

**The 16th International Conference on
Development and Application Systems
DAS 2022**

**May 26-28, 2022
Suceava - Romania**

www.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 #54948**

The 16th 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 Registration Desk at USV, Building D, 1st Floor, on May 25 between 4:00 PM and 8:00 PM and on May 26, between 8:00 AM and 11:30 AM, at Building E, Aula.

CONTACT INFORMATION

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Thursday - May 26, 2022 – Day Summary

10:00 - 10:30 **Opening Ceremony**

USV, Building E, Aula

10:30 - 11:30 **Plenary Session**

USV, Building E, Aula

11:30 - 11:45 **Coffee break**

USV, Building E, Aula

11:45 - 12:45 **Plenary Session**

USV, Building E, Aula

13:00 - 14:30 **Lunch break**

Restaurant Vivendi - @RestaurantVivendi

14:45 - 17:45 **Technical Session A**

*Details about paper presentation schedule for
Section A on page 11*

16:15 - 16:30 **Coffee break**

USV, Building E, Aula

17:45 - 18:15 **Technical Session C**

*Details about paper presentation schedule for
Section C on page 14*

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

Restaurant Vivendi - @RestaurantVivendi

Friday - May 27, 2022 – Day Summary

09:00 - 11:00 Technical Session B

*Details about paper presentation schedule for
Section B on page 15*

11:00 - 11:15 Coffee break

USV, Building E, Aula

11:15 - 12:45 Technical Session D

*Details about paper presentation schedule for
Section D on page 17*

12:45 - 14:30 Lunch break

Restaurant Vivendi - @RestaurantVivendi

14:30 - 15:45 Technical Session D

*Details about paper presentation schedule for
Section D on page 18*

17:00 - 17:30 H&S 2022 Award Ceremony

USV, Building E, Atrium

19:30 - 23:00 Official Dinner

Mandachi Hotel & Spa

Saturday - May 28, 2022 – Day Summary

10:00 Departure from Suceava

The transport from Suceava to Sucevita will be provided by the organizers. The bus will leave the parking lot in front of the Buildings A/D, USV campus, at 10:00AM.

10:00 - 12:30 Monasteries Tour

13:00 - 15:00 Traditional Lunch

Hotel Sofia Sucevita

16:00 - 18:30 Departure to Suceava

Thursday - May 26, 2022

USV, Building E, Aula

10:00 - 10:15 Opening Ceremony

Welcome message addressed by

Adrian GRAUR

DAS 2022 Conference Chair

Valentin POPA

Rector of the Stefan cel Mare University of Suceava

Mihai DIMIAN

Vice-Rector of the Stefan cel Mare University of
Suceava

10:15 - 10:30 Main sponsor address

*Collaborative research & innovation to support tech
transfer*

Cristian PATACHIA

Development & Innovation Manager
Orange Romania

10:30 - 11:30 Plenary Session 1

Keynote Address -----

*NDE 4.0: Testing and Evaluation in the Digital
Ecosystem*

Nathan IDA

IEEE Fellow

Department of Electrical and Computer Engineering
University of Akron, USA

Keynote Address -----

Inside Neural Networks

Detlef STREITFERDT

Ilmenau University of Technology, Department of
Computer Science and Automation, Ilmenau,
GERMANY

11:30 - 11:45 Coffee break

11:45 - 12:45 Plenary Session 2

Keynote Address -----

*Predictive Control for Power Converters and Drives -
Concepts, Applications and Trends*

Ralph M. KENNEL

IEEE Senior Member

Department of Electrical Engineering and Information
Technology, Technical University of Munich,
GERMANY

Keynote Address -----

*In-Memory Computing Architectures for Robot Vision
and Computer Vision Applications*

Jorge DIAS

Institute of Systems and Robotics from the University
of Coimbra, PORTUGAL

12:45 - 14:30 Lunch break

Restaurant Vivendi - @RestaurantVivendi

14:30 - 17:30 Technical Session A

16:00 - 16:15 Coffee break

17:30 - 18:00 Technical Session C

19:30 - 23:00 Cocktail Party

Restaurant Vivendi - @RestaurantVivendi

Friday - May 27, 2022

USV, Building E, Aula

09:00 - 11:00 Technical Session B

11:00 - 11:15 Coffee break

11:15 - 15:30 Technical Session D

12:45 - 14:30 Lunch break

Restaurant Vivendi - @RestaurantVivendi

19:30 - 23:00 Official Dinner

Mandachi Hotel & Spa

Thursday - May 26, 2022

USV, Building D, ADH

14:30 - 15:30 Workshop

"About technology & innovation with Orange"

Ioan CONSTANTIN, Cyber Security Expert

***Cristian PATACHIA, Development & Innovation
Manager***

Orange Romania

Thursday - May 26, 2022

Location: USV, Building E, Aula

Technical Session

Section A: Systems, Process Control and Automation

14:30 - 17:30 Section A

Session Co-Chairs

Iulian BIROU

Technical University of Cluj-Napoca, Romania

Cornel TURCU

Stefan cel Mare University of Suceava, Romania

Mihai RATA

Stefan cel Mare University of Suceava, Romania

Paper ID: A28 - 14:30 - 14:45

CPU Execution Time Analysis based on RISC-V ISA

Simulators: A Survey

Nicolai IUGA¹, Ionel ZAGAN^{1,2}, Vasile Gheorghita GAITAN^{1,2}

¹ Faculty of Electrical Engineering and Computer Science, Stefan cel Mare University, Suceava, Romania

² Integrated Center for Research, Development and Innovation in Advanced Materials, Nanotechnologies, and Distributed Systems for Fabrication and Control (MANSiD)

Stefan cel Mare University of Suceava, Romania

Paper ID: A30 - 14:45 - 15:00

Review of thermal performance enhancement of Solar Air Heater using shapes on absorber plate

Visarion-Cătălin IFRIM, Teodor POP

Faculty of Electrical Engineering and Computer Science

Stefan cel Mare University, Suceava, Romania

Paper ID: A31 - 15:00 - 15:15

Review of thermal performance enhancement of Solar Air Heater using baffles on absorber plate

Visarion-Cătălin IFRIM, Oana Vasilica GROSU

Faculty of Electrical Engineering and Computer Science

Stefan cel Mare University, Suceava, Romania

Paper ID: A40 - 15:15 - 15:30

Simulated Test Environment for Low Voltage and Medium Voltage Distribution Cell Monitoring Systems

Radu FECHET, Adrian GRAUR, Marius PRELIPCEANU, Dragos VICOVEANU

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

Paper ID: A45 - 15:30 - 15:45

A Method of Hardware Implementation of Membrane Computing Architectures for Mobile Robot Control

Victor ABABIL, Viorica SUDACEVSCHI, Viorel CARBUNE, Silvia MUNTEANU, Victoria ALEXEI, Victor LASCO

Technical University of Moldova, Chisinau, Republic of Moldova

Paper ID: A48 - 15:45 - 16:00

Harmonics of the Component Formed by Pairs of Alternative Unitary Step, Symmetrical Regarding the Central Step of the PWM Inverter Output Voltage

Virgil MAIER, Sorin G. PAVEL, Horia G. BELEIU, Tudor S. PAVEL

Technical University of Cluj-Napoca, Romania

// Coffee break 16:00 – 16:15

Paper ID: A58 - 16:15 - 16:30

Analysis of Server Solutions Used for Microclimate Surveillance in LV / MV Switchgear Cells

Radu FECHET, Adrian GRAUR, Marius PRELIPCEANU, Dragos VICOVEANU

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

Paper ID: A24 - 16:30 - 16:45

Synthesis of PID Algorithm for Speed Control of the DC Motor

Irina COJUHARI, Ion FIODOROV, Bartolomeu IZVOREANU, Dumitru MORARU

Technical University of Moldova, Chisinau, Republic of Moldova

Paper ID: A25 - 16:45 - 17:00

Low Noise Current Controller Design for Table-level Balance Robot's Joint

Xuanhong LIAO¹, Shaojie SHEN¹, Zexiang LI¹, Lei YU²

¹Department of Electronic and Computer Engineering

Hong Kong University of Science and Technology, China

²School of Information Science and Engineering, Northeastern University, Shenyang, China

Paper ID: A39 - 17:00 - 17:15

*Septic-convolution Kernel - Comparative Analysis of the
Interpolation Error*

Natasa SAVIC¹, Zoran MILIVOJEVIC¹, Bojan PRLINCEVIC²,
Dijana KOSTIC¹

¹ Academy of Applied Technical and Preschool Studies
Niš, Serbia

² Kosovo and Metohija Academy of Applied Studies
Leposavić, Serbia

Paper ID: A54 - 17:15 - 17:30

Design and Development of an Autonomous Robot

Alin Ilie STINGU¹, Mihaela Codruta ANCUTI¹, Cristian
SANDU²

¹ Politehnica University of Timisoara, Romania

² QuadriBot SAS, Rocquencourt, France

Thursday - May 26, 2022

Location: USV, Building E, Aula

Technical Session

Section C: Electronics and Computer Aided Engineering

17:30 - 18:00 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: C12 - 17:30 - 17:45

Improved Single-LED Pulse Oximeter Design Based on Multi-Wavelength Analysis

Cătălin BEGUNI^{1,2}, Alin-Mihai CĂILEAN^{1,2,3}, Sebastian-Andrei AVĂTĂMĂNIȚEI^{1,2}, Mihai DIMIAN^{1,2}

¹ Faculty of Electrical Engineering and Computer Science
Stefan cel Mare University, Suceava, Romania

² Integrated Center for Research, Development and Innovation in
Advanced Materials, Nanotechnologies, and Distributed Systems
for Fabrication and Control (MANSiD)

Stefan cel Mare University of Suceava, Romania

³ Laboratoire d'Ingénierie des Systèmes de Versailles, Paris-Saclay
University, 78140, Vélizy-Villacoublay, France

Paper ID: C17 - 17:45 - 18:00

*Multilevel Power Electronic Systems Adjusted by Algorithms
of Multi-Zone Space-Vector Modulation: A Survey*

Valentin OLESCHUK, Mihai TIRSU, Irina VASILIEV

Institute of Power Engineering of Moldova, Chisinau, Republic of
Moldova

Friday - May 27, 2022

Location: USV, Building E, Aula

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 Iasi, Romania

Alin Dan POTORAC

Stefan cel Mare University of Suceava, Romania

Paper ID: B16 - 09:00 - 09:15

*Improving ModBus Extension performance using PRU unit
from Sitara AM335x*

Cornel VENTUNEAC, Vasile Gheorghita GAITAN, Catalin
LUPU

Stefan cel Mare University of Suceava, Romania

Paper ID: B26 - 09:15 - 09:30

*New Snort rule for detection and prevention of SMTP e-mail
bomb attacks*

Andrei-Daniel TUDOSI, Doru Gabriel BALAN, Alin Dan
POTORAC

Stefan cel Mare University of Suceava, Romania

Paper ID: B34 - 09:30 - 09:45

Secure network architecture based on distributed firewalls

Andrei-Daniel TUDOSI, Doru Gabriel BALAN, Alin Dan POTORAC

Stefan cel Mare University of Suceava, Romania

Paper ID: B36 - 09:45 - 10:00

*Evaluation of a new spectrum sensing technique for
Internet of Things: An AI approach*

Partemie M. MUTESCU¹, Alexandru LAVRIC¹, Adrian I.
PETRARIU^{1,2}, Valentin POPA¹

¹ Stefan cel Mare University of Suceava, Romania

² MintViz Lab, MANSiD Research Center, Stefan cel Mare University
of Suceava, Romania

Paper ID: B37 - 10:00 - 10:15

*Phase Shift Effects Analysis on Radiation Pattern of a Ground
Plane Antenna Array*

Cezar-Ion ADOMNITEI¹, Cezar-Eduard LESANU¹, Adrian DONE¹,
Mihai DIMIAN¹, Iulian CHIUCHISAN¹, Ang YU²

¹ Stefan cel Mare University of Suceava, Romania

² Carolina University, Winston-Salem, United States of America

Paper ID: B38 - 10:15 - 10:30

Long-Wire Directive S-band Antenna

Cezar-Ion ADOMNITEI, Cezar-Eduard LESANU, Adrian DONE
Stefan cel Mare University of Suceava, Romania

Paper ID: B46 - 10:30 - 10:45

*Zero-Trust Cybersecurity Approach for Dynamic 5G Network
Slicing with Network Service Mesh and Segment-Routing over
IPv6*

Bruno DZOGOVIĆ¹, Bernardo SANTOS¹, Ismail HASSAN¹, Boning
FENG¹, Van Thuan DO^{1,2,3}, Niels JACOT²

¹ Oslo Metropolitan University, Oslo, Norway

² Wolffia AS, Oslo, Norway / Oulu, Finland

³ Telenor Research, Telenor ASA, Norway

Paper ID: B50 - 10:45 - 11:00

*Comparative Analysis of The Performance of the Algorithms for
the Filling in the Missing Value that Can Be Used in the
Predictive Maintenance System of the UAVs*

Dragos-Alexandru ANDRIOAIA, Vasile Gheorghita GAITAN
Stefan cel Mare University of Suceava, Romania

// Coffee break 11:00 – 11:15

Friday - May 27, 2022

Location: USV, Building E, Aula

Technical Session

Section D: Software Engineering and Information
Technologies

11:15 - 15:30 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 - 11:15 - 11:30

*Non-bijectionality-based image obfuscation method for deep
learning based medical applications*

Andreea Bianca POPESCU^{1,2}, Cosmin Ioan NITA¹, Ioana Antonia
TACA^{1,2}, Anamaria VIZITIU^{1,2}, Lucian Mihai ITU^{1,2}

¹ Transilvania University of Brasov, Romania

² Siemens SRL, Brasov, Romania

Paper ID: D07 - 11:30 - 11:45

*Towards Education 4.0: Enhancing Traditional Textbooks with
Augmented Reality and Quick Response codes*

Marian-Vlăduț TOMA, Cristina Elena TURCU

Stefan cel Mare of University Suceava, Romania

Paper ID: D08 - 11:45 - 12:00

*Experimental Evaluation of Implicit and Explicit Learning of
Abstract Regularities Following Socio-Emotional Interactions in
Mixed Reality*

Cristian PAMPARĂU¹, Andrei COSTEA², Răzvan JURCHIȘ³,
Radu-Daniel VATAVU¹, Adrian OPRE³

¹ MintViz Lab, MANSiD Research Center, Stefan cel Mare University
of Suceava, Romania

² Romanian Academy, Cluj-Napoca, Romania

³ Babeș-Bolyai University, Cluj-Napoca, Romania

Paper ID: D27 - 12:00 - 12:15

Tendencies in the use of Big Data analytics at a global level

Marius Silviu MĂCIUCĂ, Mirela DANUBIANU, Corina
SIMIONESCU

Stefan cel Mare University of Suceava, Romania

Paper ID: D29 - 12:15 - 12:30

ADLS Gen 2 for web server log data analysis

Elisabeta ZAGAN, Mirela DANUBIANU

Stefan cel Mare University of Suceava, Romania

Paper ID: D32 - 12:30 - 12:45

*Tensor-Based and Projection-Based Methods for Dimensionality
Reduction of Hyperspectral Images*

Laura-Bianca BILIUȘ^{1,2}, Stefan Gheorghe PENTIUC^{1,2}

¹ MintViz Lab, MANSiD Research Center, Stefan cel Mare University
of Suceava, Romania

² Stefan cel Mare University of Suceava, Romania

// Lunch break 12:45 – 14:30

Paper ID: D05 - 14:30 - 14:45

*The delivery of large-scale software products through the
adoption of the SAFe framework*

Cristian FAGARASAN, Ciprian CRISTEA, Maria CRISTEA, Ovidiu
POPA, Cristina MIHELE, Adrian PISLA

Technical University of Cluj-Napoca, Romania

Paper ID: D33 - 14:45 - 15:00

*Development of the fuzzy logic module to determine the
expediency of event selection*

Zakusylo M. TARAS, Volodymyr I. MESYURA

Vynnytsia National Technical University, Ukraine

Paper ID: D35 - 15:00 - 15:15

*Application of the wheel of life balance to time management
software*

Zakusylo M. TARAS, Volodymyr I. MESYURA

Vynnytsia National Technical University, Ukraine

Paper ID: D41 - 15:15 - 15:30

*Section method for monitoring the surface shape
of a radiation spot in real time*

Leonid TYMCHENKO, Natalia KOKRIATSKA, Volodymyr
TVERDOMED, Yurii KUTAEV, Dmytro ZHUK

State University of Infrastructure and Technology. Kyiv, Ukraine

