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 17\textsuperscript{th} 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

Phone: +(40)-230-524-801
Phone: +(40)-744-429-378
Phone: +(40)-745-594-640
Fax: +(40)-230-524-801
Web: dasconference.ro
E-mail: das@eed.usv.ro
Thursday - May 23, 2024 – *Day Summary*

USV, Building E, Aula E

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00 - 10:15</td>
<td>Opening Ceremony</td>
</tr>
<tr>
<td>10:15 - 10:30</td>
<td>Main Sponsor Address</td>
</tr>
<tr>
<td>10:30 - 11:30</td>
<td>Plenary Session 1</td>
</tr>
<tr>
<td>11:30 - 11:45</td>
<td>Coffee break</td>
</tr>
<tr>
<td>11:45 - 12:45</td>
<td>Plenary Session 2</td>
</tr>
<tr>
<td>13:00 - 14:15</td>
<td>Lunch break</td>
</tr>
</tbody>
</table>

@restaurantvivendi.ro / Suceava

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:30 - 15:30</td>
<td>Plenary Session / Orange 6G</td>
</tr>
<tr>
<td>15:30 - 17:00</td>
<td>Technical Session A</td>
</tr>
<tr>
<td>17:00 - 17:15</td>
<td>Coffee break</td>
</tr>
<tr>
<td>17:15 - 18:15</td>
<td>Technical Session A</td>
</tr>
<tr>
<td>18:15 - 18:30</td>
<td>Technical Session C</td>
</tr>
<tr>
<td>19:30 - 23:00</td>
<td>Cocktail Party</td>
</tr>
</tbody>
</table>

@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*

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00</td>
<td>Departure from Mălini</td>
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<tr>
<td>11:00 - 12:30</td>
<td>Voroneț Monastery</td>
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<tr>
<td>13:00 - 15:00</td>
<td>Traditional Lunch</td>
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<tr>
<td>16:00</td>
<td>Return to Suceava</td>
</tr>
</tbody>
</table>
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 PATAŞHIA
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
<table>
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</tr>
</tbody>
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**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

15:30 - 17:00  Section A

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 MARIN¹, Paul Mihai MIRCEA¹, Eugen BUTOARCA², Doru URSU², Ion MIRCEA¹, Cristian BRATU¹  
¹University of Craiova, Romania  
²Energy 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, Olesa 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-SERB¹, Gabriel-Ionut PETROPOL-SERB²
¹University of Craiova, Romania
²Detailing 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 SINYUKOV¹, Tatyana SINYUKOVA¹, Elena GRACHEVA², Jose GONCALVES³, Rosario MICELI⁴, Stanimir VALTCHEV⁵
¹Lipetsk State Technical University, Russian Federation
²Kazan State Power Engineering University, Russian Federation
³FET, University of Namibe, Angola
⁴University of Palermo, Italy
⁵NOVA 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 VALTCHEV¹, Alexey SINYUKOV², Tatyana SINYUKOVA², Elena GRACHEVA³, Rosario MICELI⁴, Jose
GONCALVES
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 Iași, 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 STOJANOVIC¹, Zoran MILIVOJEVIC², Dijana KOSTIC³, Bojan PRLINCEVIC⁴
¹Academy of Applied Technical and Preschool Studies, Nis, Serbia
²University of Belgrade, Serbia
³Sargan – inženjering d.o.o, Nis, Serbia
⁴Kosovo 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 TIMOFTE¹, Alexandra Ligia BALAN³, Teodor IFTIME²
¹Stefan cel Mare University of Suceava, Romania
²Suceava, Romania

Paper ID: B24 - 09:30 - 09:45
AI Driven Adaptive Security Mesh: Cloud Container Protection for Dynamic Threat Landscapes
Edi Marian TIMOFTE¹, Alexandra Ligia BALAN³, Teodor IFTIME²
¹Stefan cel Mare University of Suceava, Romania
²Suceava, Romania
Paper ID: B27 - 09:45 - 10:00
A Novel Scalable Cloud-enabled Spectrum Sensing Architecture
Partemie M. MUTESCU¹, Alin CALINCIUC², Valentin POPA³, Ovidiu-Andrei SCHIPOR¹
¹Interdisciplinary Cloud and Big Data Center, Stefan cel Mare University of Suceava, Romania
²ASSIST Software, Suceava, Romania
³Stefan 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 CAILEAN¹², Sebastian-Andrei AVATAMANITEI¹²³, Catalin BEGUNI³, Eduard ZADOBRISCHI¹², Mihai DIMIAN¹²
¹Stefan cel Mare University of Suceava, Romania
²Integrated Center for Research, Development and Innovation in Advanced Materials, Nanotechnologies, and Distributed Systems for Fabrication and Control, Stefan cel Mare University of Suceava, Romania
³East 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\textsuperscript{1}, Cornel TURCU\textsuperscript{2}, George CULEA\textsuperscript{1}
\textsuperscript{1}Vasile Alecsandri University of Bacau, Romania
\textsuperscript{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 CHEN¹, Huixiong QIN², Yun BAI¹
¹The Hong Kong University of Science and Technology, Guangzhou, China
²Rutgers 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 AIORDACHIOAIE¹, Alin CALINCIUC², Maria Doina SCHIPOR¹  
¹Stefan cel Mare of University Suceava, Romania  
²ASSIST 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
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