

## 2022 23rd International CARPATHIAN CONTROL CONFERENCE (ICCC)

### Technical Program for Tuesday May 31, 2022

<b>10:00 - 11:00</b>		
<b>Plenary Lecture 3</b>		Virtual Room 1
Chair: Dan Selîsteanu		University of Craiova
<i>A structural perspective on resilience of uncertain switching network topologies</i>		
Elena ZATTONI		University of Bologna
<b>11:30 – 14:00 Session 3A</b>		Virtual Room 1
<b>Theory and Application of Control Systems 1</b>		
Chair: Renata Wagnerová		Technical University of Ostrava
Co-Chair: Eva Miklovicová		Slovak University of Technology in Bratislava
11:30 - 11:50		
<i>PI Control Applied to a Small-Scale Thermal System with Heating and Cooling Sources</i>		
Lucas Guimarães Rocha		CEFET-MG
Lucas Daniel de Melo Borges		CEFET-MG
William Rodrigues Silva		CEFET-MG
Karine Cunha Costa Mariquito		CEFET-MG
Murillo Ferreira dos Santos		CEFET-MG
Paolo Mercorelli		Leuphana University of Lüneburg
11:50 - 12:10		
<i>Design and Implementation of Adaptive NMPC in industrial applications: case study</i>		
Stepan Ozana		VSB-Technical University of Ostrava
Filip Krupa		VSB-Technical University of Ostrava
Jakub Nemcik		VSB-Technical University of Ostrava
Gergely Takacs		Slovak University of Technology in Bratislava
Jakub Mozaryn		Warsaw University of Technology
Petr Beremlijski		VSB-Technical University of Ostrava
Abhaya Singh		University of Sannio
Aleksandra Kawala-Sterniuk		Opole University of Technology
12:10 - 12:30		
<i>Delayed State-Feedback Fuzzy Control for Nonlinear Fractional Order Systems: An LMI Approach</i>		
Parvin Mahmoudabadi		K. N. Toosi University of Technology
Mahsan Tavakoli-Kakhki		K. N. Toosi University of Technology
Roohallah Azarmi		Eindhoven University of Technology
12:30 - 12:50		
<i>Comparison of Canonical Forms for Model Predictive Control</i>		
Pavel Celovsky		Technical University of Ostrava
Renata Wagnerová		Technical University of Ostrava
12:50 - 13:10		
<i>Optimal State Estimation for the Artificial Pancreas</i>		
Martin Dodek		Slovak University of Technology in Bratislava
Eva Miklovicová		Slovak University of Technology in Bratislava
13:10 - 13:30		
<i>Multivariable Control of Helicopter Laboratory Model</i>		
Tomas Pawlenka		VSB - Technical University of Ostrava
Jaromir Skuta		VSB - Technical University of Ostrava
13:30 - 13:45		
<i>Robotic Plug-in of CCS Type 2 Connector</i>		
Josef Cernohorsky		Technical University of Liberec
Lukáš Krčmář		Technical University of Liberec
Pavel Jandura		Technical University of Liberec
13:45 - 14:00		
<i>Application of motion control in rehabilitation devices</i>		

Josef Cernohorsky  
Martin Diblik  
Aleš Richter

Technical University of Liberec  
Technical University of Liberec  
Technical University of Liberec

**11:30 – 13:50 Session 3B**

Virtual Room 2

**Artificial Intelligence and Multimedia Applications 1**

**Chair:** Stella Hrehova  
**Co-Chair:** Mihai Mocanu

Technical University in Kosice  
University of Craiova

11:30 - 11:50

*Segmentation of Different Human Organs on 3D Computer Tomography and Magnetic Resonance Imaging using a 3D U-Net Framework*

Didi-Liliana Popa  
Radu-Teodoru Popa  
Lucian-Florentin Bărbulescu  
Renato Ivănescu  
Mihai Mocanu

University of Craiova  
University of Craiova  
University of Craiova  
University of Craiova  
University of Craiova

11:50 - 12:10

*A Study Regarding Deep Q-Learning Algorithm for Creating Intelligent Characters in Graphic Engine*

Ionut Cristian Resceanu  
Robert Vlad Iacob  
Virginia Rădulescu  
Ştefan-Irinel Cismaru  
Florina Petcu  
Cristina Pană  
Andrei Trăsculescu

University of Craiova  
University of Craiova

12:10 - 12:30

*Possibilities of user interface design with the involvement of machine learning elements using Matlab*

Stella Hrehova  
Darina Matisková

Technical University in Kosice  
Technical University in Kosice

12:30 - 12:50

*Novel automatic traffic sign classification system using a semi-supervised approach*

Cătălina Pupezescu  
Valentin Pupezescu

University POLITEHNICA of Bucharest  
University POLITEHNICA of Bucharest

12:50 - 13:10

*Algorithm for image processing using a frequency separation method*

Virginia Rădulescu  
Camelia Maican

University of Craiova  
University of Craiova

13:10 - 13:30

*Study on the Feature Extraction of the Automatic Blood Type Reading System*

Ranxin Shen  
Jiayi Wen  
Peiyi Zhu

Changshu Institute of Technology  
Yancheng Institute of Technology  
Changshu Institute of Technology

13:30 - 13:50

*Analysis of SaaS Architectures from a Trust Service Provider Perspective*

Marius Marian  
Eugen Ganea  
Dan Popescu  
Florin Stîngă  
Adelin Cusman  
Dragoş Ionică

University of Craiova  
University of Craiova  
University of Craiova  
University of Craiova  
Centrul de Calcul S.A., Romania  
Centrul de Calcul S.A., Romania

**11:30 – 13:50 Session 3C**

Virtual Room 3

**Measurement, Sensors, Monitoring and Diagnostic Systems 1**

**Chair:** István Bodnár  
**Co-Chair:** Nicolae Pătrășcoiu

University of Miskolc  
University of Petrosani

11:30 - 11:50		
<i>Monitoring and diagnostics of photovoltaic cells by electroluminescence</i>		
Dávid Matusz-Kalász István Bodnár	University of Miskolc University of Miskolc	
11:50 - 12:10		
<i>A Measurement Method for Determining Speed of High-Speed Rotating Parts</i>		
Zsófia Forgács Attila Trohák	University of Miskolc University of Miskolc	
12:10 - 12:30		
<i>Development of Solar Panel Diagnostic System</i>		
István Bodnár Gábor Kozsely	University of Miskolc University of Miskolc	
12:30 - 12:50		
<i>Determination of Solar Panel's Characteristics by Flash Testing</i>		
Dávid Matusz-Kalász Róbert Lipták István Bodnár Gábor Kozsely	University of Miskolc University of Miskolc University of Miskolc University of Miskolc	
12:50 - 13:10		
<i>Fault detection based on system feedback</i>		
Camelia Maican Virginia Rădulescu	University of Craiova University of Craiova	
13:10 - 13:30		
<i>Temperature monitoring system in an industrial facility using NI myRIO equipment and I2C sensors</i>		
Nicolae Pătrășcoiu Cosmin Rus Nicoleta Negru	University of Petrosani University of Petrosani University of Petrosani	
13:30 - 13:50		
<i>Using NLP to analyze requirements for Agriculture 4.0 applications</i>		
Jakub Jura Matouš Cejnek Pavel Trnka	Czech Technical University in Prague Czech Technical University in Prague Czech Technical University in Prague	
<b>14:30 – 16:30 Session 4A</b>		Virtual Room 1
<b>Theory and Application of Control Systems 2</b>		
Chair: Silvia Maria Zanoli Co-Chair: Marian Barbu	Università Politecnica delle Marche Dunarea de Jos University of Galati	
14:30 - 14:50		
<i>On the stability models for the surge tanks in hydraulic plants</i>		
Daniela Danciu Dan Popescu Vladimir Răsvan	University of Craiova University of Craiova University of Craiova	
14:50 - 15:10		
<i>Multi-optimization approach for PID control on Drone roll-pitch orientation</i>		
Orlando Arrieta Daniel Campos José David Rojas Marian Barbu Ramon Vilanova	Universidad de Costa Rica Universidad de Costa Rica Universidad de Costa Rica Dunarea de Jos University of Galati Universitat Autònoma de Barcelona	
15:10 - 15:30		
<i>Robust control of continuous casting process for various technological conditions</i>		
Sohaibullah Zarghoon Lukáš Bartalský Cyril Belavý	Slovak University of Technology Slovak University of Technology Slovak University of Technology	
15:30 - 15:50		
<i>Power Supply Control and Adaptation System for Plasma Discharge Equipment</i>		

15:50 - 16:10

*Model Predictive Control for Hydroelectric Power Plant Reservoirs*

Silvia Maria Zanol  
Crescenzo Pepe  
Giacomo Astolfi  
Francesco Luzi

Università Politecnica delle Marche  
Università Politecnica delle Marche  
Alperia Bartucci srl  
Alperia Bartucci srl

16:10 - 16:30

*Interval State Estimation of Switched Systems with Metzler-Takagi-Sugeno Models*

Dusan Krokavec  
Anna Filasova

Technical University of Kosice  
Technical University of Kosice

14:30 – 16:30 Session 4B

Virtual Room 2

**Artificial Intelligence and Multimedia Applications 2**

**Chair:** Sándor Tihamér Brassai  
**Co-Chair:** László Czap

Sapientia Hungarian University of Transylvania  
University of Miskolc

14:30 - 14:50

*DC Motor Control Based on Integral Reinforcement Learning*

Gheorghe Bujgai  
Dorin Sendrescu

University of Craiova  
University of Craiova

14:50 - 15:10

*Machine Learning Applied in Speech Science*

Reka Trencsenyi  
László Czap

University of Debrecen  
University of Miskolc

15:10 - 15:30

*Distributed Deep Learning Model for Predicting the Risk of Diabetes, Trained on Imbalanced Dataset*

Mădălin Mămuleanu  
Anca Albița  
Cosmin Ionete  
Dan Selișteanu

University of Craiova  
University of Craiova  
University of Craiova  
University of Craiova

15:30 - 15:50

*Classifying Mechanical Vibrations using Artificial Neural Networks and Quantum Angle Encoding*

Mihai-Bébe Simion  
Dan Selișteanu  
Dorin Sendrescu

University of Craiova  
University of Craiova  
University of Craiova

15:50 - 16:10

*Artificial Intelligence Approach in Predicting Biomass-to-Biofuels Conversion Performances*

Carmen Mateescu  
Emil Tudor  
Andreea-Daniela Dima  
Ionel Chiriță  
Vladimir Tanasiev  
Tudor Prisecaru

National Institute for Research and Development in Electrical Engineering ICPE-CA  
National Institute for Research and Development in Electrical Engineering ICPE-CA  
University Politehnica of Bucharest  
National Institute for Research and Development in Electrical Engineering ICPE-CA  
University Politehnica of Bucharest  
University Politehnica of Bucharest

16:10 - 16:30

*Framework for Neural Network Hardware Implementation*

Sándor Tihamér Brassai  
Attila Hammas  
Balázs Bustya

Sapientia Hungarian University of Transylvania  
Sapientia Hungarian University of Transylvania  
Sapientia Hungarian University of Transylvania

14:30 – 16:30 Session 4C

Virtual Room 3

**Measurement, Sensors, Monitoring and Diagnostic Systems 2**

**Chair:** Ciprian Lupu  
**Co-Chair:** Florina Ungureanu

University Politehnica of Bucharest  
Technical University of Iasi

14:30 - 14:50

*TestBench Configurator: A Tool for Control and Measurements via Online Interface*

Floris-Diana Vornicu  
Florina Ungureanu

Technical University of Iasi  
Technical University of Iasi

14:50 - 15:10

*Analysis and Modeling of Steel Billets Temperature in a Reheating Process*

Silvia Maria Zanolí  
Crescenzo Pepe  
Giacomo Astolfi  
Elena Moscoloni

Univ. Politecnica delle Marche  
Univ. Politecnica delle Marche  
Alperia Bartucci SRL  
Alperia Bartucci SRL

15:10 - 15:30

*Long term measurement with PMS7003*

Marton Kiss  
Mária Judit Pintér  
Attila Trohák  
Laura Veres

University of Miskolc  
University of Miskolc  
University of Miskolc  
University of Miskolc

15:30 - 15:50

*Cost Effective System for Determining the Weight Distribution Correlated with the Stepping Phase for Lower Limb Prostheses*

Ionel Cristian Vladu  
Florin Manta  
Cristina Pană  
Stefan Cismaru  
Andrei Trăsculescu  
Dorian Cojocaru

University of Craiova  
University of Craiova

15:50 - 16:10

*Performance Analysis of V2V and V2I Channels for Autonomous Smart Car*

Lich Luu  
Ciprian Lupu  
Hamid Alshareefi  
Mircea Lupu

University Politehnica of Bucharest  
University Politehnica of Bucharest  
University Politehnica of Bucharest  
Transilvania University of Brasov

16:10 - 16:30

*Precompliance Testing using Software Defined Radio*

Dániel Erdősy  
Tamás Bodolai  
István Bodnár

University of Miskolc  
University of Miskolc  
University of Miskolc

**16:30-17:00**

**Closing Ceremony**

**Chair:** Dan Popescu  
**Co-Chairs:** József Vásárhelyi  
Renata Wagnerová  
Agata Nawrocka  
Marek Laciak

Virtual Room 1  
University of Craiova  
University of Miskolc  
Technical University of Ostrava  
AGH- University of Science and Technology, Krakow  
Technical University of Kosice