxatbek Satymbekov (8811)</p> <p>3. Industry 5.0 - the use of new business models and artificial intelligence in tourism in Bulgaria, Neviana Krasteva (7758)</p>
<p>16:00 – 16:30 BREAK</p>		
<p>16:30 - 18:00 SESSION A35</p> <p>“Digital Society and Social Informatics”</p> <p>Chairman: Veneta Aleksieva</p> <p>1. Obfuscating online gambling and addiction behind progression in digital card games, Boris Bankov (1367)</p>	<p>16:30 - 18:00 SESSION B35</p> <p>“Digital Systems and Interfaces: Applications Across Disciplines”</p> <p>Chairman: Nikola Nikolov</p> <p>1. Digital Immortality — A Comprehensive Survey of Technologies, Ethics and Societal Impacts, Svetlana Syarova, Elina Petkova-Gueorguieva, Victoria Angelova, Evelina Zdravkova,</p>	

<p>2. E-Learning And Quality Of Life In Older Age, Irina Todorova and Dimana Dилоva-Vasileva (2798)</p> <p>3. From Books to Screens: How Older Adults Use the Internet to Sustain Cognitive and Social Activity, Irina Todorova and Dimana Dилоva-Vasileva (5370)</p> <p>4. Cyberbullying between children and adolescents: perceptions of caregivers, Ivaylo Tsanov and Plamena Markova (5483)</p>	<p>Yoana Hadzhiyska and Stefka Toleva-Stoimenova (5285)</p> <p>2. Dot-based, Dual-view User Interface for Realistic Embroidery Simulation in Cross-stitch Software, Stefan Bozov and Elena Zaharieva-Stoyanova (6356)</p> <p>3. Exploring the potential of NDVI derivatives for monitoring in precision agriculture, Asparuh Atanasov, Plamen Petrov and Radostina Yankova (7654)</p>
<p>18:00 – 18:15 CLOSING CEREMONY</p>	