



**IS'2024**

**2024**  
**12<sup>th</sup> INTERNATIONAL**  
**IEEE CONFERENCE**  
**ON**  
**INTELLIGENT SYSTEMS**

**PROGRAM**

**Hotel 'Cherno more', Varna**  
**Bulgaria, August 29-31, 2024**

The Conference is co-sponsored IEEE IM/CS/SMC Joint Chapter of Bulgaria, IEEE CIS Chapter – Bulgaria,  
John Atanasoff Society of Automatics and Informatics (SAI)

The Conference is Technically co-sponsored by IEEE Region 8,

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# PROGRAM

29.08.2024			
Stream A	Stream B	Stream C	
9.00 - 9.30			
9.30 - 10.00			
10.00 - 10.45			
COFFEE BREAK			
11.00 - 12.15 <b>1</b>	11.00 - 12.30 <b>2</b>	11.00 - 12.30 <b>3</b>	
<b>INVITED SESSTION 1</b> 1070 1071 1085 1104 1222	<b>MAS / AUTONOMOUS SYSTEMS</b> 2017 2105 2121 2066 2083 2087	<b>POSTER SESSION 1</b> 3006 3010 3016 3018 3028 3030 3033	
LUNCH			
13.20 - 13.50 <b>4</b>			
<b>INVITED SESSTION 5</b> 4223 4237			
14.00 - 15.45 <b>5</b>	14.15 - 15.30 <b>6</b>	13.50 - 14.40 <b>7</b>	
<b>INVITED SESSTION 2</b> 5211 5217 5218 5227 5228 5229 5230	<b>INTELLIGENT CONTROL</b> 6048 6075 6107 6239 6255	<b>POSTER SESSION 2</b> 7042 7043 7044 7053 7055 7056 7068	
		14.55 - 15.45 <b>8</b>	
		<b>POSTER SESSION 3</b> 8077 8078 8088 8091 8103 8111 8231	
COFFEE BREAK			
16.00 - 16.45			
<b>PLENARY 2</b> H.ZHU			

29 august 2024	
<b>STREAM A</b>	
9:00 AM - 9:30 AM	REGISTRATION
9:30 AM - 10:00 AM	OPENING OF THE CONFERENCE
<b>Plenary 1.</b>	
<b>Chair: V. Jotsov (Bulgaria)</b>	
10:00 AM - 10:45 AM	<b>Artificial Intelligence in Cloud/Fog/Edge Computing and Internet-of-Things</b>
	Vincenzo Piuri (Italy)
10:45 AM - 11:00 AM	<i>Coffee Break</i>

**STREAM A**

**SESSION 1: INVITED SESSION "Intelligent Tools in e-/m-/d-Learning"**

**Chair: George A. Papadopoulos (Cyprus)**

- 11:00 AM - 11:15 AM* paper 1070: **Integrating Speech Input in Educational Immersive Virtual Reality Applications: A Systematic Review**  
N. Alghamdi, A. Cristea (UK)
- 11:15 AM - 11:30 AM* paper 1071: **Machine Learning Models for Basic Skills Identification in University Students**  
G. Brás, S. Leal, B. Sousa, C. Eduardo, J. Souza, Z. Mendes, G. Paes (Brazil)
- 11:30 AM - 11:45 AM* paper 1085: **Research on Improving the Quality of Life of Students Using Machine Learning and Developing a Digital Health Profile**  
T. Sarsembayeva, M. Mansurova, M. Sarsembayev, A. Ibrayeva (Kazakhstan)
- 11:45 AM - 12:00 PM* paper 1104: **How AI can help learners to develop conceptual knowledge in digital learning environments**  
K. Englmeier, P. Contreras (Germany)
- 12:00 PM - 12:15 PM* paper 1222: **Mobile Education Agents: A New Paradigm for Personalized Learning**  
G. Tkach, N. Kerimbayev (Kazakhstan), V. Jotsov, I. Garvanov (Bulgaria), A. Akramova (Kazakhstan)

*12:15 PM - 13:20 PM* **LUNCH**

**STREAM B**

**SESSION 2: Multiagent Systems / Autonomous systems**

**Chair: S. Stoyanov (Bulgaria)**

- 11:00 AM - 11:15 AM* paper 2017: **A Flexible Multi-Agent Systems Task Environment for Simulating Hybrid Intelligence**  
B. Schlup (Switzerland), A. Corradini (Austria)
- 11:15 AM - 11:30 AM* paper 2105: **Bottom-Up Resource Orchestration in Edge Computing: An Agent-Based Modeling Approach**  
A. Ghasemi, M. Schranz (Austria)
- 11:30 AM - 11:45 AM* paper 2121: **Preserving Privacy in Logistics by Using Swarm Intelligence from the Bottom-Up**  
M. Gojkovic, M. Schranz (Austria)
- 11:45 AM - 12:00 PM* paper 2066: **Discrete-Event Co-Simulation Interface for Time-Triggered Organic Computing**  
M. Qosja, S. Meckel, R. Obermaisser (Germany)
- 12:00 PM - 12:15 PM* paper 2083:

		<b>Drone-Based and 5G-Connected Multisensor Platform for Forest Monitoring</b> S. Asen, C. Has, R. Poeschl, S. Kunze (Germany)
<i>12:15 PM - 12:30 PM</i>	paper 2087:	<b>A Survey on AI-Based Detection Methods of GPS Spoofing Attacks on UAVs</b> A. AlAbidy, A. Zaben, O. Abu-Sharkh, H. Noman (Jordan)
<i>12:30 PM - 13:20 PM</i>	<b>LUNCH</b>	
		<b>STREAM C</b>
		<b>SESSION 3: Poster 1</b>
		<b>Chair: V. Tabakova (Bulgaria)</b>
<i>11:00 AM - 11:05 AM</i>	paper 3006:	<b>An Algorithm for the Construction of Improved Training Sets for Neural Networks</b> K. Stoyanov (Bulgaria)
<i>11:05 AM - 11:10 AM</i>	paper 3010:	<b>Applying Genetic Algorithms for Optimizing Program Increment Planning in Software Development Teams</b> D. Lyubchev, A. Marchev, Jr. (Bulgaria)
<i>11:10 AM - 11:15 AM</i>	paper 3016:	<b>Network Traffic Prediction and Congestion Control Using a Feed Forward Neural Network</b> J. Nwigwe, I. Martin, C. Ramsay (UK)
<i>11:15 AM - 11:20 AM</i>	paper 3018:	<b>Investigating the Implementation of the Artificial Bee Colony Using the ArcGIS Environment: Dubai Drone Box Platform Case Study</b> M. Elsalhy, M. Talib, S. Abbas, Q. Nasir (UAE)
<i>11:20 PM - 11:25 AM</i>	paper 3028:	<b>Exploring Graph-Based Techniques in Job Recommendation Systems</b> Ö. Özlü, G. Orman, S. Turhan (Turkey)
<i>11:25 AM - 11:30 AM</i>	paper 3030:	<b>Transparent AI Models for Meningococcal Meningitis Diagnosis: Evaluating Interpretability and Performance Metrics</b> A. Messai, A. Drif, A. Ouyahia, M. Guechi, M. Rais (Algeria), L. Kaderali (Germany); H. Cherifi (France)
<i>11:30 AM - 11:35 AM</i>	paper 3033:	<b>Using of Digital Twin Technology on the Stages of Implementation of ERP Systems</b> R. Hrishev, N. Shakev (Bulgaria)
<i>11:50 AM - 13:20 PM</i>	<b>LUNCH</b>	
		<b>STREAM A</b>
		<b>SESSION 4: INVITED SESSION "Ground robot competitions in dynamic, unstructured and large-scale real-world environments"</b>
		<b>Chairs:</b>
		<b>Chairs: F. Schneider, D. Wildermuth (Germany)</b>

13:20 PM - 13:35 PM

paper 4223:

**Lessons learned. How insights from competitions can improve products for emergency situations**

T. Waibel, A. Ciossek, S. Mühl (Germany)

13:35 PM - 13:50 PM

paper 4237:

**Semi autonomous mobile robot for inspection missions**

J. Bedkowski, K. Majek, M. Pelka (Poland)

**STREAM A**

**SESSION 5: INVITED SESSION "Application of Intelligent Systems in Smart Farming and Precision Agriculture"**

**Chair: I. Radeva (Bulgaria)**

14:00 PM - 14:15 PM

paper 5211:

**Network Flow Systems for Decision Making with Motivation Accounting**

L. Doukovska, V. Sgurev, E. Tsopanova, R. Dukovski (Bulgaria)

14:15 PM - 14:30 PM

paper 5217:

**Relation Based Knowledge Extraction for Animal Farm Management**

B. Vatchova, Y. Boneva (Bulgaria), A. Gegov (UK & Bulgaria)

14:30 PM - 14:45 PM

paper 5218:

**Framework for Evaluation of Authentication and Proof-of-Event mechanisms in Smart Contracts**

I. Popchev, I. Radeva (Bulgaria)

14:45 PM - 15:00 PM

paper 5227:

**Similarity Thresholds in Retrieval-Augmented Generation**

I. Radeva, I. Popchev, M. Dimitrova (Bulgaria)

15:00 PM - 15:15 PM

paper 5228:

**Imaging in a Smart Agriculture Platform**

D. Rusev, M. Rusev, S. Stoyanov, V. Tabakova-Komsalova (Bulgaria)

15:15 PM - 15:30 PM

paper 5229:

**Anomaly Identification in a Smart Farming Platform**

M. Rusev, D. Rusev, V. Tabakova-Komsalova, L. Doukovska (Bulgaria)

15:30 PM - 15:45 PM

paper 5230:

**Data Representation in Crop Cultivation Events**

A. Stoyanova-Doycheva, I. Stoyanov, G. Cholakov, E. Doychev (Bulgaria)

15:45 PM - 16:00 PM

**Coffee Break**

**STREAM A**

**Plenary 2**

**Chair: L. Doukovska (Bulgaria)**

16:00 PM - 16:45 PM

**Robot Team Establishment using E-CARGO/RBC**

Haibin Zhu (Canada)

**STREAM B**

**SESSION 6: Intelligent Control**

**Chair: G. Dimirovski (N. Macedonia)**

14:15 PM - 14:30 PM

paper 6048:

- Nonlinear Model Predictive Control Based on Deep Learning for Hindmarsh-Rose Neuron Model**  
J. Xie, A. Grancharova (Bulgaria)
- 14:30 PM - 14:45 PM* paper 6075:
- Bio-Inspired Soft Crawling Robot Which Moves Using Protrusions**  
K. Hirota, K. Ito (Japan)
- 14:45 PM - 15:00 PM* paper 6107:
- Enhancing the Robustness of Model-Predictive Control Using GMMs as Outlier Detection**  
L. Féret, A. Gepperth, S. Lambeck (Germany)
- 15:00 PM - 15:15 PM* paper 6239:
- Investigation of the influence of three different control algorithms on the efficiency of movements of a robotic system [wheeled robot]**  
N. Nuryim, M. Serik (Kazakhstan), G. Dimirovski (N. Macedonia), A. Kovtun (Russia)
- 15:15 PM - 15:30 PM* paper 6255:
- Does Synergetic Comparison of Chen Pinning versus Siljak Decentralized Controls yield Intelligent Dynamic Graphs?**  
G. Dimirovski (N. Macedonia), G. Yang (China), J. Kacprzyk (Poland)

*15:45 PM - 16:00 PM* **Coffee Break**

## STREAM C

### SESSION 7: Poster 2 Chair: E. Djambazova (Bulgaria)

- 13:50 PM - 13:55 PM* paper 7042:
- Live Cricket Predictions for Runs and Win Using Machine Learning**  
A. Satwani, K. Coutinho, N. John, A. Jothi (UAE)
- 13:55 PM - 14:00 PM* paper 7043:
- Machine Learning Approach into Bacterial Relationship: Exploring 16S rRNA Metabarcoding with Association Rule Mining**  
O. Sari, M. Bader-El-Den, V. Ince, F. Arabikhan (UK)
- 14:00 PM - 14:05 PM* paper 7044:
- Aircraft-Type Classification Using Deep Learning Algorithms**  
N. Alkharji, H. Almazrouei, S. Alzaabi, A. Nassif, M. Elsalhy, M. Talib (UAE)
- 14:05 PM - 14:10 PM* paper 7053:
- Machine Learning for Bacterial Growth Prediction and Examination of Bacterial Impact on Growth**

V. Ince, M. Bader-El-Den, F. Arabikhan, O. Sari (UK)

- 14:10 PM - 14:15 PM* paper 7055: **On the Application of Neural Networks in Credit Scoring: A Case-Study Analysis**  
N. Penchev, A. Marchev, Jr. (Bulgaria)
- 14:15 PM - 14:20 PM* paper 7056: **RAGSQL: Context Retrieval Evaluation on Augmenting Text-To-SQL Prompts**  
S. Vichev, A. Marchev, Jr. (Bulgaria)
- 14:20 PM - 14:25 PM* paper 7068: **A Graph Neural Network-Based Recommendation System for Product Manufacturing Information in 3D-CAD Models**  
K. Eisert, M. Krähschütz, V. Nguyen (Germany)
- 14:25 PM - 14:55 PM* Discussion
- 15:45 PM - 16:00 PM* **Coffee Break**
- SESSION 8: Poster 3**  
**Chair: V. Terzieva (Bulgaria)**
- 14:55 PM - 15:00 PM* paper 8077: **Application Methodology for Search-Based Applications to Improve the Safety, Quality, and Reliability of ECS-Based Products**  
T. Kahlert (Germany)
- 15:00 PM - 15:05 PM* paper 8078: **Identifying Threats on Social Media to Spot Offensive Behavior**  
A. Hridi, S. Abdullah, Md. A. Hasnath, R. Adiba, S. Proma, Rashedur M. Rahman (Bangladesh)
- 15:05 PM - 15:10 PM* paper 8088: **RRT\*-Based Leader-Follower Trajectory Planning and Tracking in Multi-Agent Systems**  
C. Agachi, F. Arvin (France), J. Hu (UK)
- 15:10 PM - 15:15 PM* paper 8091: **Intelligent FaultEdge: AI-Driven Fault-Tolerant Edge Framework for Smart Grid Monitoring in IoT**  
T. Singh, S. Kumar, S. Singh, V. Chilkoti, S. Bansal (India), Kwok Tai Chui (Hong Kong), B. Gupta (Taiwan)
- 15:15 PM - 15:20 PM* paper 8103: **Ext-NoSQL: A NoSQL Schematics Through JSON**  
Balachandar Paulraj (USA)
- 15:20 PM - 15:25 PM* paper 8111: **Simulation Based Design of Self-Adaptive Agent Behavior: Road Traffic Data Collection Case Study**  
K. Gouasmia, W. Mefteh, F. Gargouri (Tunisia)
- 15:25 PM - 15:30 PM* paper 8231: **An efficient strategy for the denoising of heart vibration signals acquired from an implantable device**



S. Alali, A. Kachenoura, L. Senhadji, A. Hernandez, C. Michel,  
L. Albera, A. Karfoul (France)

15:30 PM - 15:45 PM

Discussion

15:45 PM - 16:00 PM **Coffee Break**

## 30 august 2024

30.08.2024			
Stream A		Stream B	Stream C
10.00 - 10.45	<b>PLENARY 3</b> I.SARKER		
COFFEE BREAK			
11.00 - 11.45	<b>PLENARY 4</b> T.FUKUDA		
11.50 - 12.50	<b>TUTORIAL</b>		
LUNCH			
13.30 - 15.00	<b>9</b> <b>MACHILE LEARNING 1</b> 9021 9037 9038 9098 9124 9202	13.30 - 15.00 <b>11</b> <b>INVITED SESSION 3</b> 11004 11008 11034 11058 11094 11099	13.30 - 15.15 <b>13</b> <b>INVITED SESSION 6.</b> 13049 13065 13212 13219 13241 13242 13243
COFFEE BREAK			
15.40 - 17.10	<b>10</b> <b>DEEP LEARNING 1</b> 10054 10061 10062 10069 10112 10022	15.40 - 16.40 <b>12</b> <b>DATA SCIENCE</b> 12079 12115 12209 12210	15.40 - 16.40 <b>14</b> <b>INVITED SESSION 4</b> 14106 14204 14205 14206
COCKTAIL			

## 30 august 2024

### STREAM A

10:00 AM - 10:45 AM

#### Plenary 3

Chair: G. Vachkov (Bulgaria)

**Next-Generation Cybersecurity: Ensuring Trust and Accountability with Explainable AI**

Md Iqbal Sarker (Australia)

10:45 AM - 11:00 AM **Coffee Break**

### STREAM A

11:00 AM - 11:45 AM

#### Plenary 4

Chair: G. Vachkov (Bulgaria)

**AI and Robots for Moon Shot Program**

Toshio Fukuda (Japan)

**TUTORIAL: Fuzzy Networks for Explainable Artificial Intelligence.**

11:50 AM - 12:50 PM

A. Gegov, F. Arabikhan (UK)

12:50 PM - 13:30 PM **LUNCH**

**STREAM A**  
**SESSION 9: Machine Learning 1**  
**Chair: A. Stoyanova-Doycheva (Bulgaria)**

13:30 PM - 13:45 PM paper 9021:

**Enhancing Daily Energy Prediction in Solar Photovoltaic Systems: Weighted k-Nearest Neighbors with Pearson Correlation Integration**  
S. Al-Dahidi, B. Rinchi, M. Alrbai, (Jordan), A. Alahmer (USA)

13:45 PM - 14:00 PM paper 9037:

**A Constrained Cluster Ensemble Using Hierarchical Clustering Methods**  
F. Williams, S. Hennessey, L. Kuncheva (UK), J. Diez-Pastor, J. Rodríguez (Spain)

14:00 PM - 14:15 PM paper 9038:

**Utilizing Machine Learning for Precise State-Of-Charge Prediction in Li-Ion Batteries**  
A. Khatri, J. Lota (UK), P. Nepal (Nepal), M. Amirhosseini (UK)

14:15 PM - 14:30 PM paper 9098:

**Hierarchical Vs Centroid-Based Constraint Clustering for Animal Video Data**  
S. Hennessey, F. Williams, L. Kuncheva (UK)

14:30 PM - 14:45 PM paper 9124:

**Predicting PM2.5 Air Quality Using Random Forest Regression Enhanced with Polynomial Features**  
K. Goyal, S. Goyal (USA)

14:45 PM - 15:00 PM paper 9202:

**Machine Learning within Latent spaces formed by Foundation Models**  
B. Tomczyk, P. Angelov, D. Kangin (UK)

15:00 PM - 15:40 PM **Coffee Break**

**SESSION 10: Deep Learning 1**  
**Chair: V. Tabakova (Bulgaria)**

15:40 PM - 15:55 PM paper 10054:

**A Conceptual Framework for Addressing Class Imbalance in Image Data: Challenges and Strategies**  
S. Asif, M. Akmal, L. Koval, S. Mathias, S. Knollneyer, D. Grossmann (Germany)

15:55 PM - 16:10 PM paper 10061:

**Annotation Pipeline for Railway Track Segmentation**  
I. Sagastiberri, M. Larrazabal, M. Sánchez, N. Aranjuelo, M. Nieto, D. Eribe (Spain)

16:10 PM - 16:25 PM paper 10062:

**Enhanced Dataset Synthesis Using CTGAN for Metagenomic Dataset**  
V. Ince, M. Bader-El-Den, O. Sari (UK)

*16:25 PM - 16:40 PM* paper 10069:  
**Hierarchical Tree of Deep Networks (HTDN) for Joint Classification of Linear and Non-Linear Modulations**  
M. Shah (Ireland), X. Dang (China), M. Liu (Ireland)

*16:40 PM - 16:55 PM* paper 10112:  
**FOCAL: Feature-Oriented Cellular Automata Learning for Convolution-Free Image Classification**  
N. Ari, R. Yarnell, P. Amoruso, J. Mell, R. DeMara, A. Wu (USA)

*16:55 PM - 17:10 PM* paper 10022:  
**A Co-Training Model Based in Learning Transfer for the Classification of Research Papers**  
A. Cevallos-Culqui C. Pons (Argentina), G. Rodriguez (Ecuador)

**STREAM B**  
**SESSION 11: INVITED SESION "Knowledge Discovery and Rule Mining-based Explainable AI modeling can Enhance Today's Cybersecurity World"**  
**A. Gegov (UK)**

*13:30 PM - 13:45 PM* paper 11004:  
**End-to-End Learning System for Symbol Decoding in Optical Communication**  
M. Neves, P. Loureiro (Portugal), T. Slavov (Bulgaria), P. Georgieva (Portugal)

*13:45 PM - 14:00 PM* paper 11008:  
**Efficient News Synopsis Generation with T5 Transformers**  
J. Antonio (Portugal), L. Michaylova (UK), P. Georgieva (Portugal)

*14:00 PM - 14:15 PM* paper 11034:  
**Decision Tree Ensemble Based Classification of Terrorist Attacks Using eXplainable Artificial Intelligence**  
O. Lamptey, D. Ouelhadj, A. Rösner, A. Hopgood, A. Gegov (UK), S. Da Deppo (Italy)

*14:15 PM - 14:30 PM* paper 11058:  
**Agile Project Status Prediction Using Interpretable Machine Learning**  
A. ForouzeshNejad, F. Arabikhan, N. Williams, A. Gegov, O. Sari, M. Bader (UK)

*14:30 PM - 14:45 PM* paper 11094:  
**Machine Learning-Based Classification of Extremism Using Explainable Artificial Intelligence**  
A. Rosner, A. Gegov, A. Hopgood, O. Lamptey, D. Ouelhadj (UK), S. Deppo (Italy)

*14:45 PM - 15:00 PM* paper 11099:  
**Leveraging Structural Causal Models for Bias Detection and Feature Adjustment in Machine Learning Predictions**  
B. Igoche, O. Matthew, P. Bednar, A. Gegov (UK)

*15:00 PM - 15:40 PM*

*Coffee Break*

**SESSION 12: Data Science**

**Chair: I. Radeva (Bulgaria)**

*15:40 PM - 15:55 PM* paper 12079:

**Hotel Booking Cancellation with Visual Analytics**

S. Ahmed, S. Chowdhury, Rashedur M. Rahman (Bangladesh)

*15:55 PM - 16:10 PM* paper 12115:

**Comparative Analysis of Machine Learning Techniques for Enhanced Predictive Modeling in Healthcare**

A. Arya, F. Kazmi, S. Zaidi (USA)

*16:10 PM - 16:25 PM* paper 12209:

**On Predictive Big Data Quality**

I. Rhemat (Libya), P. Chountas, F. Roubert (UK)

*16:25 PM - 16:40 PM* paper 12210:

**Concept Drift Complexity for Assessing Sampling-Induced Concept Drift in Class-Imbalanced Data Streams**

M. Hajmohammed, P. Chountas, T. Chausalet (UK)

**STREAM C**

**SESSION 13: INVITED SESSION "Application of Intelligent Systems, Technologies and AI in Education"**

**Chair: V. Terzieva (Bulgaria)**

*13:30 PM - 13:45 PM* paper13049:

**A Framework for Security Testing of Large Language Models**

K. Traykov (Bulgaria)

*13:45 PM - 14:00 PM* paper 13065:

**Analysis and Prediction of Computer Science Students' Performance Based on Core Foundational Courses Using Ensemble Machine Learning Methods**

B. Mayeku, J. Kilwake, A. Mamai, E. Wamasebu (Kenya)

*14:00 PM - 14:15 PM* paper 13212:

**Enhancing User Experience in E-Learning through Incorporation of Personality Traits**

R. Ketipov, L. Doukovska, E. Kotsarova, A. Dukovski (Bulgaria)

*14:15 PM - 14:30 PM* paper 13219:

**Organization of Feedback in the Intelligent Learning Systems**

N. Kerimbayev, K. Adamova (Kazakhstan), V. Jotsov (Bulgaria), R. Shadiey (China), Z. Umirzakova, A. Nurymova (Kazakhstan)

*14:30 PM - 14:45 PM* paper 13241:

**Dynamic adaptation of difficulty in chess**

B. Bonchev, H. Ivanov (Bulgaria)

*14:45 PM - 15:00 PM* paper 13242:

**Aspects of Dependability and Security in Integrated Intelligent Educational Environments**

E. Djambazova, V. Terzieva, S. Ilchev, I. Gaidarski (Bulgaria)

*15:00 PM - 15:15 PM* paper 13243:

**Automating Assessment within Intelligent Education**

M. Ivanova, T. Ivanova, V. Terzieva (Bulgaria)

*15:00 PM - 15:40 PM* **Coffee Break**

**SESSION 14: INVITED SESSION "Beyond the Hype – Exploring the Real-World Impact of Blockchain."**

**Chair: I. Lambov (Bulgaria)**

*15:40 PM - 15:55 PM* paper 14106:

**Hybrid Machine Learning Model for Phishing Detection**

P. Maturure, A. Ali, A. Gegov (UK)

*15:55 PM - 16:10 PM* paper 14204:

**Decentralized Identity of Artifacts on BSN Spartan Blockchain**

I. Lambov (Bulgaria)

*16:10 PM - 16:25 PM* paper 14205:

**Decentralized Identity of Artifacts – System Architecture**

I. Lambov (Bulgaria), K. Duffy (US)

*16:25 PM - 16:40 PM* paper 14206:

**Decentralized Identity(DID) on Blockchain for Online Gaming**

Ken, J. Xiaoqian (Thailand), Ricky, M. Fai (Hong Kong), Y. Huo (USA), I. Lambov (Bulgaria)

*18:00 PM*

**COCTAIL**

# 31 august 2024

31.08.2024		
Stream A	Stream B	Stream C
10.00 - 11.15 <b>15</b> <b>CYBER SECURITY 1</b> 15024 15039 15041 15102 15233	10.00 - 11.45 <b>17</b> <b>MACHINE LEARNING 2</b> 17012 17014 17074 17081 17108 17114 17201	10.00 - 11.45 <b>19</b> <b>LLM, CHATBOTS</b> 19047 19097 19100 19109 19110 19120 19125
<b>COFFEE BREAK</b>		
12.00 - 13.00 <b>16</b> <b>CYBER SECURITY 2</b> 16031 16052 16084 16236	12.00 - 13.30 <b>18</b> <b>DEEP LEARNING 2</b> 18009 18027 18063 18082 18116 18248	12.00 - 13.00 <b>20</b> <b>APPLICATIONS</b> 20029 20050 20203
<b>13.30 CLOSING CEREMONY</b>		
<b>LUNCH</b>		
<b>EXCURSIONS</b>		

## 31 august 2024

### STREAM A

#### SESSION 15: Cyber Security 1

Chair: R. Ketipov (Bulgaria)

10:00 AM - 10:15 AM paper 15024:

**BioDSSL: A Domain Specific Sensor Language for Global, Distributed, Biometric Identification Systems**

P. Hofer, M. Roland, R. Mayrhofer (Austria)

10: 15 AM - 10:30 AM paper 15039:

**VAD-Lite: A LightWeight Video Anomaly Detection Framework Based on Attention Module**

P. Prathibha, P. Tamizharasan (UAE)

10: 30 AM - 10:45 AM paper 15041:

**Real-Time Multi-Camera System for On-Board Train Path Estimation**

P. Alonso, M. Larrazabal, A. Iglesias, N. Aranjuelo, M. Labayen, M. Nieto (Spain)

10: 45 AM - 11:00 AM paper 15102:

**Deep Neural Networks for anti Money Laundering Using Explainable Artificial Intelligence**

G. Konstantinidis, A. Gegov (UK)

11: 00 AM - 11:15 AM paper 15233:  
**Detecting Violent Behaviour on Edge Using Convolutional Neural Networks**  
G. Golcarenarenji, R. Khusainov, A. Gegov, I. Martinez-Alpiste (UK)

11:15 PM - 12:00 PM **Coffee Break**

**SESSION 16: Cyber Security 2**  
**Chair: R. Ketipov (Bulgaria)**

12:00 PM - 12:15 PM paper 16031:  
**An Investigation into Unsupervised Anomaly Detection for Data-Driven Predictive Maintenance**  
W. Doorsamy (UK), P. Bokoro (South Africa)

12:15 PM - 12:30 PM paper 16052:  
**Mobile Alert System Using Lane Detection Based on Vehicle Clustering**  
F. Sato, T. Koshizen (Japan), K. Yamakawa (Indonesia), Y. Yasui (Japan)

12:30 PM - 12:45 PM paper 16084:  
**Analyzing the application of digital twin technology in manufacturing processes**  
A. Boltaboyeva, N. Karymssakova, M. Mansurova, B. Imanbek, B. Amangeldy, N. Tasmurzayev (Kazakhstan)

12:45 PM - 13:00 PM paper 16236:  
**SINTTRA: Sliding Window based Temporally Aware Network Traffic Analyzer for IoT Device Fingerprinting**  
V. Tripathi, S. Tangirala, D. Sasanka, D. Reddy, C. Dalal, B. Mitra (India)

**STREAM B**

**SESSION 17: Machine Learning 2**  
**Chair: E. Djambazova (Bulgaria)**

10:00 AM - 10:15 AM paper 17012:  
**AI-Enhanced Prediction of Multi Organ Failure in COVID-19 Patients**  
I. Rajakaruna, M. Amirhosseini, Y. Li, D. Arachchillage (UK)

10: 15 AM - 10:30 AM paper 17014:  
**Prediction of Depression Severity and Personalised Risk Factors Using Machine Learning on Multimodal Data**  
M. Amirhosseini, A. Ayodele, A. Karami (UK)

10: 30 AM - 10:45 AM paper 17074:  
**Predicting Solar Photovoltaic Power Production Using Artificial Intelligence-Based Algorithms**  
H. Elmoaqet, D. Karasneh, S. Al-Dahidi, G. Al-Refai (Jordan)

10: 45 AM - 11:00 AM paper 17081:  
**Enhanced Prognostication of Liver Metastases Survival: A Fusion of Machine Learning Techniques**  
Z. Butt, Mustansar Ghazanfar, Mudassar Ghazanfar, M. Bekheit, N. Qazi, A. Karimi (UK)

11: 00 AM - 11:15 AM paper 17108:

**An Efficient Text Cleaning Pipeline for Clinical Text for Transformer Encoder Models**

S. Ridoy, J. Sultana, Z. Ria, M. Uddin, Md Hasibur Rahman, Rashedur M. Rahman (Bangladesh)

11: 15 AM - 11:30 AM paper 17114:

**Continual Reinforcement Learning Without Replay Buffers**

A. Krawczyk, B. Bagus, Y. Denker, A. Gepperth (Germany)

11: 30 AM - 11:45 AM paper 17201:

**Interpretable Feature Optimization for Sadness Recognition in Speech Emotion Analysis**

S. Yayavaram, A. Yayavaram, J. Christopher, V. Arunachalam (India)

11:45 PM - 12:00 PM **Coffee Break**

**SESSION 18: Deep Learning 2**

**Chair: V. Terziyska (Bulgaria)**

12:00 PM - 12:15 PM paper 18009:

**An Efficient Approach for Potato Leaf Disease Classification Using Cascaded CNN-Transformers**

A. Bajpai, S. Sahu, N. Tiwari, V. Srivastava, S. Yadav (India)

12:15 PM - 12:30 PM paper 18027:

**Unraveling the Impact of Density and Noise on Symbol Recognition in Engineering Drawings**

V. Shteriyarov, R. Dzhusupova (The Netherlands), J. Bosch, H. Olsson (Sweden)

12:30 PM - 12:45 PM paper 18063:

**Single-Polarized SAR Image Preprocessing in Scope of Transfer Learning for Oil Spill Detection**

N. Kussul, V. Kuzin, Y. Sali, B. Yailymov, A. Shelestov (Ukraine)

12:45 PM - 13:00 PM paper 18082:

**Probabilistic Neuro-Fuzzy System Based on Greedy Partitioning Input Space and Its Fast Combined Learning**

O. Chala, A. Sachenko, Y. Bodyanskiy, L. Bytsyura (Ukraine); A. Molga (Poland)

13:00 PM - 13:15 PM paper 18116:

**Multi-Level XAI-Driven MLOps Pipeline for the Adjustment of Fruit and Vegetable Classifiers**

F. Iriarte, M. Ortiz, L. Unzueta, J. Martínez, J. Zaldibar, I. Arganda-Carreras (Spain)

13:15 PM - 13:30 PM paper 18248:

**Multiple Inputs and Hybrid Deep Learning Model to Identify Suspicious Posts on Social Media**

B. Aloitabi (Saudi Arabia)



**STREAM C**  
**SESSION 19: LLM, CHATBOT APPLICATIONS**  
**Chair: B. Vatchova (UK)**

- 10:00 AM - 10:15 AM* paper 19047:  
**From Data to Documentation: Exploring the Use of ChatGPT's Custom Instructions for Report Generation**  
P. Rantanen, M. Saari, J. Harjamäki, P. Sillberg, J. Soini, P. Abrahamsson (Finland)
- 10: 15 AM - 10:30 AM* paper 19097:  
**TocBERT: Medical Document Structure Extraction Using Bidirectional Transformers**  
S. Baghdadi, M. Saleh, S. Paquelet (France)
- 10: 30 AM - 10:45 AM* paper 19100:  
**Phenotypes Extraction from Text: Analysis and Perspective in the LLM Era**  
M. Baddour, S. Paquelet, P. Rollier, M. Tayrac, O. Dameron, T. Labbe (France)
- 10: 45 AM - 11:00 AM* paper 19109:  
**LLM-Based Fine-Tuning Data Generation for Relation Triplet Extraction with Expert Ensemble and Demonstration Selection**  
J. Wang (China)
- 11: 00 AM - 11:15 AM* paper 19110:  
**FastSpeech2 Based Japanese Emotional Speech Synthesis**  
M. Ikeda, K. Markov (Japan)
- 11: 15 AM - 11:30 AM* paper 19120:  
**Benchmarking CNN and Cutting-Edge Transformer Models for Brain Tumor Classification Through Transfer Learning**  
Md Sajol, (USA), A. Hasan (Bangladesh)
- 11: 30 AM - 11:45 AM* paper 19125:  
**An Improved BERT Model for Precise Job Title Classification Using Job Descriptions**  
M. Maitra, S. Sinha (USA), T. Kierszenowicz (Argentina)

*11:45 PM - 12:00 PM* **Coffee Break**

**SESSION 20: Applications**  
**Chair: B. Vatchova (UK)**

- 12:00 PM - 12:15 PM* paper 20029:  
**Neurocomputational Forecasting of Economic Shocks**  
G. Mengov, I. Nenov, K. Ganev, R. Simeonova-Ganeva (Bulgaria)
- 12:15 PM - 12:30 PM* paper 20050:  
**A Fuzzy Expert System Based Extension of SWI-Prolog for Evaluating AI Ethics**  
H. Griffin, M. Ghahremani, A. Gegov (UK)
- 12:30 PM - 12:45 PM* paper 20203:

**A Generalized net model of integration of  
Electroniccommunication networks to support the command  
and control process**

D. Tsonev, M. Kochankov, R. Iliev (Bulgaria)

*13.30 PM*

**CLOSING CEREMONY**

***LUNCH***

**REMARKS**