The 17th International Conference on Development and Application Systems DAS 2024

May 23-25, 2024
Suceava - Romania

dasconference.ro

Conference Program

Organized by

Stefan cel Mare University of Suceava
Faculty of Electrical Engineering
and Computer Science

With technical sponsorship from

IEEE Industry Applications Society
IEEE Conference Record #61944

The 17th International Conference on **Development and Application Systems** (DAS), organized biennially by *the Faculty of Electrical Engineering and Computer Science, Stefan cel Mare University of Suceava*, has four sections:

A - Systems, Process Control and Automation

B - Communications and Computer Networks

C - Electronics and Computer Aided Engineering

D - Software Engineering and Information Technologies

The scope of the Conference is to bring together specialists from universities, research institutes and companies for useful ideas exchanges regarding concerns in their domains. The latest progresses in these fields, as well as the newest scientific and technical results, will be presented and discussed during the Conference.

Participant registration will take place at the Registration Desk at USV, Building E, Ground Floor, Aula E, on May 23 between 8:30 AM and 10:00 AM and on May 24, between 8:30 AM and 9:00 AM.

CONTACT INFORMATION

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Thursday - May 23, 2024 – *Day Summary*

USV, Building E, Aula E

| 10:00 - 10:15 | Opening Ceremony |

| 10:15 - 10:30 | Main Sponsor Address |

| 10:30 - 11:30 | Plenary Session 1 |

| 11:30 - 11:45 | Coffee break |

| 11:45 - 12:45 | Plenary Session 2 |

| 13:00 - 14:15 | Lunch break |

@restaurantvivendi.ro / Suceava

| 14:30 - 15:30 | Plenary Session / Orange 6G |

| 15:30 - 17:00 | Technical Session A |

| 17:00 - 17:15 | Coffee break |

| 17:15 - 18:15 | Technical Session A |

| 18:15 - 18:30 | Technical Session C |

| 19:30 - 23:00 | Cocktail Party |

@hotelsonnenhof.ro / Restaurant Mosaik Suceava

Friday - May 24, 2024 – *Day Summary*

09:00 - 10:45   Technical Session B (Aula E)

09:00 - 10:45   Technical Session D (ARR)

11:00 - 11:15   Coffee break (Aula E)

11:45 - 12:45   Plenary Session 3 (Aula E)

13:00 - 14:15   Lunch break
@restaurantvivendi.ro / Suceava

14:30 - 17:15   Technical Session D (ARR)

17:00 - 18:00   H&S 2024 Award Ceremony
USV, Building E, Atrium

19:00   Departure to Mălini
The transport from Suceava to Mălini will be provided by the organizers. The bus will leave the parking lot in front of the Buildings A/D, USV campus, at 19:00.

20:00 - 23:00   Official Dinner
@pensiunealafiluta.ro / Mălini

Saturday - May 25, 2024 – *Day Summary*

10:00	Departure from Mălini

11:00 - 12:30	Voroneț Monastery

13:00 - 15:00	Traditional Lunch

@popasuldomnesc.ro / Voroneț

16:00	Return to Suceava

Thursday - May 23, 2024
USV, Building E, Aula E

10:00 - 10:15   Opening Ceremony

Welcome message addressed by
Adrian GRAUR
DAS 2024 Conference Chair
Mihai DIMIAN
Rector of the Stefan cel Mare University of Suceava

10:15 - 10:30   Main sponsor address

Orange Innovation Ecosystem: Academia collaboration
Razvan MIHAI
IoT Architecture & Services Expert
Cristian PATACHIA
Development & Innovation Manager
Orange Romania

10:30 - 11:30   Plenary Session 1

Keynote Address ---------

AC Induced Corrosion - Low and High Frequency Effects
Nathan IDA
IEEE Fellow
Department of Electrical and Computer Engineering
University of Akron, USA

Keynote Address ---------

Modern Control Methods for Improving Electrical Energy Efficiency in Computer Power Supplies
Dorin O. NEACŞU
EASI Department
Gh. Asachi Technical University of Iasi, ROMANIA

11:30 - 11:45   Coffee break

11:45 - 12:45   Plenary Session 2

Keynote Address ---------

Automated Analysis of Human Movement Qualities in Individuals and Groups
Gualtiero VOLPE
University of Genova, Genova, ITALY

Keynote Address ---------

Hydrogen as an Energy Storage and Renewable Source
Stanimir VALTCHEV
University NOVA of Lisbon, PORTUGAL

13:00 - 14:15   Lunch break
Restaurant Vivendi - @RestaurantVivendi

14:30 - 15:30   Plenary Session / Orange 6G
Orange 6G Architecture Developments
Razvan MIHAI
IoT Architecture & Services Expert
Cristian PATACHIA
Development & Innovation Manager
Orange Romania

15:30 - 17:00   Technical Session A

17:00 - 17:15   Coffee break

17:15 - 18:15   Technical Session A

18:15 - 18:30   Technical Session C

19:30 - 23:00   Cocktail Party

@hotelsonnenhof.ro / Restaurant Mosaik Suceava

Friday - May 24, 2024
USV, Building E, Aula E and Building D, ARR

09:00 - 10:45   Technical Session B (Aula E)

09:00 - 10:45   Technical Session D (ARR)

11:00 - 11:15   Coffee break

11:45 - 12:45   Plenary Session 3

Keynote Address ---------

Modern Methods of Power Quality Analysis
Vladimir KATIĆ
IEEE Senior Member
University of Novi Sad, Novi Sad, SERBIA

Keynote Address ---------

The Human Brain as an Adaptive Complex System
Ioan DUMITRACHE
IEEE Senior Member
National Science and Technology University
Politehnica of Bucharest, ROMANIA

14:30 - 17:15   Technical Session D (ARR)

Thursday - May 23, 2024

Location: USV, Building E, Aula E

Technical Session

Section A: Systems, Process Control and Automation

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15:30 - 17:00   Section A

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Session Co-Chairs

Cornel TURCU
Stefan cel Mare University of Suceava, Romania
Mihai RATA
Stefan cel Mare University of Suceava, Romania

Paper ID: A12 - 15:30 - 15:45
Monitoring Energy Losses of a Residential Building through Thermographic Assessments
Eugen IAVORSCHI, Dan Laurentiu MILICI
Stefan cel Mare University of Suceava, Romania

Paper ID: A18 - 15:45 - 16:00
Technical Efficiency of the Shunt Breaker in the Exploitation of Distribution Networks
Ion MARIN[1], Paul Mihai MIRCEA[1], Eugen BUTOARCA[2], Doru URSU[2], Ion MIRCEA[1], Cristian BRATU[1]
[1]University of Craiova, Romania
[2]Energy Distribution Oltenia, Craiova, Romania

Paper ID: A19 - 16:00 - 16:15
Research on the Implementation of Voltage Control on MV Busbars Due to the Influence of PV Connection
Daniela F. NISTE, Silviu STEFANESCU, Aurel BOTEZAN, Sorin G. PAVEL, Anca MIRON, Horia G. BELEIU
Technical University of Cluj-Napoca, Romania

Paper ID: A28 - 16:15 - 16:30
Steady State and Dynamic Optimization of the Drive Systems with Surface-Mounted Permanent Magnet Synchronous Machines
Corneliu BOTAN, Vasile HORGA
Technical University of Iași, Romania

Paper ID: A30 - 16:30 - 16:45
Using of Nature Inspired Computing Models for Mobile Robot Control
Viorica SUDACEVSCHI, Silvia MUNTEANU, Victor ABABII, Viorel CARBUNE, Olesea BOROZAN, Iulian LUNGU
Technical University of Moldova, Chisinau, Republic of Moldova

Paper ID: A41 - 16:45 - 17:00
Solution for Power Quality and Energy Consumption Monitoring
Mihai RATA, Radu FECHET, Gabriela RATA, Adrian GRAUR
Stefan cel Mare University of Suceava, Romania

// Coffee break 17:00 – 17:15

Paper ID: A48 - 17:15 - 17:30
Analyzing the Collaborative Design in Architecture Through the Lens of Computer Systems and Prefabrication Vision
Gabriela Dana PETROPOL-SERB[1], Gabriel-Ionut PETROPOL-SERB[2]
[1]University of Craiova, Romania
[2]Detailing Arch, Bucharest, Romania

Paper ID: A52 - 17:30 - 17:45
Digital Twin and Virtual Reality: A Co-simulation Environment for an Educational Hydraulic Workstation
Fanica-Valeriu HRIB, Andrei-Iulian IANCU, Constantin-Catalin DOSOFTEI
Gheorghe Asachi Technical University of Iasi, Romania

Paper ID: A53 - 17:45 - 18:00
Reducing Energy Consumption in the Control System of Mechanism for Mixing Viscous Composition Through Fuzzy Rules
Alexey SINYUKOV[1], Tatyana SINYUKOVA[1], Elena GRACHEVA[2], Jose GONCALVES[3], Rosario MICELI[4], Stanimir VALTCHEV[5]
[1] Lipetsk State Technical University, Russian Federation
[2] Kazan State Power Engineering University, Russian Federation
[3] FET, University of Namibe, Angola
[4] University of Palermo, Italy
[5] NOVA University Lisbon, Caparica, Portugal

Paper ID: A54 - 18:00 - 18:15
Increasing the Damping Capacity of Crane Electric Drive Systems When Moving Cargo with a Flexible Suspension
Stanimir VALTCHEV[1], Alexey SINYUKOV[2], Tatyana SINYUKOVA[2], Elena GRACHEVA[3], Rosario MICELI[4], Jose

GONCALVES[5]
[1] NOVA University Lisbon, Caparica, Portugal
[2] Lipetsk State Technical University, Russian Federation
[3] Kazan State Power Engineering University, Russian Federation
[4] University of Palermo, Italy
[5] FET, University of Namibe, Angola

Thursday - May 23, 2024

Location: USV, Building E, Aula E

Technical Session
Section C: Electronics and Computer Aided Engineering

18:15 - 18:30   Section C

Session Co-Chairs

Nicolae Dumitru ALEXANDRU
Gheorghe Asachi Technical University of Iaşi, Romania
Alin Dan POTORAC
Stefan cel Mare University of Suceava, Romania

Paper ID: C47 - 18:15 - 18:30
Non-resonant Long – Wire Feed for Parabolic Antennas
Cezar-Ion ADOMNITEI, Cezar-Eduard LESANU, Adrian DONE, Mihai DIMIAN, Iulian CHIUCHISAN
Stefan cel Mare University of Suceava, Romania

Friday - May 24, 2024

Location: USV, Building E, Aula E

Technical Session
Section B: Communications and Computer Networks

> **09:00 - 11:00   Section B**

Session Co-Chairs

Nicolae Dumitru ALEXANDRU
Gheorghe Asachi Technical University of Iași, Romania
Alin Dan POTORAC
Stefan cel Mare University of Suceava, Romania

Paper ID: B16 - 09:00 - 09:15
Estimation of the Subjective Intelligibility with Superimposition of Bn8 in the Environment of the Orthodox Church Built in the Moravian Style
Violeta STOJANOVIC[1], Zoran MILIVOJEVIC[2], Dijana KOSTIC[3], Bojan PRLINCEVIC[4]
[1]Academy of Applied Technical and Preschool Studies, Nis, Serbia
[2]University of Belgrade, Serbia
[3]Sargan – inženjering d.o.o, Nis, Serbia
[4]Kosovo and Metohija Academy of Applied Studies, Leposavic, Serbia

Paper ID: B23 - 09:15 - 09:30
Designing an Authentication Methodology in IoT Using Energy Consumption Patterns
Edi Marian TIMOFTE[1], Alexandra Ligia BALAN[1], Teodor IFTIME[2]
[1]Stefan cel Mare University of Suceava, Romania
[2]Suceava, Romania

Paper ID: B24 - 09:30 - 09:45
AI Driven Adaptive Security Mesh: Cloud Container Protection for Dynamic Threat Landscapes
Edi Marian TIMOFTE[1], Alexandra Ligia BALAN[1], Teodor IFTIME[2]
[1]Stefan cel Mare University of Suceava, Romania
[2]Suceava, Romania

Paper ID: B27 - 09:45 - 10:00

A Novel Scalable Cloud-enabled Spectrum Sensing Architecture

Partemie M. MUTESCU[1], Alin CALINCIUC[2], Valentin POPA[3], Ovidiu-Andrei SCHIPOR[1]

[1]Interdisciplinary Cloud and Big Data Center, Stefan cel Mare University of Suceava, Romania
[2]ASSIST Software, Suceava, Romania
[3]Stefan cel Mare University of Suceava, Romania

Paper ID: B35 - 10:00 - 10:15

Lighting Efficiency: Using Visible Light Communications Technology for Enhanced Energy Management in Built Environment and Beyond

Alin-Mihai CAILEAN[1,2], Sebastian-Andrei AVATAMANITEI[2,3], Catalin BEGUNI[2], Eduard ZADOBRISCHI[1,2], Mihai DIMIAN[1,2]

[1]Stefan cel Mare University of Suceava, Romania
[2]Integrated Center for Research, Development and Innovation in Advanced Materials, Nanotechnologies, and Distributed Systems for Fabrication and Control, Stefan cel Mare University of Suceava, Romania
[3]East European Border Scientific and Technological Park, Siret; Romania

Paper ID: B46 - 10:15 - 10:30

Expanding IoT Connectivity by using 2.4 GHz LoRa Technology

Stefan HAVRILIUC, Alexandru LAVRIC, Adrian Ioan PETRARIU, Eugen COCA, Valentin POPA
Stefan cel Mare University of Suceava, Romania

Paper ID: B49 - 10:30 - 10:45

Using Tailscale and PfSense for Security and Anonymity of IoT Environments

Daniel-Florin HRIȚCAN, Doru BALAN
Stefan cel Mare of University Suceava, Romania

// Coffee break 11:00 – 11:15

Friday - May 24, 2024

Location: USV, Building D, ARR

Technical Session

Section D: Software Engineering and Information Technologies

09:00 - 10:45   Section D

Session Co-Chairs

Stefan Gheorghe PENTIUC
Stefan cel Mare University of Suceava, Romania
Radu Daniel VATAVU
Stefan cel Mare University of Suceava, Romania

Paper ID: D04 - 09:00 - 09:15
Exploring Gender Bias and Toxic Comments Using Artificial Intelligence: Trends and Implications
Marina Adriana MERCIONI, Stefan HOLBAN
Politehnica University of Timisoara, Romania

Paper ID: D06 - 09:15- 09:30
Trends in the Detection and Interpretation of Human Movements and Mime-gesture
Andrei ENACHI[1], Cornel TURCU[2], George CULEA[1]
[1]Vasile Alecsandri University of Bacau, Romania
[2]Stefan cel Mare of University Suceava, Romania

Paper ID: D07 - 09:30- 09:45
Credit Card Fraud Detection based on Random Forest Model
Sorin-Ionut MIHALI, Stefania-Loredana NITA
Ferdinand I Military Technical Academy, Bucharest, Romania

Paper ID: D08 - 09:45- 10:00
Using Docker Swarm to Improve Performance in Distributed Web Systems
Marian ILEANA, Maria Ioana OPROIU, Constantin Viorel MARIAN
National University of Science and Technology POLITEHNICA Bucharest

Paper ID: D09 - 10:00 - 10:15
Uterine Corpus Endometrial Carcinoma Prediction from Genomic Analysis with Machine Learning
Marina Adriana MERCIONI, Stefan HOLBAN
Politehnica University of Timisoara, Romania

Paper ID: D10 - 10:15 - 10:30
Exploration of Vision-based Railway Turnout Recognition and Application
Chenglin CHEN[1], Huixiong QIN[2], Yun BAI[1]
[1]The Hong Kong University of Science and Technology, Guangzhou, China
[2]Rutgers University, New Brunswick, United States

Paper ID: D13 - 10:30 - 10:45
Synergizing User's-defined Requirement Design for Crafting a Knowledge Sharing Management System
Malak ALHARBI, Marie DEVLIN, Jennifer WARRENDER
Newcastle University, United Kingdom

// Coffee break 11:00 – 11:15

Paper ID: D14 - 14:30 - 14:45
Comparative Analysis Between Counter Mode Deterministic Random Bit Generators and Chaos-Based Pseudo-Random Number Generators
Raluca Ionela CARAN
Ferdinand I Military Technical Academy, Bucharest, Romania

Paper ID: D20 - 14:45 - 15:00
Smart Clothing and On-Device Gesture Recognition for Controlling Smart Buildings Systems
Adrian-Vasile CATANA
Stefan cel Mare of University Suceava, Romania

Paper ID: D25 - 15:00- 15:15
From Smart Buildings to Smart Vehicles: Mobile User Interfaces for Multi-Environment Interactions
Laura-Bianca BILIUS, Alexandru-Tudor ANDREI, Radu-Daniel VATAVU
Stefan cel Mare of University Suceava, Romania

Paper ID: D26 - 15:15 - 15:30
Selection of Region of Interest in Thermal Images for the Classification of the Human Emotions

Sorin Marius PAVEL, Gabriel SIRBU, Dorel AIORDACHIOAIE
Dunarea de Jos University of Galati, Romania

Paper ID: D32 - 15:30 - 15:45

Revolutionizing Upper Limb Motor Control Restoration: A Novel EMG-Based Feedback System for Individuals with Neurological Diseases

Teodora PISERU, Emanuel-Andrei PISERU, Andrei-Iulian ROMAN, Radu IONASCU, Marian-Silviu POBORONIUC, Alina-Roxana MIRON
Technical University of Iasi, Romania

Paper ID: D33 - 15:45 - 16:00

Advancing Towards Clinical Validation of an Innovative System for Restoring Upper Limb Control in Individuals with Neurological Disorders

Teodora PISERU, Emanuel-Andrei PISERU, Andrei-Iulian ROMAN, Radu IONASCU, Marian-Silviu POBORONIUC, Alina-Roxana MIRON
Technical University of Iasi, Romania

Paper ID: D37 - 16:00 - 16:15

Infrared Image Recognition of Power Equipment Based on Improved YOLOv5

Zhenzhou WANG, Mingming LI, Jingfang SU, Zijian LIU
HeiBei University Science and Technology, ShiJiazhuang, China

Paper ID: D40 - 16:15 - 16:30

Integrating Extended Reality and Neural Headsets for Enhanced Emotional Lifelogging: A Technical Overview

Adrian AIORDACHIOAE[1], Alin CALINCIUC[2], Maria Doina SCHIPOR[1]
[1]Stefan cel Mare of University Suceava, Romania
[2]ASSIST Software, Suceava, Romania

Paper ID: D42 - 16:30 - 16:45

Smart Ring Gestures Recognition System Tailored to Serious Games Designed for Older People

Laura-Bianca BILIUS
Stefan cel Mare of University Suceava, Romania

Paper ID: D45 - 16:45 - 17:00

MW4HBI: Mobile and Wearable Human-Building Interactions with a Multi-Platform User Interface

Alexandru-Tudor ANDREI
Stefan cel Mare of University Suceava, Romania

Paper ID: D50 - 17:00 - 17:15

Factors Influencing Romanian Teachers' Choice of IT Training to Avoid Issues Raised by Online Education: A Data Mining Approach

Corina SIMIONESCU, Mirela DANUBIANU, Adina-Luminița BARILA, Bogdanel Constantin GRADINARU
Stefan cel Mare of University Suceava, Romania

Notes