

**The 8th IEEE International Conference
“Big Data, Knowledge and Control Systems Engineering” – BdkCSE'2023**



PROGRAM

02 -03 November 2023 Sofia, Bulgaria

Venue: Laboratory of Telematics, Institute of Mathematics and Informatics,
Bulgarian Academy of Sciences, Sofia, Bulgaria

online via Zoom: Meeting ID: 845 2118 8577

Passcode: 486406

<https://us02web.zoom.us/j/84521188577?pwd=dGluVnlaVmRSRWhyc0l5M1B1ZlYvQT09>

02 November, 2023 (Thursday)

10:00 **Opening session**

Chair: Rumen Andreev (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences)

Invited Talks

10:10 *Going Digital with Gate City Digital Twin*, **Prof. Dessislava Petrova-Antonova** (Sofia University „St. Kliment Ohridski“, Bulgaria)

11: 00 *Safety Assessment of Autonomous Vehicles: Approaches and Challenges*, **Prof. Peter Popov** (City University of London, UK)

Session I: Big Data Infrastructure

Chair: Irina Radeva (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences)

12:00 **Exploring Federated Learning for Data Integration: A Structured Literature Review**, *Jan-Philipp Awick, Gerrit Schumann and Jorge Marx Gómez* (University of Oldenburg, Germany)

12:20 **A Web Application for Data Exchange Blockchain Platform**, *Ivan Popchev, Irina Radeva, Lyubka Doukowska, and Miroslava Dimitrova* (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences)

12:40 **Application of UML descriptive modeling techniques in Model Driven Engineering of Information Security Systems**, *Ivan Gaidarski* (Institute of Robotics, Bulgarian Academy of Sciences)

13:00 – 14:00 **Lunch break**

Session II: Big Data Search and Mining

Chair: Yordanka Boneva (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences)

14:00 **AIops-Driven Enhancement of Log Anomaly Detection in Unsupervised Scenarios**, *Daksh Dave, Gauransh Sawhney* (BITS Pilani, India), *Dhruv Khut, Sahil Nawale* (Sardar Patel Institute of Technology, India), *Pushkar Aggrawal* (BITS Pilani, India) and *Prasenjit Bhavathankar* (Sardar Patel Institute of Technology, India)

14:20 **Analyzing Data Professional Salaries Exploring Trends and Predictive Insights**, *Naghme Niknejad, Marzieh Kianiani, Nafeesath Parappurathputhiyapurayil and Talha Ali Khan* (University of Europe of Applied Sciences, Germany)

14:40 **Dynamic Testing of an Analytical Traffic Model**. *Yordanka Boneva* (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences)

15:00 **An Efficient Hybrid Volleyball Premier League and Antlion Metaheuristic Algorithm for Feature Selection**, *Edjola Naka* (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences)

15:20 **Application of Machine Learning and Natural Language Technologies in Building Semantic Search Systems: Case Study of a Virtual Legal Assistant**, *Georgi Samardzhiev and Maria Nisheva-Pavlova* (Sofia University „St. Kliment Ohridski“, Bulgaria)

15:40 **Labview Virtual Instrument for Recognition of Sound Corn Seeds and Infected with F.Moniliforme Using Modified Approach Based on Color Image Analysis**, *Tsvetelina Georgieva, Eleonora Kirilova, Plamen Daskalov* (University of Ruse, Bulgaria) and *Kiril Tenekedjiev* (Higher Naval School „Nikola Yonkov Vaptsarov“, Bulgaria)

16:00 – 16:20

Coffee break

Session III: Big Data Analysis for Intelligent Education

Chair: Valentina Terzieva (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences)

16:20 **Exploring Public Opinions toward the Use of Generative Artificial Intelligence Chatbot in Higher Education: An Insight from Topic Modelling and Sentiment Analysis**, *Samer Sarsam* (University of Coventry, UK), *Abd Aziz Alias* (Sunway University, Malaysia), *Chit Su Mon* (Heriot-Watt University Malaysia, Malaysia), *Hosam Al-Samarraie* (University of Leeds, UK) and *Ahmed Isam Al-Hatem* (Al-Nukhba University College, Iraq)

16:40 **Educational Applications of Big Data and Learning Analytics in Personalized E-Learning**, *Tatyana Ivanova* (Technical University of Sofia, Bulgaria), *Valentina Terzieva* (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences) and *Malinka Ivanova* (Technical University of Sofia, Bulgaria)

17:00 **From Data to Learning: The Scientific Approach to AI-Enhanced Online Course Design**, *Ivaylo Blagoev*, *Gergana Vassileva* and *Vladimir Monov* (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences)

17:20 **The Role of Big Data in Intelligent Educational Platform: A Functional Architecture**, *Malinka Ivanova* (Technical University of Sofia, Bulgaria), *Valentina Terzieva* (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences) and *Tatyana Ivanova* (Technical University of Sofia, Bulgaria)

03 November, 2023 (Friday)

Session IV: Big Data Applications

Chair: Veneta Yosifova (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences)

10:00 **OpenPk: A New Dataset for Parking Space Analysis.** *Alexandru Iacobescu, Gabriel Oltean, Camelia Florea, Mihaela Gordan and Bogdan Burtea* (Technical University of Cluj-Napoca, Romania)

10:20 **Big Data Processing for Bulgarian Healthcare - Smart Cards and Some Simulating Decisions,** *Ani Boneva* (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences), *Veronika Ivanova* (Institute of Robotics, Bulgaria Academy of Sciences), *Plamen Vasilev* (University of Chemical Technologies and Metallurgy, Bulgaria), *Stoyan Ivanov* (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences) and *Tsvetelina Ivanova* (University of Chemical Technologies and Metallurgy, Bulgaria)

10:40 **Multi-context Modeling of Processes and Services in Cyber-Physical Educational Space,** *Todorka Glushkova, Konstantin Rusev and Dimitar Stoyanov* (Plovdiv University “Paisii Hilendarski”, Bulgaria)

11:00 **Modern Hot Water Storage Technologies for Livestock Farms,** *Milena Haralampieva, Rosen Petrov and Veneta Yosifova* (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences)

11:20 **Deep Learning for Polycystic Kidney Disease (PKD): Utilizing Neural Networks for Accurate and Early Detection through Gene Expression Analysis,** *Kapil Panda and Anirudh Mazumder* (University of North Texas, USA)

11:40 **MINDTwin AI: Multiphysics Informed Digital-Twin for Fault Localization in Induction Motor using AI,** *Amina Bashir, Muhammad Ahmed Mohsin* (National University of Science and Technology NUST Islamabad, Pakistan), *Muhammad Jazib Qamar* (Pakistan Institute of Engineering and Applied Sciences) and *Hafsa Iqbal* (National University of Science and Technology NUST Islamabad, Pakistan)

12:00 – 13:00 **Lunch break**

Session V: Intelligent Control Systems

Chair: Edita Djambazova (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences)

13:00 **Key Performance Indicators in Parking Guidance Information System,** *Neyko Neykov and Svetlana Stefanova* (University of Ruse “Angel Kanchev”, Bulgaria)

13:20 **A Web Application for Editing the Color Theme of a Complex ERP Platform**, *Cosmin Striletschi, Petre Pop* (The Technical University of Cluj-Napoca, Romania) and *Christian Gavrila* (Crisoft Romania)

13:40 **Using LLMs in Cyber-Physical Systems for Agriculture – ZEMELA**, *Stanimir Stoyanov, Milena Kumurdjieva, Veneta Tabakova-Komsalova* and *Lyubka Doukowska* (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences)

14:00 **Smart Attendance System – CountMe**, *Asya Stoyanova-Doycheva, Emil Doychev* and *Daniel Totev* (University of Plovdiv “Paisii Hilendarski”, Bulgaria).

14:20 **Reinforcement Learning Based Controller for a Soft Continuum Robot**, *Anirudh Mazumder* (University of North Texas, USA).

14:40 **Simulating a Fault-Tolerant System with Adjustable Reliability**, *Edita Djambazova* (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences).

15:00 – 15:20 **Coffee break**

Session VI: Knowledge and Data Management

Chair: *Svetozar Ilchev* (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences)

15:20 **Lean Six Sigma: Integrating Knowledge, Data, and Innovation for Organizational Excellence**, *Milena Rajic, Peđa Milosavljević, Dragan Pavlovic* and *Zorana Kostić* (University of Niš, Serbia)

15:40 **Knowledge and Data Management: The Cornerstone of Effective Organizational Strategy**, *Milena Rajic, Peđa Milosavljević* and *Zorana Kostić* (University of Niš, Serbia).

16:00 **Implication and Inference Rules in Multivalued Logic with Network Configuration**, *Vassil Sgurev* and *Lyubka Doukowska* (Institute of Information and Communication Technologies, Bulgarian Academy of Sciences)

16:20 **Recurrent Neural Networks for Forecasting Social Processes**, *Angelina Lalev* and *Alexandrina Alexandrova* (Academy of Economics „D. A. Tsenov“, Bulgaria)

16:40 **Contagion Propagation with Rule-Based Reasoning and Decentralized Control in an Agent-Based Susceptible-Infected-Recovered-Susceptible Infodemic Model**, *Cristian Berceanu* (University Politehnica of Bucharest, Romania), *Nadia Arshad* and *Monica Patrascu* (University of Bergen, Norway).

17:00 **Closing Ceremony**