UNAY14th INTERNATIONAL CONFERENCE

on
ELECTRONICS, COMPUTERS and ARTIFICIAL INTELLIGENCE
ECAI 2022, June 30– July 01, 2022

PROGRAM

hosted by

PETROLEUM-GAS UNİVERSİTY OF PLOİESTİ, Ploiesti, Romania
- Faculty of Mechanical and Electrical Engineering
- Automatic Control, Computers and Electronics Department

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PROGRAM

Wednesday, June 29, 2022

Wednesday, June 29, Participants' arrival

Thursday, June 30, 2022

June 30, 8:00-8:50, conference desk
Registration of the participants

June 30, 9:00-9:40, OFFICIAL OPENING

AP9 Aula**, keynote room**

09:00-09:40 ***Welcome and Opening Addresses***

09:00-09:05 Welcome message of Prof. Nicu BIZON,
Chair of ECAI 2022, UNIVERSITY OF PITESTI

09:05-09:10 Welcome message from Prof. Habil. Florinel DINU
RECTOR of the PETROLEUM-GAS UNIVERSITY OF PLOIEȘTI

09:10-09:15 Welcome message from Prof. Dumitru CHIRLESAN
RECTOR of the UNIVERSITY OF PITEȘTI

09:15-09:20 Welcome message from Prof. Alin DINIȚĂ
DEAN of the Faculty of Mechanical and Electrical Engineering, PETROLEUM-GAS
UNIVERSITY OF PLOIEȘTI

09:20-09:25 Welcome message from Prof. Laurentiu-Mihai IONESCU
DEAN of the Faculty of Electronics, Communications and Computers, UNIVERSITY
OF PITESTI

09:25-09:30 Welcome message from the Romanian IEEE section

09:30-09:35 Welcome message of Takeshi YAMAKAWA,
Honorary Chair of the ECAI conference

09:35-09:40 Welcome message of Partners and Sponsors

Chairs: Nicu BIZON and Nicolae PARASCHIV

09:45-10:25, Phatiphat THOUNTHONG.
Hamiltonian-Energy Modeling and Control of Fuel Cell/Supercapacitor

10:25-11:05, Mihaela GIRTAN.
From Electronics and Photonics Towards Plasmonics and Future Solar Energy Devices

11:05-11:35, Coffee break; Discussions and Brokerage events

11:35-12:15, Jaouhar FATTAHI.
Analysis of cryptographic protocols in theory of witness functions

12:15-13:45, Round Table – AP 10 Room

Shaping the skills of the automation, electrical, and software engineers for the Industry 5.0 and post-COVID era

June 30, 15:30-17:00, ECAI Afternoon sessions
June 30, 17:00-17:30, Coffee break
June 30, 17:30-18:30, Cultural program

June 30, 15:30-17:00, ECAI Afternoon sessions
15:20-15:30 Registration of the participants in the **ECAI Afternoon sessions**

Artificial Intelligence, including Expert systems – I
AP-09 room
Chairs: Gabriel-Vasile Iana and Victor-Emil Neagoe
15:30 - 15:45; *Constantin Viorel Marian, Mihaela Iacob and Dan Alexandru Mitrea* GIS-based integrated system with Interactive Digital Map for archaeological heritage protection
15:45 - 16:00; *Victor-Emil Neagoe and Gabriela-Loredana Ghenea* An Approach of Dempster-Shafer Decision Fusion to Diagnose COVID-19 in Chest X-ray Imagery by Using Controlled Asymmetric Training of the two CNNs Ensemble
16:00 - 16:15; *Raluca Stefania Lungu and Constantin Viorel Marian* Data Collection and Command Mechanism for Management of Network Resources
16:15 - 16:30; *Clara Barbu and David-Traian Iancu* Cat Swarm Optimization for Solving the N-Queens Problem
16:30 - 16:45; *Andrei-Alexandru Tulbure, Adrian Tulbure, Cosmin Covaciu, Ioan Szabo and Eva Dulf* Novel ceramic plate defect detection using YOLO-R
16:45 - 17:00; *Constantin Viorel Marian* Artificial Intelligence-Based Algorithm for Resources Allocation

Signal & image processing	
	A-II-5 room

Chairs: Constantin Paleologu and Dorel Aiordachioaie

15:30 - 15:45; *Daniela Andreea Coman, Silviu Ionita and Ioan Lita*
Using Multiple Frequency Selection at Each Measurement Channel to Analyze Brain Electrical Activity

15:45 - 16:00; *Doru Florin Chiper and Laura Teodora Cotorobai*
An Improved Algorithm for an Efficient VLSI Implementation of Type IV DST using Short Quasi-Band Correlation Structures

16:00 - 16:15; *Mădălina-Giorgiana Murariu, Daniela Tărniceriu, Oana-Diana Hrişcă-Eva and Anca-Mihaela Lazăr*
An Approach to Identifying Different Types of EEG Epileptic Signals Based on Higher-Order Spectra (HOS) Features

16:15 - 16:30; *Marius Ionita and Henri Coanda*
An improved automatic periodic noise removal algorithm for microscopic images

16:30 - 16:45; *Dorel Aiordachioaie*
On Feature Selection from Time-Frequency Images

16:45 - 17:00; *Ionut-Dorinel Ficiu, Camelia Elisei-Iliescu, Cristian Lucian Stanciu, Constantin Paleologu, Jacob Benesty and Cristian Anghel*
An RLS Algorithm for the Identification of Impulse Responses with Particular Symmetric Properties

Modelling, control and optimization methods in engineering	
	B-II-3 room

Chairs: Nicu Bizon and Cristian Patrascioiu

15:30 - 15:45; *Nicu Bizon, Noureddine Takorabet and Phatiphat Thounthong*
Optimization and prediction of hydrogen consumption for a fuel cell stack used as backup energy source in a DC microgrid

15:45 - 16:00; *Pham Dai and Nguyen Hoang Viet*
Real Time Optimization for Operation of Water Distribution Systems to Water Leakage Reduction.

16:00 - 16:15; *Nicu Bizon, Noureddine Takorabet, Phatiphat Thounthong, Elena Carcadea, Maria Simona Raboaca and Ioan-Sorin Sorlei*
Power-following strategy for microgrids based on multiple renewable/fuel cells systems

16:15 - 16:30; *Nicu Bizon, Noureddine Takorabet, Phatiphat Thounthong, Mihai Varlam, Elena Carcadea and Mircea Raceanu*
DC microgrid operation using an energy management strategy based on power following

16:30 - 16:45; *Otilia Elena Dragomir, Florin Dragomir, Valentin Gurgu, Marius Paun, Octavian Duca and Catalin Dragoi*
Multi-agent System for Smart Grids with Produced Energy from Photovoltaic Energy Sources

Software & Computer Applications - I

Chairs: Valeriu Manuel Ionescu, Gabriel Radulescu and Aurel Mihail Titu

15:30 - 15:45; *Mironela Pirnau, Iustin Priescu, Daniela Joita and Catalina Priescu*
The correlation between Internet user searches and Blockchain technology

15:45 - 16:00; *Valeriu Manuel Ionescu and Florentina Magda Enescu*
Using smart devices for fall detection: algorithms, systems and applications

16:00 - 16:15; *Ioan Alexandru Bratosin, Ionel-Bujorel Pavaloiu, Nicolae Goga, Bratu Alina Cristina, Ancuceanu Robert and Oana Maria Basescu*
Computer Kinesiotherapy Movement Simulator

16:15 - 16:30; *Ioan Alexandru Bratosin, Nicolae Goga, Andreea Iuliana Luca, Bujor Pavaloiu and Ioana Podina*
Virtual Reality Application for Acute Pain Therapy - User Experience

16:30 - 16:45; *Dorin Vasile Deac Suteu, Radu Costin Moisescu, Constantin Dorin Olteanu and Aurel Mihail Titu*
Leading the digital transformation of knowledge-based organizations through consumption-based IT service models for data management

16:45 - 17:00; *Constantin Dorin Olteanu, Radu Costin Moisescu, Dorin Vasile Deac Suteu and Aurel Mihail Titu*
Graphic Modeling of the Computer System Management Process within a Public Organization Providing Services to Citizen

17:00 - 17:15; *Sorin Ionuț Conea and Gloria Cerasela Crișan*
Green, air quality monitoring station based on Arduino

Poster session
Technology and Materials Engineering-IWTME'22
Trends and Opportunities in Engineering Career-IWTOEC'22

Chairs: Gabriela Plaiasu and Valentin Alexandru Stan

Gheorghe Vasile and Cosmin Paunescu
Mechanical characterization of composite materials with polymeric matrix

Claudiu Pirnau, Liviu Daniel Ghiculescu, Radu Mircea Carp Ciocardia, Gabriela Parvu and Cornel Enciu
Study regarding the knowledge networks in the educational system

Ovidiu-Constantin Novac, Cornelia-Mihaela Novac, Bogdan Ciora, Cornelia Emilia Gordan, Gordan Ioan Mircea and Gyöngyi Bujdoso
The rise of mobile development: a comparison between Ionic and Flutter

Valentin Calinescu, Mihai Oproescu, Vasile-Gabriel Iana and Valentin Alexandru Stan
Solar Cells - Alternative for Energy Demand

Valentin Calinescu, Mihai Oproescu, Vasile-Gabriel Iana, Ovidiu Constantin Novac and Mihaela Cornelia Novac
Efficiency of Nanostructured Layers Deposited on Solar Cells - hardware system proposal

Valentin Calinescu, Oproescu Mihai, Iana Vasile Gabriel and Valentin Alexandru Stan
Overview on elaboration and characterization of nanostructured oxides for solar cells

Cosmin Paunescu and Gheorghe Vasile
Mechanical characterization of materials for pressure vessel

Mihai Oproescu, Adriana-Gabriela Plaiasu, Vasile-Gabriel Iana, Ionut Bulgaru and Corina Savulescu
Theory or practice - new trends in Engineering Career
Andrei Cosmin Gheorghe, Horia Andrei and Emil Diaconu
Data measurement and modeling method of electrical parameters of basic household equipment

E-session - I
E – session room
Chairs: Octavian Ionescu and Emil Pricop
15:30 - 15:45; *Ionuț-Constantin Guran, Adriana Florescu and Lucian-Andrei Perișoară*   Optimized Slew Rate Control Technique for Automotive Low-Dropout Linear Voltage Regulators Simulation Models
15:45 - 16:00; *Ionuț-Constantin Guran, Adriana Florescu, Lucian-Andrei Perișoară, Alexandru Vasile and Constantin-Daniel Oancea*   Fully Analog Clock Signal Generator for SPICE based simulators
16:00 - 16:15; *Ionuț-Constantin Guran, Adriana Florescu, Lucian-Andrei Perișoară, Mihail Ștefan Teodorescu and Irina Bristena Bacîș*   SPICE Implementation of Digital Counters for Battery Management Systems used in Energy Storage Systems
16:15 - 16:30; *Marius Iulian Mihailescu, Stefania Loredana Nita, Bogdan Laurentiu Asalomia, Marius G Rogobete and Ciprian Racuciu*   Customized Authorization Process for Cloud Computing and IoT using Attribute-Based Encryption
16:30 - 16:45; *Liviu Rujan and Victor-Emil Neagoe*   A Hybrid Sequential Classifier for Hyperspectral Imagery using Deep CNN with Ant Colony Optimization
16:45 - 17:00; *Talya Tümer Sivri, Nergis Pervan Akman and Ali Berkol*   Multiclass Classification Using Arctangent Activation Function and Its Variations
17:00 - 17:15; *Marius Rogobete*   An improvement of the time method for signal approximation. Electrocardiogram case study

June 30, 17:30-18:30,   **Cultural program**
June 30, 18:30-20:30:   **ECAI Welcome Dinner**   *Student Restaurant*

Friday, July 01, 2022

July 01, 09:00-09:30, conference desk
Registration of the participants

9:20-9:30, Registration of the participants in the KEYNOTE–II e-session

July 1, 09:30-11:00, ECAI KEYNOTE LECTURES II,

Chairs: Alin DINITA and Emil PRICOP

09:30-10:10, *Grigore Stamatescu*
Cybersecurity Trends and Challenges in Electrical Power and Energy Systems (EPES)

10:10-10:50, *M. Sabarimalai Manikandan*
Internet of Things: Concepts, Recent Trends and Key Challenges

11:00-11:30, Coffee break; Discussions and Brokerage events

July 01, 11:30-14:00, ECAI morning sessions
July 01, 11:00-11:30 Coffee break
July 01, 14:00-15:30 Lunch
July 01, 15:30-17:00 ECAI afternoon sessions
July 01, 17:00-17:30 Coffee break
July 01, 17:30-18:00 ECAI Closing Solemnity

July 1, 11:30-14:00, ECAI Morning sessions

International Workshop in Systems Safety & Security – IWSSS
AP-09 room
Chairs: Emil Pricop and Grigore Stamatescu
11:30 - 11:45; *Ștefan-Ciprian Arseni, Mihai Togan, Iulian Aciobăniței, Emil Bureacă and Mihai Coca* LTPS - Service for long-term preservation of digital signatures
11:45 - 12:00; *Ioana Apostol, Alexandru-Dan Tica and Victor-Valeriu Patriciu* Design and implementation of a novel hybrid botnet
12:00 - 12:15; *Hoda Mehrpouyan and Ramesh Neupane* An ontology-based framework for formal verification of safety and security properties of control logics
12:15 - 12:30; *Alexandru Gabriel Popa, Loretta Ichim and Dan Popescu* Real-time person detection from UAV images using performant neural networks
12:30 - 12:45; *Julien Lancia* Detecting fault injection vulnerabilities in binaries with symbolic execution

12:45 - 13:00; *Ridha Ghayoula, Jaouhar Fattahi, Amor Smida, Issam El Gmati, Emil Pricop and Marwa Ziadia*	
FPGA Implementation of SIMON-128 Cryptographic Algorithm using Artix-7	
13:00 - 13:15; *Adriana-Meda Udroiu, Mihail Dumitrache and Ionut Sandu*	
Improving the cybersecurity of medical systems by applying the NIST framework	
13:15 - 13:30; *Pavol Sokol, Eva Marková and Kristína Kováčová*	
Detection of relevant digital evidence in the forensic timelines	
13:30 - 13:45; *Mariam Ibrahim and Abdallah Al-Wadi*	
Wastewater Treatment Plant Security Analysis	
13:45 - 14:00; *Adriana-Meda Udroiu, Ionut Sandu and Mihail Dumitrache*	
Open-source tools for the cybersecurity of an integrated information system	

Artificial Intelligence and expert systems - II

AP-10 room

Chairs: Mohammed Elmogy and Sanda Florentina Mihalache

INVITED LECTURE
11:30 - 12:15; *Mohammed Elmogy and Mohammed Sallah*
Recent Topics of Artificial Intelligence in Medical Imaging

12:15 - 12:30; *Madalina Carbureanu, Sanda Florentina Mihalache and Florin Zamfir*
Machine learning methods applied for wastewater pH neutralization process modeling

12:30 - 12:45; *Nameer Baht and Enrique Domínguez*
Detection of Plant Diseases Based on Convolutional Neural Network Approach

12:45 - 13:00; *Doina Banciu and Carmen Elena Cirnu*
AI Ethics and Data Privacy compliance

13:00 - 13:15; *Wisam Mahdi and Necmi Taspinar*
Overview for Parallel Particle Swarm Optimization Algorithms (PPSO)

13:15 - 13:30; *Bharati Ainapure, Pratibha Reddy, Sarika Khope, N. Hulle and Bhargav Appasani*
Student Performance Analysis and Counselling System (SPACS) using Soft Computing by Fuzzy Rule Formation and Decision Making

13:30 - 13:45; *Alexandru-Cosmin Mihai and David-Traian Iancu*
Optimizing a Convolutional Neural Network using Particle Swarm Optimization

Electronic circuits and equipment

A-II 5 room

Chairs: Marian Raducu and Gabriel Radulescu

11:30 - 11:45; Cristian Stancu, Dragoș Dobrescu and Lidia Dobrescu
Offset Voltage Reduction Methods for a Two-Stage Folded Cascode Operational Amplifier

11:45 - 12:00; Onur Kircioglu, Murat Ünlü and Sabri Çamur
The Comparison of Different Modulation Methods for Dual-Active-Bridge

12:00 - 12:15; Grigore-Adrian Iordachescu and Marian Raducu
Low-cost X-Band Microwave Oscillator, Modulator and Detector for Educational Purposes

12:15 - 12:30; Ionelia-Bianca Brezeanu, Cătălin Botezatu, Florin Drăghici and Gheorghe Brezeanu
Improved SPI Controlled, Low-Voltage, High Speed, Multi-Channel Switch

12:30 - 12:45; Aurel Ștefan Pica, Isabela Elena Bănescu, Laura Marcu, Nicoleta Angelescu and Cosmin Panțu
The importance of electronic devices in the medical field in the perception of future specialists

12:45 - 13:00; Dragos-Ioan Sacaleanu, Stefan-George Rosu, Mihai-Gabriel Matache, Irina-Petra Manciu and Lucian-Andrei Perişoară
Wireless actuator node for greenhouse microclimate control
13:00 - 13:15; Bogdan Armaselu and Mădălin Frunzete
Fine tuning in developing of Switching Mode Power Supply
13:15 - 13:30; Aurel Ştefan Pica, Isabela Elena Bănescu and Dan Constantin Puchianu
Energy consumption analysis in the field of residential constructions

Software & Computer Applications - II

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B-II 3 room

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Chairs:Mihaela Girtan and Otilia Cangea

<u>11:30 - 11:45;</u> *Florin Stefan Zamfir and Emil Pricop*
On the design of an interactive automatic Python programming skills assessment system.
<u>11:45 - 12:00;</u> *Cosmina Rosca and Adrian Stancu*
Real-time betting algorithm for tennis matches
<u>12:00 - 12:15;</u> *Cristina Sabina Bosoc, Florentina Magda Enescu, Oana Orza, Eduard Hanganu, Cristina Mihaela Balaceanu and George Suciu*
IoT system using Blockchain in the conservation and promotion of Cultural Heritage
<u>12:15 - 12:30;</u> *Diana-Andreea Arsene, Alexandru Predescu, Ciprian-Octavian Truică, Elena-Simona Apostol, Mariana Mocanu and Costin-Gabriel Chiru*
Consumer profilingusing clustering methodsfor georeferenced decision support in a water distribution system
<u>12:30 - 12:45;</u> *George Cosmin Stanica and Petre Anghelescu*
Research and implementation of a two-dimensional cellular automaton
<u>12:45 - 13:00;</u> *George Cosmin Stanica, Petre Anghelescu, Alin Gheorghita Mazare, Laurentiu Mihai Ionescu and Gheorghe Serban*
Complex electronic system for monitoring, warning and prevention of water stress and pests detection in agricultural crops

Electrical engineering and Energy applications
& Environmental issues

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B-IV-1 room

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Chairs: Horia Andrei and Octavian Ionescu

11:30 - 11:45; Doğan Çelik, Mehmet Emin Meral and Muhammed Waseem
A New Area Towards to Digitalization of Energy Systems: Enables, Challenges and Solutions
11:45 - 12:00; Mihai C. Arva, Cosmin Ivan and Vilcu Andrei
Oxygen control and monitoring system used in the Heavy Liquid Metals (HLM) test facility for the development of Generation IV nuclear reactors
12:00 - 12:15; Florin-Constantin Baiceanu, Cosmin-Florin Acsinte, Ovidiu Ivanov, Ciprian-Mircea Nemes and Bogdan-Constantin Neagu
A Load Shedding Approach for Islanded Operation in Industrial Electrical Systems
12:15 - 12:30; Aurel Ştefan Pica, Isabela Elena Bănescu and Dan Constantin Puchianu
Improving Water Quality Using An Intelligent Electrical Device
12:30 - 12:45; Cristina Popa, Elena-Emilia Oprescu and Marian Popescu
Study of the Influence of Process Parameters on Biomass Gasification using UniSim Design Environment

12:45 - 13:00; Desdemona Isabela Scarisoreanu and Liviu Daniel Ghiculescu	
Identify solutions for stimulating rail freight traffic using the Content Analysis Method	
13:00 - 13:15; Ecaterina Chelaru, Gheorghe Grigoras, Livia Noroc, Bogdan-Constantin Neagu and Ovidiu Ivanov	
An Efficient Integration Strategy of the Prosumers in the Active Electric Distribution Networks	
13:15 - 13:30; Toma Denisa, Nitu Alexandru-Ionut and Bizon Nicu	
Generation IV Nuclear Energy Systems – Alternative Solutions to Carbon Emission Energy Sources	

E-session - II

<div align="right">

E – session room

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Chairs: Hossein Shayeghi and Mihai Oproescu

11:30 - 11:45; *Florentina Magda Enescu, Maria Simona Raboaca, Nicu Bizon and Valeriu Manuel Ionescu*
Management of PV Home Charging Station using Blockchain Technology. Concept, solutions

11:45 - 12:00; *Florentina Magda Enescu, Valeriu Manuel Ionescu, Maria Simona Raboaca and Gheorghe Serban*
Remote access system in the production process in crisis situations and more

12:00 - 12:15; *Hossein Shayeghi, Reza Mohajery, Nicu Bizon, Phatiphat Thounthong and Noureddine Takorabet*
Implementation of PD-PI Controller for Boost Converter Using GWO Algorithm

12:15 - 12:30; *Maria Simona Raboaca, Iuliana Maria Murgasanu, Florentina Magda Enescu, Chaman Verma and Luminita Mirela Constantinescu*
Design and simulation of the milling operation using articulated robots

12:30 - 12:45; *Piyush Pant, Anand Singh Rajawat, S. B. Goyal, Pradeep Bedi, Chaman Verma, Florentina Magda Enescu, Maria Simona Raboaca and Traian Candin Mihaltan*
Blockchain for AI-Enabled Industrial IoT with 5G Network

12:45 - 13:00; *Renjith V. Ravi, S. B. Goyal, Chaman Verma, Maria Simona Raboaca, Florentina Magda Enescu and Traian Candin Mihaltan*
Image Encryption Using Block Chain and Chaos for Secure Communication

13:00 - 13:15; *Abhishek Kumar, Suman Lata Tripathi, Chaman Verma, Maria Simona Raboaca, Florentina Magda Enescu and Traian Candin Mihaltan*
Design and Analysis of Low Power Bio-amplifier with Current Mirror Topology at CMOS 45nm Technology Node

13:15 - 13:30; *Aurel Mihail Titu, Mihai Banica and Alina Bianca Pop*
Statistical Processing of Experimental Data Using Dispersion Analysis to Improve Airbag Strength and Quality

13:30 - 13:45; *Cosmin Ivan and Mihai C. Arva*
Optimizing process parameters using predictive control

13:45 - 14:00; *Radu Costin Moisescu, Constantin Dorin Olteanu, Dorin Vasile Deac Suteu and Aurel Mihail Titu*
Deduplication Data Technologies Impact on the Backup Systems in Intellectual Property Organizations

14:00 - 14:15; *Tiromika Y. Lanerolle, Withanage Tharukshi Hansika Perera, Yohan Diluk Shamin Andrado, W.A.P.C. Wickramasinghe, Pradeepa S. Bandara and Jenny Kishara*
Measuring Psychological Stress Rate Using Social Media Posts Engagement

E-session - III

Chairs: Alexandru Ene and Cristina Popescu

11:30 - 11:45; *Benedict Addo-Yeboa and George Owusu*
Modification of SPWM-Based Controller for Voltage Source Inverter

11:45 - 12:00; *Ruoshan Lei, Dongpeng Yan, Hongjin Wu and Yibing Peng*
A Precise Convolutional Neural Network-based Classification and Pose Prediction Method for PCB Component Quality Control

12:00 - 12:15; *Irina Cristescu, Dragos Daniel Iordache and Cristian Tirlea*
Behavioral intention to use smartwatches: a case study

12:15 - 12:30; *Mohammed Almalchy, Ahmed Salih Al-Khaleefa, Murtadha A. Alazzawi, Ahmed Alshammari, Hayder M. Albehadili and Haider A. Al-Wzwazy*
Cloud Computing Approach for ECG Diagnose Module

12:30 - 12:45; *Cagdas Hisar, Ibrahim Sefa and Necmi Altin*
Sliding Mode Control in Natural Reference Frame for Three-Phase LCL Filtered Active Front-End Converter

12:45 - 13:00; *Lidia Bajenaru, Ion Alexandru Marinescu, Ciprian Dobre, Mihaela Tomescu and Anna Marie Herghelegiu*
Clinically-validated technologies for older adults' quality of life self-management: vINCI ecosystem

13:00 - 13:15; *Alexandru Ene and Cosmin Stirbu*
Java applications for English vocabulary learning

13:15 - 13:30; *Drăgusin Alexandru-Sebastian, Teodorescu Rodica-Mihaela and Stanciu Maria-Elena*
Data acquisition systems with virtual results in audio signals analysis

13:30 - 13:45; *Sarah Harbi, George-Calin Seritan, Bogdan-Adrian Enache and Sorin-Dan Grigorescu*
A Statistical Comparative Study for Detecting Outliers in Electrical Data

July 1, 15:30-17:00, ECAI Afternoon sessions
15:20-15:30 Registration of the participants in the ECAI Afternoon sessions

Control, robotics and mechatronics

Chairs: Marian Popescu and Bogdan-Adrian Enache

15:30 - 15:45; *Bogdan-Adrian Enache, Sorin Dan Grigorescu, Florin Ciprian Argatu, Felix Constantin Adochiei, Irina Vilciu and Teodor-Iulian Voicila*
Energy Evaluation of Bugs vs Birds Path Planning Strategies for Robots

15:45 – 16:00; *Stan Alexandru-Calin*
A decentralised control method for unknown environment exploration using Turtlebot 3 multi-robot system

16:00 - 16:15; *Tudor Catalin Apostolescu, Laurentiu Adrian Cartal, Ioana Udrea, Georgeta Ionascu and Lucian Bogatu*
Command and Control System of a Planar Parallel Robot for PCB Processing Operations

16:15 - 16:30; *Abdul Rahman Nawar, Cristian Patrascioiu and Marian Popescu*
Simulation of the Automatic Control System for Products Quality from a Deethanizer Column

16:30 - 16:45; *Toma Vlad, Gheorghe Olaru, Amado Stefan, Marin Lupoae, Daniel Constantin and Cristian Molder*
Considerations on the kinematics analysis of an EOD robot's manipulator

Communication

A-II-5 room

Chairs: Gabriel Iana and Octavian Ionescu

15:30 - 15:45; *Pica Aurel, Predusca Gabriel, Nicoleta Angelescu, Liana Denisa Circiumarescu and Dan Constantin Puchianu*
Analysis of MPLS technology in the case of virtual networks

15:45 - 16:00; *Andreea-Valentina Militaru, Razvan Gabriel Lazar, Constantin-Florin Caruntu, Ciprian-Romeo Comsa and Ion Bogdan*
Analysis of message flow transmissions for an inter-vehicle communication scenario

16:00 - 16:15; *Fernando Georgel Birleanu and Nicu Bizon*
Quick Analysis of the NIST Lightweight Cryptography Standardization Process Finalists

16:15 - 16:30; *Alin Serban and Madalin Frunzete*
Statistical analysis using machine learning algorithms in traffic control

16:30 - 16:45; *Burak Kürşat Gül and Necmi Taşpınar*
Application of Multi-objective Artificial Bee Colony Algorithm to Spectral and Energy Efficiencies Trade-off in Massive MIMO Systems

16:45 - 17:00; *Cezar-Gabriel Dumitrache, Predusca Gabriel, Gheorghe Gavriloaia, Nicoleta Angelescu, Liana Denisa Circiumarescu and Dan Constantin Puchianu*
Comparative analysis of routing protocols using GNS3, Wireshark and IPerf3

E-session – IV

E – session room

Chairs: Florin Zamfir and Zdzislaw Polkowski

15:30 - 15:45; *Elena-Anca Paraschiv, Cristian-Mihail Petrache and Ovidiu Bica*
On the continuous development of IoT in Big Data Era in the context of Remote Healthcare Monitoring & Artificial Intelligence

15:45 - 16:00; *Cristian Monea*
Software solution for multi-sensor systems

16:00 - 16:15; *Marilena Ianculescu, Dragos Nicolae Nicolau and Adriana Alexandru*
Ensuring the Completeness and Accuracy of Data in a Customizable Remote Health Monitoring System

16:15 - 16:30; *Murtadha Al-Kaabi, Jaleel Al Hasheme, Virgil Dumbrava and Mircea Eremia*
Application of Harris Hawks Optimization (HHO) Based on Five Single Objective Optimal Power Flow

16:30 - 16:45; *Yasmine Elnadi, Tarek Refaat, Ramez Daoud, Hassanein Amer and Nora Ali*
Effects of Supply Chain Volatility on Smart Greenhouses: Balancing Cost & System Availability

16:45 - 17:00; *Zdzislaw Polkowski, Jyoti Prakash Mishra and Sambit Kumar Mishra*
A novel approach on transformation and analysis of data linked to distributed databases: A case study

July 01, 18:00-20:00:
ECAI Gala Dinner

Saturday, July 02, 2022
9:00-17:00, ECAI trip
Departure at 9.00, July 02, from Hall (conference desk).
Arrival will be at about 17.00, July 02.

Participants' departure

Sunday, July 03 2022
End of ECAI conference actions

Visiting suggestions & sightseeing in Ploiesti city:

The Clock Museum - The Clock Museum in Ploiesti is unique in the museum network of Romania and is one of the few of its kind in Europe. Clock Museum has a collection of historic timepieces owned by several famous Romanians, including King Carol I, and an 18th-century rococo Austrian clock that belonged to Wallachian prince Alexandru Ioan Cuza.
Address: Ploiesti, Str. Nicolae Simache, 1

The Oil Museum - unique in Romania, Ploiesti. This museum highlights the important role of oil in the economic development of both the city and the country, especially in the 19th century when Romania was a petroleum pioneer.
Address: Ploiesti, Str. Dr. Bagdasar, 8

The **Museum of History and Archaeology** he Museum of History and Archeology is hosted by an imposing edifice, architectural and historical monument, former secondary boys school St. Peter and Paul, whose foundation was poured on May 31, 1865. The permanent exhibition includes he permanent exhibition were opened: the coins collection, the medals collection, the room dedicated to the writer I.A. Bassarabescu and the Lapidarium. In 1997 the museum was enriched with the hall "Mihai Viteazul si Ploiestii"- on the occasion of the anniversary of 400 years of documentary attestation of Ploiesti, the "Sport in Prahova county along the centuries" hall and a hall with archeological vestiges from Tragsor Reservation.
Address: Ploiesti, Str. Toma Caragiu, 10

The Art Museum Ploiesti has its origins in the Picture Gallery of Ploiesti City, set up in November 1931 as a result of the consistent efforts of an influential group of intellectuals in Ploiesti. The museum houses paintings by N. Tonitza, N. Grigorescu, S. Luchian, T. Pallady famous Romanian painters of the nineteenth century and the twentieth century and is structured on different collections: paintings, graphics, sculpture and decorative art.
Address: Independentei Blvd., 1, Ploiești

The I.L. Caragiale Museum present the image of the largest Romanian playwright, whose works have been translated and interpreted in countries like France, Japan, Spain, Italy and Belgium and is located in Ploiesti.
Address: Kutuzov Street, 1, Ploiesti

The Memorial Museum Nichita Stanescu presents "Nichita phenomenon" in the space where he was born, grew up and was educated as a man and as a poet. The exhibit include the writer opera published during his lifetime, awards that have recognized his value as a national poet (Prize for the youngest poet – Struga 1965, Grad Prix "Golden Wreath" - Struga 1982), uniquee manuscripts and documents, photographs and various personal items that complete Nichita image as a man and poet.
Address: Ploiești, Str. Nichita Stănescu, nr. 1

ECAI 2022, June 30 – July 01, 2022, Timetable and Program

Date	Time	Session or activity	Location
June 30	8:00-8:50	**Authors Registration**	Desk Hall
	9:00-9:40	**ECAI Opening Ceremony**	AP 09 Aula
	9:40-11:05	**ECAI KEYNOTE LECTURES I (part I)**	AP 09 Aula
	11:05-11:35	**Coffee break & Brokerage events**	Poster Hall
	11:35-12:15	**ECAI KEYNOTE LECTURES I (part II)**	AP 09 Aula
	12:15-13.45	**Round table -** *Shaping the skills of the automation, electrical, and software engineers for the Industry 5.0 and post-COVID era*	AP-10 room
	12:15-14.00	**Brokerage events**	Poster Hall
	14:00-15.30	**Lunch**	Student Restaurant
	15:30-17:00	**ECAI Afternoon sessions**	
		Artificial Intelligence and expert systems - I	AP-09 room
		Signal & image processing	A-II-5 room
		Modelling, control and optimization methods in engineering-MCOME'22	B-II-3 room
		Software & Computer Applications - I	B-IV-1 room
		Poster session I IWTME'22, IWTOEC'22	Poster Hall
		E-session - I	E – session room
	17:00-17:30	**Coffee break & Brokerage events**	Coffee break hall
	17:30-18:30	**Cultural program**	Desk information
	18.30-20.30	**ECAI Welcome dinner**	Student Restaurant
July 01	9:00-9:30	**Authors Registration**	Desk Hall
	9:30-11:00	**ECAI KEYNOTE LECTURES II**	AP 09 Aula
	11:00-11:30	**Coffee Break & Brokerage events**	Coffee break hall
	11:30-14:00	**ECAI morning sessions**	
		10th International Workshop on Systems Safety & Security – IWSSS 2022	AP-09 room
		Artificial Intelligence and expert systems - II	AP-10 room
		Electronic circuits and equipment	A-II-5 room
		Software & Computer Applications - II	B-II-3 room
		Electrical engineering applications & Energy & Environmental issues	B-IV-1 room
		E-session - II	E – session room
		E-session - III	E – session room
	14:00-15:30	**Lunch**	Student Restaurant
	15:30-17:00	**ECAI Afternoon sessions**	
		Control, robotics and mechatronics	AP-09 room
		Communication	A-II-5 room
		E-session - IV	E – session room
	17:00-17:30	**Coffee Break& Brokerage events**	Coffee break hall
	17:30-18:00	**ECAI Closing Solemnity**	AP-09 room
	18:00-20:00	**ECAI Gala Dinner**	Gala Diner Restaurant
	20:00-23:00	**Free time (shopping & sightseeing)**	
July 02	9:00 – 17:00	**ECAI Trip**	Departure at 9.00, June 30, from Hall; Arrival will be at about 17.00.
July 03		**Participants' departure**	

International Workshop in Systems Safety & Security – IWSSS; International Workshop on Technology and Materials Engineering-IWTME'22, International Workshop on Trends and Opportunities in Engineering Career-IWTOEC'22

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PAPERS PUBLISHING

The papers will be published in the ECAI proceedings, indexed in IEEE Xplore® and submitted to ISI Web of Knowledge databases. The selected papers will be sent to the appropriate IEEE IAS journals (up to 10%) and MDPI journals for publishing, after those papers will be further reviewed as normal.

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