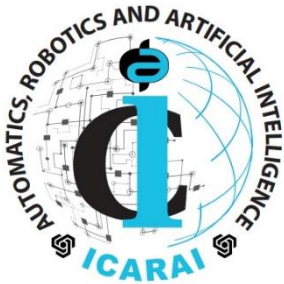


“DAYS OF SCIENCE OF TECHNICAL UNIVERSITY OF SOFIA”



**INTERNATIONAL CONFERENCE
AUTOMATICS, ROBOTICS & ARTIFICIAL INTELLIGENCE
ICARAI 2024**

PROGRAMME

June 14 – 16, 2024, Sozopol, Bulgaria

ORGANIZED BY



TECHNICAL UNIVERSITY OF SOFIA

FACULTY OF AUTOMATICS

WITH THE SUPPORT OF

RESEARCH AND DEVELOPMENT SECTOR OF THE TECHNICAL UNIVERSITY OF SOFIA

14 June 2024 Friday		
13:30 ÷ 15:45	REGISTRATION	HOTEL LOBBY
16:00 ÷ 16:25	OPENING CEREMONY	HALL 1
16:30 ÷ 17:20	PLENARY SESSION	HALL 1
17:30	WELCOME PARTY	COFFEE - BAR
15 June 2024 Saturday		
9:00 ÷ 17:45	SESSIONS	HALL 1
19:30	COCKTAIL- PARTY	
16 June 2024 Sunday		
DEPARTURE		

14 JUNE 2024 (Friday)

16:00 ÷ 16:25 OPENING CEREMONY

Prof. Ivan Kralov – Rector TU- Sofia

Assoc. Prof. Nikolay Nikolov – Research and Development sector of the Technical university of Sofia

Assoc. Prof. Tsonyo Slavov – ICARAI PC Co-chair and Dean of FA

Prof. Valeri Mladenov - ICARAI PC Co-chair

16:30 ÷ 17:30 PLENARY SESSION

Chairman: Assoc. Prof. Tsonyo Slavov

Technical support: Assist. Prof. Aleksandar Marinchev

P.P	Petko H. Petkov, Probability Estimates in Matrix Analysis	in-person
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15 JUNE 2024 (Saturday)

9:00 ÷ 10:15

SESSION 1 “APPLICATION OF ARTIFICIAL INTELLIGENCE & CONTROL SYSTEMS ENGINEERING”

Chairman: Assoc. Prof. Teofana Puleva

Technical support: Assist. Prof. Aleksandar Marinchev

S1.1	Ivan Evg. Ivanov, Alexander Hotmar, Martin Minkov, Vesselin E. Gueorguiev and Desislava V. Georgieva, Distributed RTOS microkernel for multicore ARM-based control systems	hybrid
S1.2	Vesselin E. Gueorguiev, Desislava V. Georgieva and Ivan Evg. Ivanov, Digital Entities and the Concept of Social Life in a New Generation of Social Meeting Platforms	hybrid
S1.3	Adriano Gomes, Rodrigo Pascoal, Daniel Canedo, Ant´onio J. R. Neves, Petia Georgieva, Archaeological site detection on remote-sensed images using U-net	hybrid
S1.4	Iveta Grigorova , Aleksandar Efremov, Aleksandar Karamfilov, Angel Marchev Jr and Hristo Panov, Architecture and Cold-Start Hypotheses Behind a Decentralized Finance Lending Protocol	hybrid
S1.5	A Mitov, Ts Slavov and J Krlev, Comparison of advanced multivariable control techniques for axial-piston pump	hybrid

10:15 ÷ 10:45 - COFFEE BREAK

10:45 ÷ 12:30

SESSION 2 “CONTROL SYSTEMS ENGINEERING”

Chairman: Assoc. Prof. Tsonyo Slavov

Technical support: Assist. Prof. Aleksandar Marinchev

S2.1	Asparuh Markovski, Robust PID control of a two-rotor aerodynamical system with decoupling	in-person
S2.2	Emil Nikolov, Nina Nikolova, Vessela Karlova-Sergieva and Boris Grasiani, Comparative Analysis of Controllers Based on Integer and on Fractional Order Operators in Control System of a Robot-Manipulator FANUC M-430iA/4FH	in-person
S2.3	Kamen Perv, Feedback control for plants with time delay	in-person
S2.4	Vessela Karlova-Sergieva, Nina Nikolova, Boris Grasiani and Georgi Stefanov, Phase Root Locus - Application in Internal Model Control Systems	in-person
S2.5	Georgi Ruzhekov, Coupled Tanks Level Control Based on Volume Balance Method	in-person
S2.6	Tsonyo N. Slavov, Jordan K. Krlev and Petko H. Petkov, The Two-Wheeled Robot: Experimental Evaluation of Two Controllers	in-person

12:30 ÷ 14:00 - LUNCH BREAK

14:00 ÷ 14:45**SESSION 3 “ELECTRICAL DRIVES AND MACHINE AUTOMATION & INDUSTRIAL ENGINEERING AND AUTOMATION”****Chairman: Assoc. Prof. Vladimir Hristov****Technical support: Assist. Prof. Ivan Chekurov**

S3.1	Kamen Hristov, Gathering information for the external parameters of Permanent Magnet Synchronous Motor using Hall sensors and applying linear interpolation	in-person
S3.2	T.Pavlov, J.Ostrev, A.Marinchev and V.Galabov, Algorithm for payment with POS terminals in real time	in-person
S3.3	Vladimir Hristov, Ivan Chekurov, Laboratory set-up for the research of roller conveyors for logistics warehouses	in-person

14:45 ÷ 15:45**SESSION 4 “APPLICATION OF ARTIFICIAL INTELLIGENCE & ROBOTICS SYSTEMS”****Chairman: Assoc. Prof. Stanislav Enev****Technical support: Assist. Prof. Ivan Chekurov**

S4.1	Angel Marchev, Jr. and Boyan Lomev, Forecasting of the Event-driven Processes Using LSTM Network in the Context of Time of Arrival of On-demand City Transport	in-person
S4.2	Stanislav Enev, Direct and inverse kinematics solutions of a particular type of 3-PSP parallel manipulator	in-person
S4.3	Aykut Ismailov, Vladimir Hristov, Brochure segmentation methodology	in-person
S4.4	Danail Slavov , Anastasiya Slavova and Vladimir Hristov, Research on Computer Vision Models for Deep Learning in Autonomous Mobile Robots	in-person

15:45 ÷ 16:15 - COFFEE BREAK**16:15 ÷ 17:45****SESSION 5 “THEORETICAL ELECTRICAL ENGINEERING & INFORMATION AND MEASUREMENT TECHNOLOGY”****Chairman: Prof. Valeri Mladenov****Technical support: Assist. Prof. Ivan Chekurov**

S5.1	S. Filipova-Petrakieva, Working modes of a transformer	in-person
S5.2	V. M. Mladenov, S. M. Kirilov, A simple memristor model for memory crossbars	in-person
S5.3	S. M. Kirilov, Octave Memristor Models' Library and Application for Analysis of Memristors and Memristor-Based Circuits	in-person
S5.4	Ilona Iatcheva, Denitsa Darzhanova and Nikolina Petkova, Electric field in a conductive medium – modelling and application	in-person
S5.5	Zhivko Georgiev, Ivan Trushev and Atanas Chervenkov, Discrete Analysis of Electrical Circuit with Sources of Rectangular Pulses	in-person
S5.6	Peyu Pasev, Nikolina Petkova and Valeri Mladenov, Overview of the Management of Micro Grids with Renewable Energy Sources	in-person
S5.7	Georgi Tsenov, Solving active power false readings problem for air high voltage lines with MATLAB model simulations	in-person
S5.8	Neven Kanchev, Nikolay Stoyanov, Georgi Milushev, Prediction of the natural gas compressibility factor by using artificial neural network	in-person