11th-2025 International Conference on Control, Decision and Information Technologies

CoDIT 2025

July 15-18, 2025 - Split, Croatia

IEEE Advancing Technology for Humanity

IFAC INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL

UNIVERSITAS STUDIORUM ZAGRABIENSIS MDCLXIX

University of Zagreb Faculty of Electrical Engineering and Computing

LISIER LR16ES03

IEEE SMC Systems, Man, and Cybernetics Society

IEEE Control Systems Society

orange

HUAWEI

Welcome Message

It is with great pleasure that we welcome all the participants of the 11th Conference on Control, Decision and Information Technologies (CoDIT 2025) at the Radisson Blu Resort & Spa Hotel in beautiful Split, Croatia, July 15-18, 2025.

CoDIT is now an affirmed conference in the field of Control, Optimization, Decision, Computer Science and Information Technologies. From its first edition in 2013 in Tunisia, CoDIT has gained an increasing international importance and recognition. CoDIT received over 800 submissions, resulting in the organization of 79 technical sessions and 2 workshops. The conference is further enriched by four plenary talks delivered by internationally renowned researchers and experts.

As part of this edition of CoDIT, the IEEE/IFAC Women in Engineering (WiE) activities will highlight the contributions of women in control and decision technologies. The session will promote visibility, mentoring, and collaboration within the scientific community.

This year the conference features also a cultural event with agala dinner, which will be held on Thursday 17 July 2025 by the outdoor pool of the Radisson Blu Resort & Spa Hotel.

The conference is organized under the technical sponsorship of the IEEE Control Systems Society, the IEEE Systems, Man, and Cybernetics Society, the IEEE Robotics and Automation Society, and the International Federation of Automatic Control (IFAC) with the great support of the Faculty of Electrical Engineering and Computing - University of Zagrab.

Finally, an event of this size and importance could not be organized without the strong commitment of all the members of the organizing committee together with support and help of many volunteers.

On behalf of the Organizing Committee

General co-chairs

Stjepan Bogdan, University of Zagreb, Croatia
Carla Seatzu, University of Cagliari, Italy
James H. Lambert, University of Virginia, USA
Achraf Jabeur Telmoudi, University of Tunis, Tunisia

CoDIT 2025 Committees

General co-Chairs

Stjepan Bogdan, University of Zagreb, Croatia
Carla Seatzu, University of Cagliari, Italy
James H. Lambert, University of Virginia, USA
Achraf Jabeur Telmoudi, University of Tunis, Tunisia

Program co-Chairs

Maria Pia Fanti, Polytechnic University of Bari, Italy
Dimitri Lefebvre, Université Le Havre Normandie, France
Zhiwu Li, Xidian University, China
Bahram Shafai, ECE Northeastern University, USA

Advisory committee co-Chairs

Giancarlo Fortino, University of Calabria, Italy
Dimos Dimarogonas, KTH Royal Institute of Technology, Sweden
Mariagrazia Dotoli, Polytechnic University of Bari, Italy
Bozenna Pasik-Duncan, University of Kansas, USA
Jian-Qiao Sun, University of California, USA
Enrique Herrera Viedma, University of Granada, Spain
Farouk Yalaoui, Université de Technologie de Troyes, France
MengChu Zhou, New Jersey Institute of Technology, USA

Publication Chair

Claudia Califano, Italy
Meyer Dagmar, Germany
Medjaher Kamal, France

Special Sessions co-Chairs

Lionel Amodeo, France
Naoufel Cheikhrouhou, Switzerland
Marko Rosic, Croatia

Women's Activities co-Chairs

Mariagrazia Dotoli, Italy
Bozenna Pasik-Duncan, USA

Education Activities co-Chairs

Damiano Varagnolo, Norway
Ramalatha Marimuthu, India

Work in Progress co-Chairs

Giuseppe Franzè, Italy
Yassine Ouazene, France
Jyotindra Narayan, UK

Industry co-Chairs

Sébastien Martin, France
Nhan-Quy Nguyen, France

Steering Committee

Owen Casha, Malta – Nizar Bouguila, Canada – Maria Pia Fanti, Italy – Alessandro Giua, Italy – Nicholas Karampetakis, Greece – Zhiwu Li, China – Belkacem Ould-Bouamama, France – Bozenna Pasik-Duncan, USA (Chair) – Alain Quilliot, France – Achraf J. Telmoudi, Tunisia (Chair) – Enrique H. Viedma, Spain.

Venue and Practical Information

CONFERENCE LOCATION

The conference will be held in **Hotel Radisson Blu Resort & Spa, Split**. Overlooking the Adriatic Sea with the ritzy islands of Hvar and Brac directly in front of us, the hotel puts you at the heart of Dalmatia. Situated **only 3 kilometres from the city centre**, this hotel sits in scenic surroundings on a white pebble beach that runs along the aquamarine waters of the Adriatic Sea.

CONFERENCE REGISTRATION AND SCHEDULE DETAILS

Registration will open on 15th July at 07:15, with sessions starting at 08:00. Coffee breaks and lunches will be provided at the conference venue. A detailed program schedule is available here:

https://www.codit2025.org/CoDIT2025-Program.pdf

GALA DINNER

This year's conference includes a cultural event with a **gala dinner**, scheduled for **Thursday, 17 July 2025**, at **8:00 PM**, by the **outdoor pool of the Radisson Blu Resort & Spa Hotel**.

The evening will offer opportunities for networking and a moment of conviviality in an exceptional setting.

How to get to the Radisson Blu Resort & Spa

From Split Airport

By taxi: Located 22km from the airport, the hotel is only a half-hour taxi ride away. You can contact your hotel to arrange a pick up.

From Željeznički kolodvor Split Train Station

By taxi: Located only 3km from the station, the hotel is less than a ten-minute taxi ride away.

From the Ferry Port of Split

By taxi: Located only 3km from the ferry port, the hotel is only a ten-minute taxi ride away.
Uber is available in Split.

CoDIT 2025 Program

Tuesday - July 15, 2025							Wednesday - July 16, 2025						
Registration (7:15 - 18:20)	(8:00 - 10:00) P-Sessions 1					Orange & Huawei OPEN Workshop (8:00 - 12:00)	(8:00 - 10:00) P-Sessions 5					IEEE & IFAC WIE Activities (8:00 - 12:50)	
	P-01	P-02	P-03	P-04	P-05		P-21	P-22	P-23	P-24	P-25		
	(10:00 - 10:20) Coffee break						(10:00 - 10:20) Coffee break						
	(10:20 - 11:20) Opening Ceremony & Keynote 1						(10:20 - 11:10) Keynote 3						
	(11:20 - 13:00) P-Sessions 2						(11:10 - 12:50) P-Sessions 6						
	P-06	P-07	P-08	P-09	P-10		P-26	P-27	P-28	P-29	P-30		
	(12:30 - 14:00) Lunch						(12:30 - 14:00) Lunch						
	(14:00 - 16:20) P- Sessions 3					IFAC Education Workshop (14:00 - 18:20)	(14:00- 16:00) P- Sessions 7						
	P-11	P-12	P-13	P-14	P-15		P-31	P-32	P-33	P-34	P-35	P-36	
	(16:00 - 16:50) Keynote 2						(16:00 - 16:50) Keynote 4						
	(16:50- 17:05) Coffee break						(16:50 - 17:05) Coffee break						
	(17:05 - 18:35) P-Sessions 4						(17:05 - 18:35) P-Sessions 4						
	P-16	P-16	P-16	P-16	P-16		P-37	P-38	P-39	P-40	P-41	P-42	

Thursday - July 17, 2025					Friday - July 18, 2025				
(8:00 - 10:00) P-Sessions 9					(8:00 - 10:00) P&V-Sessions 14				
P-43	P-44	P-45	P-46		P-51	P-52	V-16	V-17	
(10:00 - 10:20) Coffee break					(10:00 - 10:20) Coffee break				
(10:20 - 12:00) P-Sessions 10					(10:20 -12:20) V-Sessions 15				
S-47	S-48	S-49	S-50		V-18	V-19	V-20	V-21	V-22
(12:00 -14:00) V-Sessions 11					(12:20 -14:20) V-Sessions 17				
V-01	V-02	V-03	V-04	V-05	V-23	V-24	V-25	V-26	V-27
(14:00 -16:00) V-Sessions 12									
V-06	V-07	V-08	V-09	V-10					
(16:00 - 18:00) V-Sessions 14									
V-11	V-12	V-13	V-14	V-15					
Free time									
(20:00 - 22:30) Gala dinner									

(1) The schedule follows Central European Summer Time (CEST) - GMT + 2 hours.

(2) Accepted file formats for presentations are PDF and PPT

(3) PRESENTATIONS - DURATION

- **Keynote:** The duration of each presentation is of 40 minutes plus 10 minutes for questions.
- **Oral presentation:** The max duration of each presentation is of 13 minutes plus 4 minutes for questions

Keynotes

KEYNOTE 1

(July 15, 2025 / 10:30-11:20)

"Patents an incentive in advancing technology and securing Europe competitive edge"

Dr. Abderrahim Moumen

Operational Director, Directorate Advanced Mobile and intelligent Networks

European Patent Office

Chair: James H. Lambert, University of Virginia, USA **Room:** Ballroom

Abstract

Europe is home to one of the most advanced and harmonized patent systems in the world. The European Patent Office (EPO), through the European Patent (EP) system, offers centralized examination and granting procedures across up to 39 contracting states, reducing administrative burdens and ensuring broad protection. The recent implementation of the Unitary Patent and the Unified Patent Court (UPC) marks a historic leap forward. This new framework simplifies patent litigation under a single jurisdiction, significantly lowering legal complexity and costs—particularly benefiting startups, SMEs, and research institutions seeking reliable and enforceable IP protection across Europe.

This keynote will provide an overview of the European patent landscape, with a particular focus on the transformative impact of the Unitary Patent system. It will highlight the EPO's ongoing initiatives to enhance accessibility and strategic value for SMEs, startups, and universities—such as support for deep tech innovation, access to comprehensive prior art, advanced patent classification, and the use of patents as tools for technology intelligence.

Finally, the talk will spotlight emerging technological trends—such as artificial intelligence, clean energy, quantum technologies, and biotechnology—drawing on insights from the EPO's 2024 Patent Index. These trends reflect not only where innovation is headed, but where Europe's future influence can and must be secured.

Biography of Dr. Abderrahim Moumen

Dr. Abderrahim Moumen is Operational Director at the European Patent Office (EPO), where he leads the Directorate for Advanced Mobile and Intelligent Networks. With a Ph.D. in Telecommunications from Delft University, he joined the EPO in 2000 as a patent examiner, gaining deep expertise over 17 years. Since becoming director in 2020, he has overseen departments covering multimedia technologies, wireless communications, radar/lidar, and traffic control systems. He co-chairs the EPO's AI and Emerging Technologies Task Force and contributes to strategic initiatives on standards and innovation. His interests include AI, IoT, 5G, quantum computing, and smart antennas. Passionate about sustainability, he served on the jury for the EPO's CodeFest and helped reinforce cooperation with EU institutions, particularly the European Innovation Council and EISMEA, strengthening the EPO's role in the global innovation ecosystem.

KEYNOTE 2

(July 15, 2025 / 16:00-16:50)

"About Trustworthy Artificial Intelligence"

Prof. Enrique Herrera Viedma

University of Granada, Spain

Chair: Bahram Shafai, ECE Northeastern University, USA **Room:** Ballroom

Abstract

Trustworthy Artificial Intelligence (AI) is based on seven technical requirements sustained over three main pillars that should be met throughout the system's entire life cycle: it should be (1) lawful, (2) ethical, and (3) robust, both from a technical and a social perspective. However, attaining truly trustworthy AI concerns a wider vision that comprises the trustworthiness of all processes and actors that are part of the system's life cycle, and considers previous aspects from different lenses. A more holistic vision contemplates four essential axes: the global principles for ethical use and development of AI systems, a philosophical take on AI ethics, a risk-based approach to AI regulation, and the mentioned pillars and requirements. The seven requirements (human agency and oversight; robustness and safety; privacy and data governance; transparency; diversity, non-discrimination and fairness; societal and environmental wellbeing; and accountability) are analyzed from a triple perspective: *What* each requirement for trustworthy AI is, *Why* it is needed, and *How* each requirement can be implemented in practice. On the other hand, a practical approach to implement trustworthy AI systems allows defining the concept of *responsibility* of AI systems facing the law, through a given auditing process. Therefore, a responsible AI system is the resulting notion we introduce in this work, and a concept of utmost necessity that can be realized through auditing processes, subject to the challenges posed by the use of regulatory sandboxes. Our multidisciplinary vision of trustworthy AI also includes a regulation debate, with the purpose of serving as a entry point to this crucial field in the present and future progress of our society

Biography of Prof. Enrique Herrera-Viedma

Enrique Herrera-Viedma is Professor of the Dept. of Computer Science and Artificial Intelligence at the University of Granada (UGR) and he is currently serving as Vice-Rector for Research and Knowledge Transfer at the UGR. He is Fellow IEEE and Fellow IFSA and Doctor Honoris Causa by Oradea University.

He was Vice-President (VP) for Publications in IEEE System Man and Cybernetics Society and now he is VP for Cybernetics, one of the founders of the IEEE Trans. in Artificial Intelligence, and Highly Cited Researcher by Clarivate Analytics in Computer Science and Engineering in 2014-2023. He has published more than 350 papers in JCR journals, his h-index is 121 in Google Scholar (>65000 citations) and 92 in WoS (>35000 citations). In 2013 he published in the prestigious journal SCIENCE about the new role of digital libraries in the era of the information society. He is a member of the panel of experts of the national project evaluation agencies in Portugal, Switzerland, France, and Kazastan; and Member of the European Committee of Experts for the evaluation of strategic information infrastructure projects in Europe (ESFRI- European Strategy Forum on Research Infrastructures), since November 2017. He has also been guest lecturer in plenary lectures and tutorials in multiple national and international conferences related to Artificial Intelligence such as: 4th Int. Workshop on Preferences and Decisions, 2003, Trento (Italy); Modeling Decision for Artificial Intelligence. 2004, Barcelona (Spain); AGOP 2005, Lugano; 4th EUSFLAT & 11th LFA Conference, Barcelona, 2005; Third Int. Workshop of Artificial Intelligence ; ESTYLF 2010, Huelva; ; Int. IEEE Intelligent Systems 2014, Poland; IEEE SMC 2014; EUSFLAT 2017, Poland; SOMET 2017, Japan; PIC 2018, Nanjing, China; BAFI 2018, Chile; IPMU 2018, Cadiz. He .is Associated Editor in several AI journals like IEEE TFS, IEEE ITS, IEEE TSMC-Syst, Knosys, ASOC, Fuzzy Opt. and Decision Making, Information Sciences, Soft Computing.

KEYNOTE 3

(July 16, 2025 / 10:10-11:10)

"Optimization and control for the planning and management of energy communities and smart grids"

Prof. Michela Robba

University of Genova, Italy

Chair: Bozenna Pasik-Duncan, University of Kansas, USA **Room:** Ballroom

Abstract

The green and digital transitions at the EU level are now gaining interest all over the world and require an interdisciplinary and intersectoral approach in the fields of green technologies for energy production, storage and distribution, transversal needs (economics, regulation, environment), and smart systems like data management and security, machine learning, automation, simulation, and optimization.

To reduce greenhouse gas emissions, energy scenarios have been extensively changed due to the diffusion of distributed generation systems, renewables, prosumers and in general different actors in the energy market. New Energy Management Systems (EMSs) based on simulation and optimization models are necessary to manage local prosumers (and to integrate them in the energy market and the electrical grid) and to face difficulties due to the presence of intermittent and distributed renewable energy resources and loads.

The talk will discuss the role of optimization, control and smart systems in general for the management of power and energy systems.

Attention is first devoted to Energy Communities (ECs), which are gaining momentum across Europe as a key instrument for advancing the clean energy transition. Specifically, after a definition of EC, centralized and decentralized approaches will be presented for the optimal management of single and multiple ECs in order to maximize incentives and coordinate different participants.

Then, it will be discussed how ECs can be integrated in sustainable energy districts andsmart city networks such as smart grids and transportation. Specifically, recent approaches for the optimal management of polygeneration microgrids and interconnected energy networks will be presented.

The effectiveness of the presented approacheswill be shown through several examples, real applications and pilot facilities.

Biography of Prof. Michela Robba

Prof. Michela Robba is Associate Professor of Systems Engineering at the University of Genoa. Her research focuses on optimization and control of smart grids, electric vehicles, renewable energy, and natural resource management. She is President of the Liguria Region Energy Consortium and serves on the scientific board of the Italian Energy Technological Cluster. She is Senior Editor for *IEEE Transactions on Automation Science and Engineering* and Associate Editor for several top journals. Active in the IFAC community, she chairs the Technical Committee on Power and Energy Systems. She teaches multiple energy and systems-related courses and has authored over 150 scientific publications. Her work is widely cited and available on:

https://scholar.google.it/citations?user=baTT1PwAAAAJ&hl=it

KEYNOTE 4

(July 16, 2025 / 10:10-11:10)

"Stability-Constrained Voltage Control in Distribution Grids"

Prof. Jorge Cortes

University of California, San Diego, USA

Chair: Carla Seatzu, University of Cagliari, Italy **Room:** Ballroom

Abstract

Motivated by the deployment of distributed energy resources (DERs) in power distribution grids, this talk presents a data-driven framework to design Volt/Var controllers capable of steering a power distribution network towards efficient network configurations. Our approach employs machine learning techniques to learn local surrogates that map voltages and reactive powers to ideal reactive power setpoints approximating solutions to the optimal reactive power flow problem. Equipped with these, we propose control update schemes and identify conditions on the surrogates and control parameters that guarantee that the resulting reactive power point globally asymptotically converges. For decentralized control, where controllers only have access to local measurements, we show the key role played by the monotonicity of the surrogates in ensuring asymptotically stability. We extend this idea to the case where the controllers can take advantage of an arbitrary communication infrastructure on top of the physical network. This allows the controllers to incorporate information beyond their local bus, covering the decentralized control case as a special case, and leading to less conservative constraints on the controller design. We train neural networks so that, by design, they meet the conditions on surrogates and illustrate the performance of the resulting control scheme. Our simulations show that the proposed framework guarantees voltage stability while significantly reducing the operation cost, and highlight the role of communication in improving control performance.

Biography of Prof. Jorge Cortes

Jorge Cortes is a Professor and Cymer Corporation Endowed Chair in High Performance Dynamic Systems Modeling and Control in the Department of Mechanical and Aerospace Engineering, University of California, San Diego. He is the author of "Geometric, Control and Numerical Aspects of Nonholonomic Systems" (New York: Springer-Verlag, 2002) and co-author of "Distributed Control of Robotic Networks" (Princeton: Princeton University Press, 2009). He is a Fellow of IEEE, SIAM, and IFAC. He has co-authored papers that have won the 2008 and the 2021 IEEE Control Systems Outstanding Paper Award, the 2009 SIAM Review SIGEST selection from the SIAM Journal on Control and Optimization, the 2012 O. Hugo Schuck Best Paper Award in the Theory category, and the 2019 and 2023 IEEE Transactions on Control of Network Systems Outstanding Paper Award. At the IEEE Control Systems Society, he has been a Distinguished Lecturer (2010-2014), an elected member (2018-2020) of the Board of Governors, and Director of Operations (2019-2022) of its Executive Committee. His research interests include distributed control and optimization, network science and complex systems, resource-aware control and coordination, distributed decision making and autonomy, network neuroscience, and multi-agent coordination in robotic, power, and transportation networks. url: http://terrano.ucsd.edu/jorge

Sessions Titles - Papers ID/Session

Day, Time, TS			Code	Title	Papers ID	Room
Tuesday -July 15, 2025	(8:00-10:00)	P-Sessions 1	P-01	Applied Optimization	494-125-79-325-304-515-500	Ballroom
			P-02	Artificial Intelligence with Applications	247-509-456-25-203-593-585	Oleandar
			P-03	Control Applications	134-121-63-214-506-20-209	Ružmarin
			P-04	Advanced Control Systems	156-291-511-107-333-526-677	Palma
			P-05	Cloud Computing and Wireless Communications	451-233-257-557-70-459	Kaktus
	8:00-13:00	Orange & Huawei OPEN Workshop		Worshop on"Optimization Problems RElated to Network-OPEN CoDIT Workshop"	541-479-480-523-623-471-467-475	Agava
	11:20-13:00	P-Sessions 2	P-06	Theoretical Control Approaches	316-637-191-270-586-114 (v)	Kaktus
			P-07	Optimization in Engineering	228-502-430-143-283-332	Oleandar
			P-08	Embedded Systems	489-532-602-238-419-179	Ružmarin
			P-09	Special Session on "Nonlinear Control Strategies for Robotic Systems"	296-373-442-275-331-248	Palma
			P-10	Fault Detection and Supervision	599-349-534-404-215-102	Ballroom
	14:20-16:20	P-Sessions 3	P-11	Advances in Artificial Intelligence and Intelligent Systems	269-155-445-510-329-110-82	Ballroom
			P-12	Control Theory	400-168-642-172-141-552-213	Oleandar
			P-13	Discrete Event Systems	242-279-607-160-421-554-51	Ružmarin
			P-14	Robotics (Part 1)	244-529-508-572-274-105-514	Palma
			P-15	Special Session on "Technology Education Mentorship"	324-565-633-382-375-376-139	Kaktus
	16:40-18:20	P-Sessions 4	P-16	Forecasting Tools	136-588-194-222-207-229	Kaktus
			P-17	Optimization, Control, and Data-Driven Approaches in Engineering Systems	395-627-165-170-76 - 129 - 142	Oleandar
			P-18	Machine Interaction	322-282-272-604-472-259	Ružmarin
			P-19	Special Session on "Stochastic Systems, Control, Optimization, and Applications"	124-130-151-581-78-94	Palma
			P-20	Scheduling and Optimization	488-74-198-358-52-146	Ballroom

Day, Time, TS			Code	Title	Papers ID	Room
Wednesday-July 16, 2025	(8:00-10:00)	P-Sessions 5	P-21	Image Processing	232-664-367-378-9-597-154	Ballroom
			P-22	Nonlinear Systems Control	530-372-591-174-111-374	Oleandar
			P-23	Learning Systems	219-138-87-216-320-190-453	Ružmarin
			P-24	Neural Networks Applications	592-186-645-579-354-241-556	Palma
			P-25	Control Design Methods	305-64-337-294-629-97	Kaktus
	11:10-12:50	P-Sessions 6	P-26	Intelligent Control	150-422-281-334-380-106	Ballroom
			P-27	Special Session on "Decision making for sustainable transportation systems"	486-359-522-632-630-287	Oleandar
			P-28	Energy Control with Applications	224-328-570-504-227-225	Ružmarin
			P-29	Special Session on "Resilience of Complex Systems to Environmental and Other Stressors"	131-176-206-185-187-321	Palma
			P-30	Predictive Control	343-338-439-311-507-396	Kaktus
	14:00-16:00	P-Sessions 7	P-31	Special Session on "OptiQ – from (nonlinear) optics to quantum computing, simulation, visualization and image processing: on Earth and in space"	251-253-256-286-218-245	Agava
			P-32	Optimal Control (Part 1)	452-313-317-300-449-545	Oleandar
			P-33	Linear Systems Control	389-189-335-605-11-563-665	Ružmarin
			P-34	Graphs and Networks	234-433-340-157-123-582-200	Ballroom
			P-35	Artificial Intelligence	444-392-482-72-235-628-261	Kaktus
			P-36	Intelligent Systems Applications	446-615-474-659-276-624-345	Palma
	17:10-18:50	P-Sessions 8	P-37	Special Session on "Fuel cell and water electrolyzer, control, diagnosis and prognostic"	167-327-434-457-495-612	Agava
			P-38	Robotics (Part 2)	301-561-611-271-668-658-217	Oleandar
			P-39	Supply Chain and Operational Research Applications	99-152-490-635-54-98	Ružmarin
			P-40	Special Session on "Decentralized control and decision-making"	166-180-344-383-360	Ballroom
			P-41	Special Session on "Enhancing Urban Evacuation and Resilience through Intelligent Transport Systems and Emerging Technologies"	290-310-336-75-89-188	Kaktus
			P-42	Process Control	447-161-468-162-450-144	Palma

Day, Time, TS			Code	Title	Papers ID	Room
Thursday - July 17, 2025	8:00 - 10:00	P-Sessions 9	P-43	Game Theory with Applications	513 - 562 - 425 - 346 - 424 - 226	Oleandar
			P-44	Special Session on "Artificial Intelligence Trends for Healthcare Optimization: Metaheuristics, Machine Learning and IoT"	237 - 478 - 553 - 648 - 429 - 431	Ružmarin
			P-45	Optimal Control (Part 2)	323 - 420 - 77 - 661 - 57 - 465	Kaktus
			P-46	Special Session on "Applied AI for Emerging Autonomous Systems: Innovations and Challenges"	145 - 243 - 352 - 339 - 458 – 555 - 330	Palma
	10:20 - 12:00	P-Sessions 10	P-47	Special Session on"Applied AI for Emerging Autonomous Systems "	231-559-491-662-614-560-393	Oleandar
			P-48	Sensors with Applications	361 - 159 - 564 - 639 - 255 - 273 - 109	Ružmarin
			P-49	Signal Processing	365 - 464 - 103 - 91 - 158 - 590	Kaktus
			P-50	Transport Optimization	262 - 484 - 302 - 386 - 521 - 230 - 137	Palma
	12:00 -14:00	V-Sessions 11	V-01	Applied and Multi-Objective Optimization	578-580-643-164-288-104-616	Virtual
			V-02	Artificial Intelligence for Forecasting	520-640-550-178-435	Virtual
			V-03	Control Applications in Engineering	518-303-583-428-347-210-278	Virtual
			V-04	Special Session on"Emerging theories, tools and methodologies for cybersecurity and digital forensics"	197-398-43-443-46-47-48	Virtual
			V-05	Advanced Control Applications	297-426-622-56-67-68-149	Virtual
	14:00 -16:00	V-Sessions 12	V-06	Control Design Methods	683-362-388-573-587-533-535	Virtual
			V-07	Artificial Intelligence	679-660-293-193-544-423-647	Virtual
			V-08	Graphs and Networks	411-538-298-83-153-173-621	Virtual
			V-09	Control Theory	663-182-566-678-558-574-569	Virtual
			V-10	Monitoring and Supervision	524-601-414-407-589-381	Virtual
	16:00 -18:00	V-Sessions 13	V-11	Electronic System Design and Wireless Communications	221-469-641-65-408-120-220	Virtual
			V-12	Special Session on "AI and Intelligent Transportation Systems: Innovations and Challenges"	485 - 341 - 342 - 636 - 483	Virtual
			V-13	Image and information Processing	595-409-116-169-496	Virtual
			V-14	Smart System Applications	368-441-351-385-115-364-401	Virtual
			V-15	Learning Systems in Engineering	285-397-673-223-549-175-267	Virtual

Day, Time, TS			Code	Title	Papers ID	Room
Friday - July 18, 2025	8:00 - 10:00	P&V-Sessions 14	P-51	System Identification	517 - 676 - 384 - 448 - 603	Oleandar
			P-52	Special Session on "Artificial Intelligence-based models and methods for smart logistics, manufacturing and healthcare"	260 - 503 - 92 - 307 - 308 - 309 - 363	Ružmarin
			V-16	Special Session on"OptiQ – from (nonlinear) optics to quantum computing, simulation, visualization and image processing: on Earth and in space"	249-264-292-512-93	Virtual & Kaktus
			V-17	Special Session on"Recent Advances in Explainable AI (XAI) for Smart Systems"	551-236-366-644-638 - 675	Virtual & Palma
	10:20 - 12:20	V-Sessions 15	V-18	Optimization and Operational Research	519-184-132-610-568-454-163	Virtual
			V-19	Applied Optimal Control	406-315-211-432-477-377	Virtual
			V-20	Robotics Control Applications	427-473-108-135-499-413-671	Virtual
			V-21	Scheduling Optimization	493-674-501-355-492-95-577	Virtual
			V-22	Smart Systems and Technologies	199-96-528-171-531-516-356	Virtual
	12:20 - 14:20	V-Sessions 16	V-23	Neural Networks Applications	205-126-133-606-415-548-649	Virtual
			V-24	Optimal Control Applications	387-90-263-440-266-646-481	Virtual
			V-25	Identification and Control Systems	268-417-284-619-498-416-631	Virtual
			V-26	Systems Engineering and Control	394-547-212-81-140-80 -113	Virtual
			V-27	Special Session on"Shaping the Future Through Serious Games, Gamification, and AI-Driven Innovation Across Domains"	112-117-118-119-536-537	Virtual

WORKSHOPS & IEEE-IFAC WiE ACTIVITIES

As part of CoDIT 2025, two innovative workshops and a special IEEE/IFAC Women in Engineering (WiE) event will be organized. These activities aim to introduce interactive formats, foster academic exchange, and strengthen collaboration within the CoDIT community.

Workshop 1 – OPEN CoDIT Workshop
"Optimization Problems Related to Networks"
Tuesday - July 15, 2025 (8:00 - 12:00)

Workshop Co-Chairs:

- **Dr. Amal Benhamiche**, Orange, France
- **Dr. Sébastien Martin**, Huawei Technologies Co., France
- **Dr. Nancy Perrot**, Orange, France

Supported by **Orange France** and **Huawei Technologies Co.**, this workshop is based on paper submissions and will be hosted at **Orange Gardens** (46 Av. de la République, 92320 Châtillon, Paris, France).
The event will also be **broadcast live in Split, Croatia**, the main CoDIT conference venue.

Workshop 2 – CoDIT Education Workshop
"Controlling the Classroom and Deciding Teaching Practices with Information Technologies"
Tuesday - July 15, 2025 (14:20 - 18:20)

Organizer: Dr. Damiano Varagnolo, Norwegian University of Science and Technology (NTNU), Norway
Sponsored by **IFAC Technical Committee 9.4 – Control Education**, this workshop explores how control, decision, and information technologies can address key challenges in education. It offers a **hands-on format** with **four interactive one-hour sessions**, each focusing on a specific teaching challenge.
This workshop will take place **in Split** with **both in-person and virtual participation** options.

IEEE/IFAC Women in Engineering (WiE) Activities
Wednesday - July 16, 2025 (8:00 - 12:50)

Organizers:

- **Prof. Mariagrazia Dotoli**, Polytechnic University of Bari, Italy
- **Prof. Bozenna Pasik-Duncan**, University of Kansas, USA

This event will highlight women's contributions in control and decision technologies, fostering networking, mentoring, and collaborative opportunities.

Papers / Session & Sessions chairs

SESSION P-01: Applied Optimization

SESSION CHAIR(S): Edison Pignaton de Freitas & Ghofran Massaoudi

Paper ID	Title	Authors
494	Reinforcement Learning for Optimization of Collision Avoidance in Multiple Autonomous Aerial Robots Systems	Marcos Rodrigues Vizzotto*, Guilherme Kohl, Carlos Eduardo Pereira, Edison Pignaton de Freitas (Brazil)
125	Integrating Machine Learning and Evolutionary Algorithms for Optimized Scheduling and Routing in Home Healthcare Logistics	Zayd Elbassri,Khalil Bouramtane*, Said Kharraja,OMAR EL BEQQALI,Jamal Riffi (France)
79	Parametric Modeling and Structural Optimization of Mechanical Components: Ensuring Assembly Compatibility and Minimizing Failure Risks	Can Ulas Dogruer*, BORA YILDIRIM (Turkey)
325	Stratified p-Center Problem with Capacity Constraints and Failure Foresight	Antonin Carpentier*, Laure Brisoux Devendeville, Corinne Lucet, Rui Sá Shibasaki, Sami Cherif (France)
304	Mixed Integer Linear and Constraint Programming for Dual-Resource Scheduling with Synchronization in Emergency Departments	Jessica Florencia*, Lorraine Trilling, Thierry Moyaux, Ikram Lafnoune, Andrea Mantoan, Ludovica Maria Pomilio, Guillaume Bouleux, Vincent Cheutet (France)
500	Study about a Multi-Start Metaheuristic Approach for the SALB3PM	Thiago Giachetto de Araujo*, Matthieu Py, Laurent Deroussi, Nathalie Grangeon (France)
515	A Hybrid Evolutionary and Machine Learning Approach for Priority-Based Ambulance Routing	Anouar Hadded*, Takwa Tlili, Issam NOUAOURI, Saoussen Krichen (Tunisia)

SESSION P-02: Artificial Intelligence with Applications

SESSION CHAIR(S): Nurcan Alkis Bayhan & Konstantinos Liagkouras

Paper ID	Title	Authors
247	ANF-Based Satisfiability for Weil-Descent Cryptographic Attacks	Anthony Blomme*, Sami Cherif, Sorina Ionica, Gilles Dequen (France)
509	A Lightweight Deep Learning Approach for Lithium-Ion Battery RUL Estimation	Lorenzo Longarini*, Mariorosario Prist, Alessandro Freddi, Andrea Monteriù, Alessandro Rongoni, Andrea Bonci, Paolo Cicconi, Geremia Pompei (Italy)
456	Evaluating ChatGPT's User Interface Using Nielsen's Heuristics	Esra OZMEN, Nurcan ALKIS BAYHAN* (Turkey)
25	Using Fuzzy-Mapped Decoding Method for ECOC Algorithm to Classify Diabetes	Ying Bai*, Dali Wang (USA)
203	Machine Learning and RBF Interpolation on Nanofluid Flow in a Rounded Corner Cavity	Merve Gurbuz-Caldag*, Bengisen Pekmen (Turkey)
593	A Fuzzy Decision Support System to Optimize Irrigation Practices in Trentino Region	Romeo Silvestri*, Massimo Vecchio, Fabio Antonelli (Italy)
585	5G-Enabled Temperature Sensor Fusion & Federated Learning for Optimal Operation of EV Charging Points and Fault Prevention	Alexios Karadimos*, Christos Stefanatos, Evanthia Sismanoglou, Vaggelis Marinakis (Greece)

SESSION P-03: Control Applications

SESSION CHAIR(S): Ying Bai & Tamara Nestorovic

Paper ID	Title	Authors
134	Autopilot Design for Agile Initial Pitch-Over Maneuver Using Schmitt-Trigger	Ju-Hyeon Hong*, Gwanyoung Moon (Korea, South)
121	Supervised Learning Meets Active Noise Control: A Modeling Approach to Feedforward Disturbance Rejection	Ilja Faktorovich*, Christian Bohn (Germany)
63	Integral Sliding Mode Control Design for Inverted Pendulum System Actuated by a Step Motor	Hiep Dai Le, Tamara Nestorovic* (Germany)
214	Research on Improved Single-Neuron Adaptive PID Control Algorithm in Plasma Discharge System	Hao Li*, Fan Lei (China)
506	Cooperative Aerial-Ground Vehicle Rendezvous with Integrated Obstacle Avoidance	Ghewa Masry*, David Vieira, Rodolfo Orjuela, Thomas Meurer, Michel Basset (France)

20	Simulation-Driven ADCS for Sun-Pointing 1U Nano-Satellite: Design and Comprehensive Analysis	Atif Mahmood*, Ayman Muhammad, Ghulam Gulam Mustafa Abro (Saudi Arabia)
209	Indirect Torque Control of Synchronous Machines Via Feedback Linearization	Zoltán Téczely*, Dávid Somogyi (Hungary)

SESSION P-04: Advanced Control Systems

SESSION CHAIR(S): Laurent Dewasme & Atif Mahmood

Paper ID	Title	Authors
156	Cooperative Hoisting with Dual Crawler Cranes under Motion Constraints	Chenhao Cui*, Alessandro Giua, Alessandro Pisano (Italy)
291	Dengue Epidemic Spread: Modeling and Optimal Containment Strategies	Paolo Di Giamberardino*,Daniela Iacoviello (Italy)
511	Distributed Lane Selection in Autonomous Platoon Coordination	Marc Facerias, Vicenç Puig*, Alexandru Stancu (Spain)
107	Model Predictive Control of Viral Amplification Process: Numerical and Experimental Investigation	Laurent Dewasme*, Guillaume Jeanne, Lydia Saint Cristau, Alain Vande Wouwer (Belgium)
333	AI-Driven Classification of Bisphosphonate-Related Osteonecrosis of the Jaw (BRONJ) for Enhanced Clinical Management	Anita Petreska*, Blagoj Ristevski, Mirjana Markovska Arsovska, Nikola Rendevski (Serbia)
526	Control-Informed Neural Network for Controller Selection	Daniel Fenyes*, Tamas Hegedus, Peter Gaspar (Hungary)
677	Anti-Windup Design for Fixed-Tilt Hexarotor in Aerial Physical Interaction	Dharani Jayanna*, Davide Invernizzi, Daniele Migliore, Simone Panza, Marco Lovera (Italy)

SESSION P-05: Cloud Computing and Wireless Communications

SESSION CHAIR(S): Owen Casha & Emanuele De Santis

Paper ID	Title	Authors
451	Toward Explainable AI in Smart Permaculture: Design of theXCropSys Framework for Crop Recommendation	MOHAMED EL BAKKARI*, Mohammad Choaib, Mourad Bounefa, Nicolas Waldhoff, Nabila Rabbah, Abdelwahed Touati (France)
233	Characterization of PCB Fabrication Processes for a Systematic and Efficient Design of Microstrip Circuits	Owen Casha* (Malta)
257	Adaptive Pruning Method of Digital PreDistortion Models Based on DLA Algorithm for LTE/5G Applications	Zixiao YANG*, Smail BACHIR, Claude Duvanaud, Jean-Marc Ouvrard, Thomas Gambier (France)
557	Data-Driven Image Resolution and Uplink Power Control for Mobile Augmented Reality Applications	Andrea Wrona*, Danilo Menegatti, Andrea Tortorelli (Italy)
70	Frame Generation in the Web Browser for Alternative Object Angles	Victor Vlad*, Sabin Corneliu Buraga (Romania)
459	Control-Over-The-Air (COTA) for Automotive Comfort Functions	Martin Sommer*, Luca Seidel, Eric Sax (Germany)

Orange & Huawei OPEN Workshop: Optimization Problems RElated to Network

WORKSHOP CHAIR(S): Amal Benhamiche, Sébastien Martin & Nancy Perrot

Paper ID	Title	Authors
541	Flexible Scheduling System for AGVs Using Auction-Based Allocation and TSP Planning	Pedro Maia*, Ana Moura, José Paulo Santos (Portugal)
479	Assessing Quantum Annealing to Solve the Minimum Vertex Multicut	Ali Abbassi*, Yann Dujardin, Eric Gourdin, Philippe Lacomme, Prodhon Caroline (France)
480	Adaptive Learning for Moving Target Defense: Enhancing Cybersecurity Strategies	Mandar Datar*, Yann Dujardin (France)
523	Modelling the mobile investment strategies under competition using mathematical programming	Amal Benhamiche*, Matthieu Chardy, Brahim Mebrek (France)
623	Using Integer Programming to Embed Large Virtual Networks	Amal Benhamiche, Pierre Fouilhoux, Lucas Létocart, Nancy Perrot, Alexis Schneider* (France)
471	Optimizing Edge Resource Allocation for Sustainable and Latency-aware Applications	Nour-El-Houda Yellas*, Yann Dujardin, Nancy Perrot (France)
467	Explainable optimized solution for the IGP weight design problem	Sébastien Martin* (France)

475	Spatial Dantzig-Wolfe decomposition for multi-commodity flow problem	Youcef Magnouche*, Sébastien Martin (France)

SESSION P-06: Theoretical Control Approaches

SESSION CHAIR(S): Alexander Zuyev & Kenji Sugimoto

Paper ID	Title	Authors
316	A Variable Structure Approach for Finite-Control-Set Model Predictive Current Control of a Household Appliance	Eleonora Brasili*, Luigi Fagnano, Gianluca Ippoliti, Giuseppe Orlando (Italy)
637	Integrated Guidance and Control of a Missile in the Presence of Randomness in Disturbances	Almıla Bektaş*, Halit Ergezer (Turkey)
191	A Model-Free Extremum Seeking Controller with Application to Tracking a Nonlinear Chemical Reaction	Alexander Zuyev*, Victoria Grushkovskaya (Germany)
270	H_∞ Filtering for a Giant Cavity System with Two Coupling Points	Guangpu Wu, Yuting Zhu, Tian Tang, Shibei Xue* (China)
586	A Novel Guidance Law Design for Gap Traversal of Unmanned Aerial Vehicles	Kumar Abhinav* (India)
114 (v)	A Synergistic Approach to Velocity Control under Intentional and Inherent Time Delays	Julián-Alejandro Hernández-Gallardo*, Erick Moreno, Emilio J. González-Galván, Liliana Felix, César Fernando Méndez-Barrios (Mexico)

SESSION P-07: Optimization in Engineering

SESSION CHAIR(S): Agostino Marcello Mangini & Yassine Ouazene

Paper ID	Title	Authors
228	Minimum Topological *s-t* Cut Problems	Javad Tayyebi, Adrian Marius Deaconu*, Malihe Niksirat (Romania)
502	Thermal Management of a School Room Via Quadratic Multi-Objective Optimization	Zohreh Shahrouei*, Marco Barbagelata, Alessandro Pisano, Elio Usai (Italy)
430	Permutation in Shop Scheduling Problems with FIFO Consderations	RANDA OUCHENE,Djamal Rebaine*,Pierre Baptiste (Canada)
143	Graph-Based Optimization for Assembly Line Balancing Incorporating Metabolic Restrictions	Joana Rafaela Almeida*, Ana Moura, João Rafael Almeida, José Luís Oliveira (Portugal)
283	Risk Evaluation of Autonomous Vehicle Integration in Traffic Environments	Maria Asuncion Del Cacho Estil-les, Maria Pia Fanti, Agostino Marcello Mangini* (Italy)
332	Design of formal control laws for time-constrained partially observable discrete event systems with the presence of disturbances	Ichrak Amama, Syrine Bouazza*, Said Amari, Hichem Hassine (France)

SESSION P-08: Embedded Systems

SESSION CHAIR(S): Salvatore Rosario Bassolillo & Ines Baccouche

Paper ID	Title	Authors
489	Generalized Skin Cancer Detection Using Transfer Learning for Real-World Scenarios	Mohamed Dwedar, Fatima Mammadova*, Daniel Onwuchekwa, Roman Obermaisser (Germany)
532	Bringing AI to the PLCs: Realization of Artificial Intelligence Based Traffic Light Control	Tamas Wagner*, István Varga, Tamás Tettamanti (Hungary)
602	Wireless Monitoring of Liquid Consumption in Rodents Using BLE Technology	Sikandar Ali*, Roberto Ciccocioppo, Massimo Ubaldi, Fabio Casarola, Marco Giammarini (Italy)
238	Iot-Based Predictive Maintenance System for the Wastewater Treatment Plant Blowers	Magdi Nabi*, Ahmad Kharaz (United Kingdom)
419	UAV Collision Avoidance Using Multiple Artificial Potential Functions: Practical Implementation and Experimental Outdoor Applications	Oscar Fabian Archila Cruz*, Alain Vande Wouwer, Johannes Schiffer (Belgium)
179	Attitude and Altitude Estimation for Quadrotor UAVs with a Moving Horizon Approach	Salvatore Rosario Bassolillo*, Egidio D'Amato, Immacolata Notaro (Italy)

SESSION P-09: Special Session on"Nonlinear Control Strategies for Robotic Systems"

SESSION CHAIR(S): Enver Tatlicioglu, Cagri Hindistan, Huseyin Deniz Ozturk & Sule Taskingollu

Paper ID	Title	Authors
296	A Neural Network-Based Prescribed-Time Controller Formulation with Update Modularity for a Class of Nonlinear Systems	Huseyin Deniz Ozturk*, Enver Tatlicioglu, Erkan Zergeroglu (Turkey)

373	A Least Squares-Based Parameter Identification Methodology for Super Coiled Polymer Actuators	Cagri Hindistan*, Erman Selim, Alper BAYRAK, Enver Tatlicioglu, Erkan Zergeroglu (Turkey)
442	Experiment Verification of a Novel Adaptive Robust Altitude Controller for UAVs Subject to Weight Disturbances	Abdulkadir Sehmus Ozgun*, Zeki Gul, Serap Demirkol Ozgun, Enver Tatlicioglu (Turkey)
275 (v)	Adaptive Kinematic Control of Robot Manipulators: A Concurrent Learning Based Approach	Armin Razmgiri*,Serhat Obuz,Enver Tatlicioglu,Erkan Zergeroglu,Erman Selim (Turkey)
331 (v)	Adaptive Control of Brushless DC Motor Driven Robot Manipulators Using Legendre Polynomials	Irem Saka*, Sukru Unver, Erman Selim, Enver Tatlicioglu, Erkan Zergeroglu (Turkey)
248 (v)	Robust Control of Electro-Hydraulic Systems Subject to Input Constraints	Sule Taskingollu*, Erman Selim, Alper BAYRAK, Enver Tatlicioglu, Erkan Zergeroglu (Turkey)

SESSION P-10: Fault Detection and Supervision

SESSION CHAIR(S): Kamal Medjaher & Rafal Zdunek

Paper ID	Title	Authors
599	Security Evaluation of Industrial Organisations in an Isolated Region	Jules Martial YIN-BELTA MBARA* (Canada)
349	A Domain Adaptation Approach in Fault Detection and Isolation of Ultrasound Sea Altimeters	Vito Antonio Nardi*, Federico Casella, Mariacarla Valeria Lugarà, Valerio Scordamaglia, Pasquale Filianoti (Italy)
534	Study of Constant and Ripple Current Aging of LT-PEMFC Stacks	Gautier CAPDEVILLE*, Amine Jaafar, Fabien Lacressonnière, Christophe Turpin, Thomas Jarry, Emilie Soyez, Pierre Henrard, Paul Kreczanik, André Rakotondrainibe, Manuel Spinosa, Benoit Guenot (France)
404	Transient Error Reduction in High Gain Observers Via Direct State Reconstruction	Florian Meiners*, Juergen Adamy (Germany)
215	GAN-Based Feature Representation and Data Augmentation for Tool Wear Monitoring	Seulki Han, George Bollas* (USA)
102	Multimodal Feature Learning and Interpretable Feature Selection for Elevator Fault Diagnosis	Haokun Wu*, Qiwei Tang, Wang Zhang (China)

SESSION P-11: Advances in Artificial Intelligence and Intelligent Systems

SESSION CHAIR(S): Vito Antonio Nardi & Dominik Palla

Paper ID	Title	Authors
269	Challenges on Artificial Expert Acceptance in AHP Analysis	Murat Tahir Caldag* (Turkey)
155	Analysis of Input Data Configurations in CNN-Based Human Action Recognition for Assembly Task	Cosimo Patruno*, Grazia Cicirelli, Laura Romeo, Tiziana D'Orazio (Italy)
445	Quantify Transformer for End-To-End BEV Scene Understanding	Jia-Yi Zhao, Chui-Hong Chiu, Yu-Chen Lin*, Kuan-Chu Hou (Taiwan)
510	Evaluating Generative AI Models for Code Generation Tasks Using Embedding-Based Semantic Similarity	Dominik Palla*, Ondrej Krejcar (Czech Republic)
329	Failure Probability Estimation for Black-Box Autonomous Systems Using State-Dependent Importance Sampling Proposals	Harrison Delecki*, Sydney Katz, Mykel Kochenderfer (USA)
110	Inferring Wind Velocity from Informal Environmental Objects Using Optical Flow Informed Recurrent Neural Networks	Yifan Yang*, Adolfo Perrusquía, Weisi Guo (United Kingdom)
82	Entropy-Regularized Point-Based Value Iteration	Harrison Delecki*, Marcell Vazquez-Chanlatte, Esen Yel, Kyle Wray, Tomer Arnon, Stefan Witwicki, Mykel Kochenderfer (USA)

SESSION P-12: Control Theory

SESSION CHAIR(S): Ilyasse Aksikas & Bahram Shafai

Paper ID	Title	Authors
400	On the Design of Interval Observers for Discrete-Time Linear Switched Systems without Using Similarity Transformations	Djahid RABEHI, Nacim MESLEM*, Nacim RAMDANI (France)
168	Neural Network Based Model Reference Adaptive Attitude Control for a Micro Unmanned Air Vehicle	Salvatore Rosario Bassolillo, Gennaro Raspaolo*, Luciano Blasi, Egidio D'Amato, Immacolata Notaro (Italy)

642	Multi-Agent Consensus of Wheeled Mobile Robots Via Beyond-Pairwise Interaction Frameworks	Shyam Krishan Joshi*, Manjeet Rege, ojashwini Dubey, Palak dwivedi, K Hemchandra, Raul Rodriguez (India)
172	Fractional-Order Models for Platooning Systems: The Relationship between Order and PD Gains through Hybrid Optimization	Jiajun Cui*, Bill Goodwine (USA)
141	Analysis Method of Period Sensitivity for Cyclic Expression Pattern Sequences in Gene Regulatory Networks	Yasuaki Kuroe*, Yoshihiro Mori (Japan)
552	SDRE-Based Estimation and Control: A Comparative Study of Kalman and H-Infinity Filters in Nonlinear Systems	Azra Redzovic, Adnan Tahirovic*, Josip Lorincz, Goran Vasiljevic, Tamara Petrovic (Bosnia and Herzegovina)
213	Gain-Switching UIO against Disturbance with Lossy Multiple Measurement	Kenji Sugimoto*, Toshimitsu Ushio (Japan)

SESSION P-13: Discrete Event Systems

SESSION CHAIR(S): Dimiti Lefebvre & Maria Pia Fanti

Paper ID	Title	Authors
242	Extending Decision-Making Policies in Partially Observable Environments for Active Perception	Tarik Selimović*, Marijana Peti, Frano Petric, Stjepan Bogdan (Bosnia and Herzegovina)
279	Control strategies for meeting time and capacity constraints in manufacturing plants based on discrete event systems	Syrine Bouazza*, Said Amari (France)
607	Verification of Trajectory-Dependent Opacity Properties Via Fault Diagnosis	Virginia Maria Alterio, Tianyu Liu*, Carla Seatzu, Alessandro Giua (Italy)
160	Model Checking PLC Programs: Enhancing Formalization for Scalability	Jessica RAVAKAMBININTSOA*, Emil DUMITRESCU, Eric Zamai, Denis CHALON (France)
421	Timed Fault Diagnosis in Switching Output Automata	Tianyu Liu*, Carla Seatzu, Alessandro Giua (Italy)
554	Synchronizing Sequence Computation Under Forbidden Event Constraints	Khalid Hamada, Rabah Ammour*, Isabel Demongodin (France)
51	Scheduling of Flexible Manufacturing Systems Based on Basis Reachability Graphs	Zhou He*, Ning Li, Xiang Yin (China)

SESSION P-14: Robotics (Part 1)

SESSION CHAIR(S): Yi-Cheng Chen & Enrique Ferreira

Paper ID	Title	Authors
244	A Modular Architecture for Autonomous Robotic Logistics in Semi-Structured Environments	Xanthi Papageorgiou*, Anastasia-Dimitra Lipitakis, Dimitrios Kavroulakis, Athanasios Giannakopoulos (Greece)
529	Mobile Robot Motion Planning Based on a Concept of Attractive and Repulsive Forces and Variable Target and Robot Perception Circles	Nedim Osmic, Jasmin Velagic*, Adnan Tahirovic (Bosnia and Herzegovina)
508	Towards Goal-Oriented Semantic Orchestration for Resource-Aware Robotic Function Offloading	Alejandro Calvillo-Fernandez*, Milan Groshev, Carlos Jesus Bernardos (Spain)
572	Design and Development of a One-Legged Hopping Robot Based on a Spring-Mass Template	Ahmet Safa Ozturk*, Ismail Uyanik, Omer Morgul (Turkey)
274	Automated Robotic Arm System for Handling Plastic Connectors Utilizing Deep Learning and Advanced Lighting Control	Yi-Cheng Chen*, SHANG-HONG CHEN (Taiwan)
105	Research on Whole-Body Coordinated Motion of Humanoid Robots Based on LSTM-Integrated Reinforcement Learning	Tianyu Yuan, Chaoyi Dong*, Ge Tai, Shuai Xiang, Haoda Yan, Zhifeng Kong, Chenzhe Zhang, Xiaoyan Chen (China)
514	A Multi-Policy Approach Based on Clustering for Minimizing the Damage on a Falling Ballbot	Giulia Buzzetti*, Michel ARACTINGI, Davide Zappetti, Giovanni Iacca (Italy)

SESSION P-15: Special Session on"Technology Education Mentorship: Data Driven Models, Tools, Technologies, Practices and Challenges to Empower Teachers and Learners in Digital Age"

SESSION CHAIR(S): Bozenna Pasik Duncan, Ramalatha Marimuthu & Harivardhagini Subhadra

Paper ID	Title	Authors
324	Mentoring the Mentors : Importance, Methodology and Implementation	RAMALATHA MARIMUTHU, Harivardhagini Subhadra*, Bozenna Pasik-Duncan (India)
565 (v)	Women in STEM Mentoring Programs Methods, Measures and Impact - a Critical Review	Rajashree Jain*, Starlet Ben Alex, Milind Talele, RAMALATHA MARIMUTHU (India)
633	Integrating ISO 50001: 2018 into Engineering Education: Advancing Energy Skills for Industry 4.0 and 5.0	Marwa Ben Ali*, Erwin Rauch (Italy)
382	Engineering Students' Opinion on the Use of a Digital Escape Room As a Learning Strategy for Learning Integration and Differentiation	Umawathy Techanamurthy*, RAMALATHA MARIMUTHU, Bozenna Pasik-Duncan (Malaysia)
375	Challenges and Opportunities in training and mentoring Returning Women	RAMALATHA MARIMUTHU*, BHOWMIK TANUSHREE, Harivardhagini Subhadra (India)
376	Bridging the Gap between Academic Curricula and Industry Requirements through Faculty Industry Internships	Bindu Thomas*, Mujeeda Banu, Divya MG, Rushali Thakkar, RAMALATHA MARIMUTHU (India)
139	Technologies in Educational from the Perspective of Industry 4.0	József Udvaros*, Ildikó Pšenáková (Slovakia)

SESSION P-16: Forecasting Tools

SESSION CHAIR(S): Luca Patané & Konstantinos Liagkouras

Paper ID	Title	Authors
136	Clustering-Based Real-Time Traffic Accident Prediction with Explainable AI for Improved Risk Assessment	Mohamed MOUAICI*, Frédéric Royet (France)
588	Improving Anomaly Detection in Industrial Time Series: The Role of Segmentation and Heterogeneous Ensemble	Emilio Mastriani*, Alessandro Costa, Federico Incardona, Kevin Munari, Sebastiano Spinello (Italy)
194	Concept Drift in Industrial Material Processing	Pascal Marijan*, Sebastian Igel, Tatjana Legler, Achim Wagner, Martin Ruskowski (Germany)
222	Random Forest Regression for Stock Market Prediction	Konstantinos Liagkouras*, Konstantinos Metaxiotis (Greece)
207	Black-Box Models for Bacterial-Cellulose-Based Sensors	Luca Patané*, Francesca Sapuppo, Sara Hosseini, Riccardo Caponetto, Maria Gabriella Xibilia (Italy)
229	Optimizing Emergency Department Patient Flow Forecasting: A Hybrid VAE-GRU Model	Amel ZIDI*, Rayen Jmili, Issam NOUAOURI, Inès BENJAAFAR (Tunisia)

SESSION P-17: Optimization, Control, and Data-Driven Approaches in Engineering Systems

SESSION CHAIR(S): Yaheng Cui & Marwa Ben Ali

Paper ID	Title	Authors
395	Optimizing Insulation Thickness for Energy and Cost Efficiency in Residential Buildings: A Case Study	Anita Banjac*, Dorotea Prvonožec (Croatia)
627	Quantum Self-Organizing Maps for Solving the Euclidean Traveling Salesman Problem	Rui XU*, Jean-Charles CREPUT (France)
165	A Distributed Control Architecture for Logistics Operations in Flexible Manufacturing Systems	Francesco Giannini*, Domenico Famularo, Giancarlo Fortino, Giuseppe Franze' (Italy)
170	Dual-Resource Allocation Problem in a Flow Shop under Human Behavior Uncertainties	Yaheng Cui*, Ibrahima Diarrassouba, Chenghao Wang (France)
76	A Receding Horizon Control for Multi-Robot Navigation under LiDAR-Driven Graph Updates	Antonello Venturino*, Francesco Tedesco, Alessandro Casavola, Giuseppe Franze' (Italy)
129	Speed Improvement of a Non-Contact Mode Atomic Force Microscopy (AFM) Using Hybrid MPC-PI Control	Muhammad Umair, Kyi Hwan Park* (Korea, South)
142	Listening to Nature: Automated Bird Species Identification for Biodiversity	Vencel Bódi, Márk Mitrenga, Bálint Kővári*, Szilárd Aradi (Hungary)

SESSION P-18: Machine Interaction

SESSION CHAIR(S): Nhan Quy Nguyen & Syed Saad Azhar Ali

Paper ID	Title	Authors
322	Enhancing Mental Workload Prediction through LightGBM During Multitasking	S. Saad Azhar Ali*, Maged AL-Quraishi, El-ferik sami, Aamir Saeed Malik (Saudi Arabia)
282	Soft Tissue Classification Using Young's Modulus Estimated by the Least Squares Techniques	Pakorn Uttayopas* (Thailand)
272	Development of a lower limb robotic exoskeleton for mobilization of pediatric users	Adriana Cruz-Cortes*,Mariana Ballesteros,David Cruz Ortiz (Mexico)
604	Multi-Modal Sensing for Grasping and Human-Robot Interaction	Tanzeel Ahmad Fazal*, Salvatore Pirozzi (Italy)
472	AI, Human Robot Collaboration, and Microrobotics for Sustainable Semiconductor Manufacturing	Tomasz Kołcon*, Maryam Bathaei Javareshk, Iveta Eimontaite, Sarah Fletcher, Jakub Bartkiewicz, Piotr Gemza, Krystian Golawski, Miron Kołodziejczyk, Adam Wołoszczuk (Poland)
259	Data-Driven Analysis of Idle Time in a Goods-To-Person System: Insights from an Automated Warehouse Case Study	Laura Amodeo*, Nhan Quy Nguyen, Yassine Ouazene, Farouk Yalaoui, Fabien Cordon, Murat Kurban, Jérôme Lansoy (France)

SESSION P-19: Special Session on"Stochastic Systems, Control, Optimization, and Applications: A Proposed Special Session"

SESSION CHAIR(S): Bozenna Pasik-Duncan & George Yin

Paper ID	Title	Authors
124	Blackwell Optimality in Risk-Sensitive Stochastic Control	Marcin Pitera*, L. Stettner (Poland)
130	Optimal Control for Jump Diffusion Inventory Systems: Long-Term Average Cost Criterion	Kurt Helmes, Richard H. Stockbridge, Chao Zhu* (USA)
151	Optimal Risk Mitigation Strategies for Cyber Contagion in Networks: A Hybrid Deep Learning Method	Zhuo Jin*, Jiaqin Wei, Yu Zhang, George Yin (Australia)
581	The Need for Non-Gaussian Noise in Control System Models. Why Non-Gaussian Noise Matters?	Pawel Dariusz Domanski*, Tyrone E. Duncan, Bozenna Pasik-Duncan (Poland)
78	Markov Control of Continuous Time Markov Processes with Long Run Functionals by Time Discretization	L. Stettner* (Poland)
94 (v)	Some Applications of New Results in Stochastic Approximation with Discontinuous Drifts	Quoc Le, Nhu Nguyen*, George Yin (USA)

SESSION P-20: Scheduling and Optimization

SESSION CHAIR(S): Sana Belmokhtar-Berraf & Faicel Hnaien

Paper ID	Title	Authors
488	A Comparative Study of SMT and MILP for the Nurse Rostering Problem	Alvin Combrink*, Stephie Do, Kristofer Bengtsson, Sabino Francesco Roselli, Martin Fabian (Sweden)
74	Set-Theoretic Time-Based Trajectory Synchronization Approach for Skid-Steered Robotic Units Subject to Constraints, Uncertainties, and External Disturbances	Alessia Ferraro*, Claudio De Capua, Valerio Scordamaglia (Italy)
198	Modeling the Location and Deployment Problem of Battery Swapping Stations for an Electric Scooter Company	Ayoub TIGHAZOUI*, Kévin Sineus, Bertrand Rose (France)
358	Prioritized Planning for Continuous-Time Lifelong Multi-Agent Pathfinding	Alvin Combrink*, Sabino Francesco Roselli, Martin Fabian (Sweden)
52	Memory Optimization for Adaptive Time-Triggered Systems	Omar Hekal*, Roman Obermaisser, Daniel Onwuchekwa (Germany)
146	Order Acceptance Scheduling under Time-Of-Use and Energy Constraints	Imane BOUKERROUIS*, Hasan Murat Afsar, Alice Yalaoui (France)

SESSION P-21: Image Processing

SESSION CHAIR(S): Ryusuke Miyamoto & Imen Jegham

Paper ID	Title	Authors
232	Deep Learning Methods with Iterative-Boosting for Performing Human Action Recognition in Manufacturing Scenarios	Laura Romeo*, Cosimo Patruno, Grazia Cicirelli, Tiziana D'Orazio (Italy)
664	Evaluation of Dense Differential Filter to Detect Semantic Edges for Estimating 3D Room Structure	Marin Wada*, Kae Nakayama, Junya Morioka, Ryusuke Miyamoto (Japan)
367	Machine Learning for Mechanical Properties Classification in Additive Manufacturing	Paolo Di Giamberardino*, Daniela Iacoviello, Filippo Berto, Rossella Fiorillo, Stefano Natali, Daniela Pilone, Carolina Schillaci, Costanzo Bellini, Vittorio Di Cocco (Italy)
378	High Speed Implementation of Segmentation by PSPNet on a Latest CPU	Junya Morioka, Ryusuke Miyamoto* (Japan)
9	Drones Identification and Classification Using Fingerprints in Spectrograms	Rovell Fernandes, Adolfo Perrusquía*, Weisi Guo (United Kingdom)
597	Boosting Hyperspectral Image Classification with a 3D CNN and Vision Transformer Hybrid Architecture	Ghazala Hcini, IMEN JDEY* (Tunisia)
154	Accelerated Security Model-Driven Encryption with Remote Control for Satellite Imagery	Salah-Eddine Tbahriti* (Algeria)

SESSION P-22: Nonlinear Systems Control

SESSION CHAIR(S): Alexander Zuyev & Anton Proskurnikov

Paper ID	Title	Authors
530	Robust Super Twisting Based Sliding Mode Control for a 2-DOF Nonlinear Helicopter Model	Salko Vladavic, Jasmin Velagic* (Bosnia and Herzegovina)
372	Bounded Confidence Opinion Dynamics in Non-Euclidean Norms: Containment and Convergence with Stubborn Agents	Iryna Zabarianska, Anton Proskurnikov* (Italy)
591	Fractional Order Lyapunov Based Indirect Adaptive Backstepping Control Design for DELTA Robot	YACINE HATEM, SIDALI IHADADEN, Samir Ladaci, Mohamed ZERROUGUI* (France)
174	Equivalence in the Sense of Time Optimality for Nonlinear Systems with Output	Daria Andreieva, Svetlana Ignatovich*, Grigory Sklyar (Ukraine)
111	Solving the Time-Optimal Control Problem for Nonlinear Non-Autonomous Linearizable Systems	Jekatierina Sklyar, Svetlana Ignatovich*, Grigory Sklyar (Ukraine)
374	State Estimation Using Extended Kalman Filter for Fractional Model Predictive Control of Fractional Chaotic R"ossler Oscillator	Devasmito Das*, Ina Taralova, Jean Jacques Loiseau, Tsonyo Slavov (France)

SESSION P-23: Learning Systems

SESSION CHAIR(S): Andreas Schwung & Rajashree Jain

Paper ID	Title	Authors
219	Multilinear Feature Extraction with SVD-Based Tensor Wheel Decomposition	Rafal Zdunek* (Poland)
138	Integrating TinkerCad in the Flipped Classroom Method	József Udvaros*, Ildikó Pšenáková (Slovakia)
87	Bridging the Gap between Simulations and Reality: A CycleGAN-Based Approach for Drone Landing Systems	Diyar Altinses, David Orlando Salazar Torres, Andreas Schwung* (Germany)
216	A Desktop Learning Factory for Smart and Resilient Manufacturing Based on Digital Twin and AI	Wenxuan Hu*,Zhuoxuan Cao,Achraf El Messaoudi,Peilin LI,Zeng Zeng (France)
320	Early Detection of Struggling Learners in Online Professional Training: A Data-Driven Approach	Mohamed MOUAICI* (France)
190	Scalable Importance Sampling in High Dimensions with Low-Rank Mixture Proposals	Liam Kruse*, Marc René Schlichting, Mykel Kochenderfer (USA)
453	A Review of Process Mining and Machine Learning Integration for Corruption Detection in Business Processes	Chaima Chaieb* (Tunisia)

SESSION P-24: Neural Networks Applications

SESSION CHAIR(S): Kee-Won Kwon & Dominik Palla

Paper ID	Title	Authors
186	A Step towards High Frequency Physics-Informed Neural Networks	José Eduardo Alves Pereira Filho, Cédric Escudero*, Emil DUMITRESCU, Eric Zamai (France)
645	Probabilistic Constrained Load Flow and Machine Learning Methodologies for Electric Vehicle Charging Systems: Integration Approaches and Use Cases	Alexios Karadimos*, Vaggelis Marinakis, Christos Stefanatos (Greece)
579	Physics-Informed Learning of Joint Dynamics in Articulated Robots	Rupam Singh*, Smith Kashiram Khare, Varaha Satya Bharath Kurukuru (Denmark)
354	A Comprehensive Safety Analysis for Tracking Neural Controllers	Vladislav Nenchev* (Germany)
241	Sybil-Based Virtual Data Poisoning Attacks in Federated Learning	Changxun Zhu, Qilong Wu, Lingjuan Lyu, Shibei Xue* (China)
556	Neuroidentifier for a Class of Nonlinear Systems: A Sliding Modes Approach	Alejandro Guarneros, Mariana Ballesteros*, Isaac Chairez (Mexico)

SESSION P-25: Control Design Methods

SESSION CHAIR(S): Atif Mahmood & Kenji Sugimoto

Paper ID	Title	Authors
592	Neural Network Modeling on Bioconvection Flow Subjected to the Magnetic Source	Ezgi Kiratli*, Merve Gurbuz-Caldag, Bengisen Pekmen (Turkey)
305	NetFlex: A Simulation Framework for Networked Control Systems	Katarina Stanojevic*, Martin Steinberger, Maris Siljak, Jakob Ludwiger, Martin Horn (Austria)
64	Modelling of a DC-DC Boost Converter in QRM and Design of Neural Network-Based Nonlinear Control	Zhi Li*, Benjamin Schwabe, Lorenzo Servadei, Robert Wille (Germany)
337	Generalized Predictive Proportional Integral Controller Robust Stability Design	Alejandro Rojas*, Hugo Garces, Muñoz Pedro (Chile)
294	Supervised Reinforcement Learning Based Trajectory Tracking Control for Autonomous Vehicles	Andras Mihaly*, Vu Van Tan, Olivier Sename, Peter Gaspar (Hungary)
629	Hybrid Finite-Horizon Feedback Control for Cart-Pendulum Systems with Uncertainties	Viktor Dodonov* (Finland)
97	Boundary Error-Feedback Regulation of a Sturn-Liouville Dynamical System under Distributed Disturbances	Ilyasse Aksikas* (Qatar)

SESSION P-26: Intelligent Control

SESSION CHAIR(S): Yong-Guk Kim & Lale Canan Dulger

Paper ID	Title	Authors
150	Online-Adaptive PID Control Using Reinforcement Learning	Detlef Arend, Amerik Toni Singh Padda, Dorothea Schwung, Andreas Schwung* (Germany)
422	Analysis of Reinforcement Learning-Based Altitude Control for a UAV Landing on a Moving Target under High Disturbance	Jad Alsaayed*, Hassan Noura (Lebanon)
281	A Quantitative Comparison of Deep Reinforcement Learning Algorithms for Type 1 Diabetes Control	Federico Baldisseri*, Mohab Mahdy Helmy Atanasious, Valentina Becchetti, Antonio Di Paola, Giada Lops, Danilo Menegatti, Andrea Wrona, Saverio Mascolo, Francesco Delli Priscoli (Italy)
334	Minimum Curvature Trajectory Planning for Autonomous Vehicles in a Hierarchical Framework	Dániel Losonczi*, Árpád Fehér, Szilárd Aradi, László Palkovics (Hungary)
380	Improving the Resilience of Quadrotors in Underground Environments by Combining Learning-Based and Safety Controllers	Isaac Ward*, Mark Paral, Kristopher Riordan, Mykel Kochenderfer (USA)
106	Reinforcement Learning for a Parabolic Trough Solar Collector	Marta Leal*, Verónica Abad Alcaraz, José Domingo Álvarez Hervás, MARIA DEL MAR CASTILLA (Spain)

SESSION P-27: Special Session on "Decision making for sustainable transportation systems"

SESSION CHAIR(S): Sana Belmokhtar-Berraf & Tasseda Boukherroub

Paper ID	Title	Authors
486	Sharing Daily Travel Time across Multiple-Periods Dial-A-Ride Problem	Timothée Chane-Haï, Samuel Vercraene*, Thibaud Monteiro (France)
359	Distributional transport optimization: theory versus practice	Mariusz Kaleta*, Włodzimierz Kawecki (Poland)
522	Capacity Analysis for a Railway Node Using Microscopic Cyclic Timetabling	Maissa Mati*, Sana Belmokhtar-Berraf, Paola Pellegrini, Joaquin Rodriguez, Abderrahim Sahli (France)
632	Comparative Analysis of Energy Management Strategies for a Hybrid Electric Vehicle in Urban Transportation: A Case Study	Marwa Ben Ali*, Erwin Rauch (Italy)
630	A lexicographic bi-objective approach to fleet sizing and routing for service vehicles in a real-world passenger transport system	Bouchra Zohra BEN MESSABIH, Walid BEHIRI*, Sana Belmokhtar-Berraf, Tasseda Boukherroub, Abderrahim Sahli, Iskander Zouaghi (France)
287	A New Perspective on Artificial Intelligence Applications in Analyzing Driver Behavior: Advances, Challenges, and Opportunities	Sami Shaffiee Haghshenas*, vittorio astarita, Sina Shaffiee Haghshenas, Giuseppe Guido, Anastasios Kouvelas (Italy)

SESSION P-28: Energy Control with Applications

SESSION CHAIR(S): Wei-Tzer Huang & Klaas Völtzer

Paper ID	Title	Authors
224	Research on Variable Step Adaptive Speed Controller for Marine Diesel Engine Based on Active Disturbance Rejection Control Algorithm	Haoyu Shu*, Xuemin Li (China)
328	Novel PI-Type Direct Power Control Applied on Grid-Tied VSIs	Panos Papageorgiou, Antonio Alexandridis* (Greece)
570	Energy-Aware Optimization of Multi-Robot Systems with Task Allocation and Partial Recharge Scheduling	Germain Junior AVOSSEVOU*, ouahib Guenounou, AHMED NAIT CHABANE, Karim BEDDIAR (France)
504	Optimal Design of a Multi-Hub Battery Charging System for Rural Areas Electrification in the Global South	Federico Signorile*, Paolo Scarabaggio, Raffaele Carli, Mariagrazia Dotoli (Italy)
227	H∞ Loop-Shaping for Power Tracking Control of Wind Turbines	Aaron Grapentin*, Christian A. Hans, Joerg Raisch (Germany)
225	Smoothing Photovoltaic Power Output Variability Using an Alpha-Beta Filter-Based Approach	WEI-CHEN LIN, WEI-TZER HUANG*, chun chiang ma, Chao Hsien Hsiao, kaichao yao (Taiwan)

SESSION P-29: Special Session on "Resilience of Complex Systems to Environmental and Other Stressors"

SESSION CHAIR(S): James H. Lambert, Davis C. Loose & Benjamin D. Trump

Paper ID	Title	Authors
131	Infrastructure Network Resilience Analysis with Disruptions of System Order	Davis Loose*, Megan C. Marcellin, Igor Linkov, Gigi Pavur, Maksim Kitsak, Michael Deegan, James H. Lambert (USA)
176	Systems Acquisition and Enterprise Risk Analysis of Wildfire Detection and Monitoring Technologies	Megan Gunn*, R. Ranger Dorn, Matthew Gunn, Davis Loose, Bilal Ayyub, William Barletta, John Organek, Marco Piras, S. Fabrizio Zichichi, James H. Lambert (USA)
206	A New MILP Model for Supplier Selection: Improving Efficiency and Solution Quality under Risk	Ali Skaf* (France)
185	Risk Analysis of System Order for Water Infrastructure of Arid Regions	Matthew Gunn*, Davis Loose, Megan C. Marcellin, Megan Gunn, Gigi Pavur, Benjamin D. Trump Benjamin, Trump, Igor Linkov, James H. Lambert (USA)
187	Systems Analysis and Decision Making for Resilience of Energy Systems	Megan C. Marcellin*, Gigi Pavur, Davis Loose, Benjamin D. Trump Benjamin, Trump, Igor Linkov, James H. Lambert (USA)

321	Strategic Investment for Healthcare System Resilience: A Scenario-Based Optimization Approach	Isaline Baret*, Yassine Ouazene, Nhan Quy Nguyen, Farouk Yalaoui (France)

SESSION P-30: Predictive Control

SESSION CHAIR(S): George Yin & Paolo Di Giamberardino

Paper ID	Title	Authors
343	Learning-based Predictive Control for Acid Flue Gas Abatement in Waste to Energy Plant	Rongwei Andrea Wu, Senem Ozgen*, Fredy Ruiz (Italy)
338	On the Stabilization of Unstable Internal Dynamics: Model Predictive Control of Feedback Linearized Vehicle Kinematics	Bernd Juris*, Pu Li (Germany)
439	Collision-Free Trajectory Tracking for Quadrotor UAVs: Closed-Form versus Optimization-Based Controllers	AIZA BATOOL* (Italy)
311	Model-Based Predictive Control of a Concentrated Solar Plant for Heat Production	Eliott Girard*, Stephane Thil, Julien Eynard, Stéphane Grieu (France)
507	Fault-Tolerant Control of Autonomous Vehicles Using LPV-MPC and Direct Yaw Moment Compensation for Steering Failures	Mohamed Achraf Senoussi, Vicenç Puig*, Mohamed Boumehraz, Chouki Sentouh, Hossam Eddine Glida (Spain)
396	Hierarchical Model Predictive Control for Building Thermal Management : A Mixed Model-Based and Data-Based Approach	Yuqi Liu*, Pauline Kergus, Fabien CLAVEAU, Philippe Chevrel (France)

SESSION P-31: Special Session on"OptiQ – from (nonlinear) optics to quantum computing, simulation, visualization and image processing: on Earth and in space"

SESSION CHAIR(S): Krzysztof Cyran, Kamil Wereszczyński & Dmytro Babets

Paper ID	Title	Authors
251	Improving the Measurement Accuracy of Entangled Photon Detection Devices Using Delays Resulting from Lags at Successive Measurement Points	Andrii Kolb*, Serhii Prykhodchenko, Kamil Wereszczyński, Krzysztof Cyran (Ukraine)
253	Isolation Forest as a Tool for Entangled Photon Detection	Dmytro Babets*, Zbigniew Opislki, Volodymyr Hnatushenko, Vita Kashtan, Agnieszka Michalczuk, Olena Sdvyzhkova, Erwin Maciak, Krzysztof Cyran (Ukraine)
256	A Quantum Optical Systems Simulator: Assumptions and Requirements in the Framework of Second Quantization and Fock Space	Kamil Wereszczyński*, Agnieszka Michalczuk, Krzysztof Cyran (Poland)
286	On the Issue of an Anomaly Detection Algorithm for Identifying Potentially Generated Entangled Photons	Serhii Aleksieienko*, Kamil Wereszczyński, Dmytro Babets, Krzysztof Cyran (Ukraine)
218 (v)	Error Reduction for Image Encoding - Reconstruction for Quantum Photonic Systems	Krzysztof Werner*, Kamil Wereszczyński, Agnieszka Michalczuk, Michał Kordasz, Rafał Potempa, Krzysztof Cyran (Poland)
245 (v)	Quantum Image Encoding and Processing: A Comparative Analysis of Quantum Computing Systems	Michał Kordasz*, Krzysztof Werner, Sundas Khan, Faisal, Rafał Potempa, Kamil Wereszczyński, Krzysztof Cyran (Poland)

SESSION P-32: Optimal Control (Part 1)

SESSION CHAIR(S): Aiza Batool & Maria Pia Fanti

Paper ID	Title	Authors
452	A Data-Driven H-Infinity Controller Design with Non-Common Lyapunov Matrices for the Active Structural Control Having Saturated Actuators	Bilal Gormus*, Hakan Yazici, Ibrahim Beklan Kucukdemiral (Turkey)
313	Robust Distributed Fractional-Order Dynamic Output Feedback for Limited-Time Consensus Control in Multi-Agent Systems	Mohammad Fiuzy*, Stefan Rass (Austria)
317	Distributed Observer-Based Control for Consensus in Nonlinear Fractional-Order Multi-Agent Systems	Mohammad Fiuzy.*, Stefan Rass (Austria)

300	State Estimation and Control for Continuous-Time Nonlinear Systems: A Unified SDRE-Based Approach	Adnan Tahirovic*, Azra Redzovic (Bosnia and Herzegovina)
449	Efficiency Improvements for a Synergetic Hydrogen-Methanol Process Chain Using a Seasonal Schedule	David Wekerle*, Axel Hackbarth, Klaas Voeltzer (Germany)
545	Optimal Energy Management of a Fast Charging Service Station with Physics-Informed Neural Networks	Francesco Liberati, Emanuele De Santis, Mohab Mahdy Helmy Atanasious*, Alessandro Di Giorgio (Italy)

SESSION P-33: Linear Systems Control

SESSION CHAIR(S): Lale Canan Dulger & Bahram Shafai

Paper ID	Title	Authors
389	Experimental Validation of Zonotopic Tube-MPC Applied to a Hexacopter	Gilles Delansnay*, Laurent Dewasme, Alain Vande Wouwer (Belgium)
189	Design Strategies for Stabilization and Tracking of Positive Singular Systems	Bahram Shafai*, Fatemeh Zarei (USA)
335	The Consensus Task in a Network with Positive Strictly Metzler Agents	Dusan Krokavec* (Slovakia)
605	Data-Driven Predictive Control for Interconnected Systems Using Terminal Ingredients and Reachable Sets	Mohammad Al Khatib*, Vikas Kumar Mishra, Naim Bajcinca (Germany)
11	Physics-Informed State Observer for Unknown Linear Autonomous Systems with Noisy Measurements	Adolfo Perrusquía*, Weisi Guo (United Kingdom)
563	Disturbance Estimation and Accommodation for Load Frequency Control Using GPI Observer	Mehrdad Dorostian, Bahram Shafai* (USA)
665	L_1/L_infty Hankel Norm Optimization of Power Wireless Communication Networks by DC Programming	Chengyan Zhao*, Satoshi Ueno, Bohao Zhu, Wenjie Mei, Yao Sun (Japan)

SESSION P-34: Graphs and Networks

SESSION CHAIR(S): Davis Loose & Guillaume Bouleux

Paper ID	Title	Authors
234	Distributed Novelty-Biased Cooperative Protocol	Marijana Peti*, Frano Petric, Kristian Hengster-Movric, Stjepan Bogdan (Croatia)
433	Distributed Cooperative Guidance for Simultaneous Missile Strike into a Polytopic Target Region	Burak Yucel*, Veysel Gazi (Turkey)
340	A Note on Treatment of Convexly Non-Liftable Polyhedral Partitions	Anna Mikulášová*, Martin Gulan, Sorin Olaru (Slovakia)
157	Evaluation of Person Search System Using Multidirectional Cameras and a Drone Based on Active Inference	Eito KOSUGA*, Shin'ichi Arakawa, Masayuki Murata (Japan)
123	I-DGCN: A Spectral Convolutional Network for Directed Graphs Using an Intensity Laplacian	Theodor-Adrian Badea*, Bogdan Dumitrescu (Romania)
582	Measuring Multimodal Transportation Network Resilience Using Curvature-Core Decomposition and Flow Inequality Metrics	Guillaume Bouleux*, Giacomo Kahn, Aurélie Charles (France)
200	Switched Boolean Network Identification under Multiple Samples	Chunfeng Jiang, Carmen Del Vecchio*, Biao Wang (Italy)

SESSION P-35: Artificial Intelligence

SESSION CHAIR(S): Shaffiee Haghshenas Sina & Maria Pia Fanti

Paper ID	Title	Authors
444	A Multimodal Switch Transformer for Pedestrian Trajectory Prediction	Yu-Jou Chen, Pao-Kai Wang, Yu-Chen Lin*, Kuan-Chu Hou (Taiwan)
392	ICT and Social Media for Fighting against Corruption: Case of Tunisia	Chaima Chaieb* (Tunisia)
482	On Advancements of the Forward-Forward Algorithm	Mauricio Ortiz Torres*, Markus Lange, Arne Peter Raulf (Germany)

72	Enhancing Digital Continuity and Interoperability in Building Energy Management: A Digital Twin Approach with Large Language Models	Fakhreddine Ababsa*, Esma Yahia, Zhiyu Zheng, Rani El Meouche, Elham Farazdaghi, Sylvain Marié (France)
235	Concept Drift Detection Using Transformer Autoencoder	Anna Vacca*, Mario Luca Bernardi, Marta Cimitile (Ital
628	XAI-V2X-Driven Decision Support for Safe and Efficient Transport of Parkinson's Patients in Healthcare Systems	Youness AMADIAZ*, Ahmed Nait Sidi Moh, Edgar Alfonso Lizarazo (France)
261	Human-Centric AI-Enabled Extended Reality Reference Architecture for Industry 5.0	Nikolaos Tousert, Anastasia-Dimitra Lipitakis, Athanasios Giannakopoulos, Dimitrios Ntalaperas, Athanasios Kiourtis, Argyro Mavrogiorgou, Xanthi Papageorgiou* (Greece)

SESSION P-36: Intelligent Systems Applications

SESSION CHAIR(S): Giancarlo Fortino & Neila Bhouri

Paper ID	Title	Authors
446	Hierarchical Reinforcement Learning with Spatial-Temporal Attention for Ramp Cut-In/Cut-Out	Pao-Kai Wang, Yu-Chen Lin*, Bo-Yu Wei, Wen-De Xiao (Taiwan)
615	Autonomous Drone Navigation through Vertical Obstacles with Novel Reward Function and Temporal Shift Architecture	Khuong G. T. Diep, Yong-Guk Kim* (Korea, South)
474	Evaluation of Crowd Model Suitability for Mobile Robot Simulation	Rio Nishida, Yuka Kato* (Japan)
659	Adaptive Data Processing Framework for Enhanced Predictive Maintenance in Industrial IoT Ecosystems	Kalthoum Zaouali*, Mohamed Lassaad Ammari, Narimen Aloui, Ridha Bouallegue (Tunisia)
276	Development of a Portable Electromyography IoT System for Remote Rehabilitation	Gomez-Correa Manuela*, Luis Leduc, Pedro Garcia-Enriquez, David Cruz Ortiz, Mariana Ballesteros (Mexico)
624	Development of a Digital Twin for an Electric Vehicle Emulator Modeling, Control, and Experimental Validation	Lamine Chalal* (France)
345	BiFPN-YOLOv8: A High-Performance Deep Learning Model for Traffic Light Recognition	Arman Naghizadeh, Amir Aminzadeh Ghavifekr*, Aws Mohammed Hameed Al-Khazraji, Mueen Mohsin Abbood Alrubaye (Iran)

SESSION P-37: Special Session on"Fuel cell and water electrolyzer, control, diagnosis and prognostic"

SESSION CHAIR(S): Meziane Ait Ziane, Elodie Pahon & Michel Zasadzinski

Paper ID	Title	Authors
167	Physics-Based Electrochemical Model of a Proton Exchange Membrane Water Electrolyzer	Nicolas VIGNAL*, Zhongliang LI, Daniel Hissel, LATOUR benoit (France)
327	Experimental Control of a PEM Water Electrolyzer: Investigation of Renewable Energy Source Framework	Meziane Ait Ziane*, Michel Zasadzinski, Ayat-Allah Bouramdane, Elodie Pahon, Hugues Rafaralahy (France)
434	Accelerated Stress Tests Impacts on Short PEM Fuel Cell Stacks	Elodie Pahon*, Meziane Ait Ziane, JEMEI Samir, Daniel Hissel (France)
457	Experimental Protocols for the Understanding of Accelerated Degradation and Diagnosis of a Proton Exchange Membrane Electrolyser	Edwin Urbano*, Elodie Pahon, Guillou Melaine, Nadia Yousfi-steiner (France)
495	Experimental Identification Approaches for a PEM Water Electrolyzer	Michel Zasadzinski, Meziane Ait Ziane*, Marouane Alma (France)
612	Fault Tree Analysis of Degradation Mechanisms in a Low-Temperature PEMFC System under Two Different Anode Circulation Modes	Tifenn Jegado*, SANTIAGO HERNAN SUAREZ (France)

SESSION P-38: Robotics (Part 2)

SESSION CHAIR(S): Chaoyi Dong & Vladislav Nenchev

Paper ID	Title	Authors
301	A Sensorless Control Strategy for an Active Assistive Walker: Design, Implementation, and Experimental Validation	Muhammad Ishaq*, Francesco Cancelliere, Giuseppe Sutera, Dario Calogero Guastella, Giovanni Muscato (Italy)

561	The ArMexo - a Upper-Limb Assistive Rehabilitation System with a Control Approach Based on a Sliding Modes	Luis Leduc*, Mariana Ballesteros, David Cruz Ortiz (Mexico)
611	Adaptive Robotic Path Planning Via Obstacle Trajectory-Guided Reinforcement Learning	Ali Nafih Pullani*, Frank Ortmeier (Germany)
271	Development of an Automated Knee Rehabilitation Device	Lucas Handalian*, Enrique D. Ferreira, Eduardo Gamaliel Hernandez-Martinez, Mario Ramirez-Neria (Uruguay)
668	Model Predictive Control for Quadrupedal Robots with Neural-Based Adaptation	Dmitry Bazylev*, Maxim Lyahovsky (Russia)
658	Benchmarking Model-Free Reinforcement Learning Algorithms for Robotic Manipulation	Dmitrii Dobriborsci* (Germany)
217	Disentangled Object-Centric Configuration Representation Learning for Articulated Robot Arms	Daniel Nikovski* (USA)

SESSION P39: Supply Chain and Operational Research Applications

SESSION CHAIR(S): Konstantinos Liagkouras & Yassine Ouazene

Paper ID	Title	Authors
99	A Novel Metaheuristic Based on the Nuclear Chain Reaction Process	Alfonso Mateos Caballero*, Iago Zamorano (Spain)
152	A Fuzzy Multi-Criteria Decision-Making Framework for Sustainable Truck Selection	Yvonne Badulescu*, Diego Vanegas, Naoufel Cheikhrouhou (Switzerland)
490	Dynamic Pricing to Control Stochastic Retail Demand: Near-Optimal Weight Functions for Large Lots of Perishable Product Considering Leftovers	Yu Cao*, Anna Kitaeva (Russia)
635	A comprehensive review of Network Design in a Sustainable Supply Chain: Focus on the social dimension	Yves Gouret*, Ilhem slama, Evren SAHIN, Zied jemai (France)
54	A Model Based Estimator for Inventory Tracking with Shrinkage Detection in Perishable Supply Chain	Valentina Orsini*, Beatrice Ietto (Italy)
98	Navigating Geopolitical Disruptions on Supply Chains: Lessons from the Russia-Ukraine War for EU Industries	Maryam Jafarian, Thi Le Hoa Vo* (France)

SESSION P-40: Special Session on"Decentralized control and decision-making: blockchain-empowered AI agents in cyber-physical systems"

SESSION CHAIR(S): Thomas Dasaklis, Vangelis Malamas & Panagiotis Giannopoulos

Paper ID	Title	Authors
166	AI-Based MITRE ATT&CK Detection System: A Feasibility Study	Dimitris Koutras*, Michalis Karamousadakis, Giannis Konstantinidis, Christos Grigoriadis, Vangelis Malamas (Greece)
180	Multi-Agent Reinforcement Learning for EV energy management and trading using the Lightning Network	Thomas Dasaklis*, Panagiotis G. Giannopoulos, Vangelis Malamas, Georgios Tantis, Constantinos Patsakis (Greece)
344	Path Planning Optimization in Industrial AGVs: A Hybrid Decentralized Architecture	Panagiotis G. Giannopoulos, Vangelis Malamas, Thomas Dasaklis* (Greece)
383	Decentralized Pricing in Supply Chain Management: A Blockchain-Enabled Multi-Agent Reinforcement Learning Approach	Panagiotis G. Giannopoulos, Vangelis Malamas, Thomas Dasaklis* (Greece)
360*	Multi-Agent Reinforcement Learning for Grid Balancing Using Bitcoin Mining	Ioannis T. Thomaidis, Panagiotis G. Giannopoulos, Panos Chountalas, Thomas Dasaklis* (Greece)

SESSION P-41: Special Session on"Enhancing Urban Evacuation and Resilience through Intelligent Transport Systems and Emerging Technologies"

SESSION CHAIR(S): Giuseppe Guido, Corrado Rindone, Vittorio Astarita & Sina Shaffiee Haghshenas

Paper ID	Title	Authors
290	Challenges and Opportunities of Using Digital Twins for Urban Evacuation Dynamics in Emergency Management	Sina Shaffiee Haghshenas*, vittorio astarita, Sami Shaffiee Haghshenas, Giuseppe Guido, Giulia Martino (Italy)

310	A Bibliometric Review on the Use of Artificial Intelligence for Image Recognition Applied at Risk Reduction	Giuseppe Guido, Giulia Martino*, vittorio astarita, Sina Shaffiee Haghshenas, Sami Shaffiee Haghshenas (Italy)
336	Advanced Flood Crisis Management in Rende: Utilizing Fuzzy AHP for Emergency Evacuation Assessment and Risk Mitigation	Sina Shaffiee Haghshenas*, vittorio astarita, Sami Shaffiee Haghshenas, Giuseppe Guido, Giulia Martino (Italy)
75	Exploring the Role of AI and Emerging Technologies in Urban Evacuation: Challenges, Opportunities, and Future Directions	Sina Shaffiee Haghshenas*, vittorio astarita, Sami Shaffiee Haghshenas, Giuseppe Guido, Giulia Martino (Italy)
89 (v)	Disaster Risk Reduction in Urban Area: Survey Design for Mobility in Evacuation Condition	Francesco Russo*, Marialuisa Moschella, giuseppe musolino, Corrado Rindone, Domenico Sgro, Antonino Vitetta (Italy)
188	The Road to AI Companionship: Designing a Sentient AI Agent for Enhanced Driving Experience	Mihai Duguleana*, Răzvan Boboc (Romania)

SESSION P-42: Process Control

SESSION CHAIR(S): Pawel Domanski & Belkacem Ould Bouamama

Paper ID	Title	Authors
447	Thermodynamic Analysis of the Steam-Ethane Pyrolysis Process	Dragos-Viorel Balan, Dumitru Popescu, Dorel-Bogdan Balan*, Crina-Loredana Torous (Romania)
161	Advancements in Decentralized FOPID Control for TITO Systems Via Reduced-Order Model-Based Design: A Case Study	Sebastián Madrigal, Orlando Arrieta*, Antonio Visioli, Montse Meneses, Ramon Vilanova (Costa Rica)
468	Digital Twin of a Two-Tank System: A Bond Graph Modeling Approach	Amal Ben Maiz*, Mahdi Boukerdja, Belkacem Ould Bouamama, Achraf Jabeur Telmoudi (Tunisia)
162	Analysis of Sensitivity Function-Based Robustness Constraints in Decentralized PID Controller Design for TITO Systems	Sebastián Madrigal, Orlando Arrieta*, Antonio Visioli, Montse Meneses, Ramon Vilanova (Costa Rica)
450	Modeling and Control of Testing Device for Carpet Resilience Measurement	Lale Canan DULGER*, Halil İbrahim Çelik, Hatice Kübra Kaynak, Burak Sahin, Elif Gultekin (Turkey)
144	A Practical Closed Loop Transfer Function Estimation Method to Enable Better Control Performance	Robin M.C. De Keyser, Isabela Roxana Birs, Cristina Ioana Muresan* (Romania)

SESSION P-43: Game Theory with Applications

SESSION CHAIR(S): Mariagrazia Dotoli & Matthieu Godichaud

Paper ID	Title	Authors
513	A Two-Part Pricing Mechanism for Demand Side Management	Silvia Cianchi*, Anibal Sanjab, Sergio Grammatico (Netherlands)
562	Distributionally Robust Control with Constraints on Linear Unidimensional Projections	Alexandros Tzikas*, Lukas Fiechtner, Arec Jamgochian, Mykel Kochenderfer (USA)
425	Pricing and Ordering Decisions in a Supply Chain with Remanufacturing Operations: A Game-Theory Approach with Customer Choice Dynamics	Matthieu Godichaud* (France)
346	Controlling Age of Incorrect Information Violation under Data Drift and Strategic Attacks	Valeria Bonagura*, Leonardo Badia, Chiara Foglietta, Federica Pascucci, Stefano Panzieri (Italy)
424	A Reinforcement Protection Strategy against an Adversary in IoT	ANDREY GARNAEV*, Wade Trappe (USA)
226	A Game-Theoretic Approach to Cooperative Robust Nonlinear Model Predictive Control for a Network of Unmanned Ground Vehicles	Giovanni Marinello, Lorenzo Zino, Carlo Novara, Michele Pagone* (Italy)

SESSION P-44: Special Session on"Artificial Intelligence Trends for Healthcare Optimization: Metaheuristics, Machine Learning and IoT"

SESSION CHAIR(S): Takwa Tlili, Kalthoum Rezgui, Zina Nakhla & Abir Chaabani

Paper ID	Title	Authors
237 (v)	A Recommender System Based on Multi Agent System for Real Time Home Health Care Scheduling	Mouhamed Aziz Souissi*, Houyem Ben Hassen, Jihene Tounsi (Tunisia)
478	Investigating Local Search Strategies in Variable Neighborhood Search for Patient Admission Scheduling Problem	Imen Oueslati*, Moez Hammami, Issam Nouaouri, hamid allaoui, Lamjed Ben Said (France)

553	Data-Driven Bed Assignment for Emergency Patients Using Supervised Learning	Hela Jedidi*, Hajer Ben Romdhane, Issam NOUAOURI, Saoussen Krichen (Tunisia)
648	Clustering-Based Optimization for Emergency Patient Bed Assignment Problem	Hela Jedidi*, Hajer Ben Romdhane, Issam NOUAOURI, Saoussen Krichen (Tunisia)
429 (v)	Leveraging Machine Learning and Optimization in Home Health Care: Emerging Trends and Future Opportunities	Ghofran Massaoudi*, Abir Chaabani (Tunisia)
431 (v)	Recommending Multidimensional Spatio-Temporal OLAP Queries	OLFA LAYOUNI*, Jalel Akaichi (Tunisia)

SESSION P-45: Optimal Control (Part 2)

SESSION CHAIR(S): Carla Seatzu & Michel Basset

Paper ID	Title	Authors
323	Investigating Lambda Policy Iteration with Randomization Using Kannan Fixed Point Theorem	Abdelkader Belhenniche*, Roman Chertovskih (Portugal)
420	Centralized Distance-Based MPC Strategy for Local Formation Tracking of a Multi-Robot Fleet	Augustin POINT*, David Vieira, Michel Basset, Rodolfo Orjuela (France)
77	Optimal Coverage-Based Cooperative Guidance for Inferior Vehicles against a Maneuvering Target	Yijing Wang, Tao Song*, Hong Tao, Zeliang Wu (China)
661	Least Energy Trajectory Generation for Quadrotors Using Rotor Acceleration As Control Inputs	Paraj Ganchaudhuri*, Chayan Bhawal (India)
57	Optimal Circular Impact Time Guidance	Qindong Hu, Wang Jiang, Hongyan Li* (China)
465	Model Identification Adaptive Control with ρ-POMDP Planning	Michelle Ho*, Arec Jamgochian, Mykel Kochenderfer (USA)

SESSION P-46: Special Session on"Applied AI for Emerging Autonomous Systems: Innovations and Challenges"

SESSION CHAIR(S): Imen Jegham, Ines Baccouche, Abir Mhenni & Lamia Rzouga Haddada

Paper ID	Title	Authors
145	Deep Reinforcement Learning for Autonomous Driving Decision-Making in Webots	Xin Xing*, Sebastian Ohl (Germany)
243	Improved Image Forgery Detection Based on VGG16, Cosine Similarity, and Support Vector Machines	Issam SHALLAL, Lamia Rzouga Haddada*, Najoua Essoukri Ben Amara (Tunisia)
352	A Benchmark of Human Body Movements for Physical Rehabilitation Exercises	Amal Bouallegui, Mohamed Nidhal Krifa* (Tunisia)
339	Balancing Accuracy and Efficiency: Navigating The Trade-off Between Machine-Readable Code Detection and Data Size Reduction	Imen Jegham*, Ons Loukil, Besma Guesmi, David Moloney (Tunisia)
458	A Combined Bi-LSTM and Self-Attention Approach for Li-Ion Battery SoC Estimation Under Varying Temperatures	Ines Baccouche*, Najoua Essoukri Ben Amara (Tunisia)
555	Synthetic Keystroke Dynamics Generation Using a Generative Adversarial Network GAN	Abir Mhenni*, Christophe Rosenberger, Najoua Essoukri Ben Amara (Tunisia)
330	A Multi-Device Framework for Continuous Authentication	Aidar Gaffarov*, Faiza AJMI, Abir Karami, Belhassen ZOUARI (France)

SESSION P-47: Special Session on"Applied AI for Emerging Autonomous Systems: Innovations and Challenges"

SESSION CHAIR(S): Imen Jegham, Ines Baccouche, Abir Mhenni & Lamia Rzouga Haddada

Paper ID	Title	Authors
231	A Survey on Multimodal Data Fusion for Autonomous Collaborative Robots Advances and real world challenges	Khalil ZARROUK, Lamia Rzouga Haddada*, Sami GAZZAH (Tunisia)
559	Hybrid Approach for Parkinson's Disease Detection: Integrating Handcrafted and Deep Features from Handwriting Analysis Using a Voting Classifier	DhiaEddine Aridhi, Imen Hamrouni Trimech*, Najoua Essoukri Ben Amara (Tunisia)
491	Fortinet Devices As a Tool to Enhance Cybersecurity and Meet the Requirements of the NIS2 Directive by Leveraging Their Services	Michal Janovec*, Papán Jozef, Jergus Gbur, Jan Panus (Slovakia)

662	A Pose-Free Approach for 4D Gaussian Splatting to Reconstruct Dynamic Scenes	Huosen OU, Yiding Ji* (China)
614	HBV-DS: Hepatitis B Virus Dataset for Predicting Liver Fibrosis and Viral Activity Using Machine Learning	Hanen Akkari*,Imen Akkari,Salma Haj Salah,Jinen Daghrir (Tunisia)
560	Enhanced Multimodal approach for Parkinson's Disease Detection : fusing deep handwriting and Voice Features with Optimized Classification	Moez Mathlouthi, Imen Hamrouni Trimech*, Najoua Essoukri Ben Amara (Tunisia)
393	A Survey and Bibliometric Analysis of Scholarly Literature in Data Envelopment Analysis	Antonija Mandić, Katerina Fotova Čiković*, Damira Keček (Croatia)

SESSION P-48: Sensors with Applications

SESSION CHAIR(S): Chengyan Zhao & Anita Banjac

Paper ID	Title	Authors
361	Development of a wireless electrogastrography measurement system	Alonso Ochoa*,Juan Carlos Herrera Lozada,David Cruz Ortiz (Mexico)
159	Information Theoretic Sensor Placement Design for Optimal Filtering with Multirate Sampling	Garima Patel, Mani Bhushan* (India)
564	Secure and Efficient Image Transmission in IoT Networks Using Hyperledger Besu Blockchain	Gokhan Erdemir*, Burak Aggul, TAYFUN ACARER (USA)
639	An Adaptive Kalman Fusion Technique for Reference Tracking Under Shot Noise	Eda Erol*, Mustafa Dogru, Ismail Uyanik (Turkey)
255	Road Code Marking-Assisted Localization for Autonomous Vehicles in Tunnels	Yaoli Shi, Zhiguo Zhao*, Danshu Yan, Yifei Yang (China)
273	Acquisition of Kinematic and sEMG Data from Young and Older Adults Using an Upper Limb Exoskeleton	Hellen Rivero-Pineda,Estefania Suarez-Perez*,Gomez-Correa Manuela,Javier M. Antelis,Luis G. Hernández-Rojas,Mariana Ballesteros,David Cruz Ortiz (Mexico)
109	Analysis of Safety and Security in Autonomous Vehicle Intersections	Márton Novák*, Balazs Varga, Tamás Ormándi (Hungary)

SESSION P-49: Signal Processing

SESSION CHAIR(S): Pawel Domanski & Paolo Di Lillo

Paper ID	Title	Authors
365	Development of an Inertial Measurement System for the Kinematic Analysis of Human Gait	Angel Camacho*,Pedro Garcia-Enriquez,Gomez-Correa Manuela,Mauricio González-Palacio,Diana P. Tobón V.,David Cruz Ortiz,Mariana Ballesteros (Mexico)
464	Robust Remote Estimation of Lipschitz-Type Nonlinear Retarded State-Multiplicative Systems	Eli Gershon* (Israel)
103	The Interacting Multiple Model Feedback Particle Filter for the State-Dependent Switching Diffusion Systems	yiyang Chen, Ruoyu Wang, DengYu Yang, Xue Luo* (China)
91	Detection of Alzheimer's Disease by Using Time-Frequency Representations of EEG Signals with Deep Learning	MERAL ASLAN DIL, Ozlem Karabiber Cura, Aydin Akan*, FIRAT KACAR (Turkey)
158	A Weighted Approach for Bearing-Only Tracking of Underwater Acoustic Sources with Unbalanced Measurements	Tony Punnoose Valayil, Paolo Di Lillo*, Gianluca Antonelli (Italy)
590	Equivalent Diagonal Mutual Coupling Matrices for Narrowband ULA Beamformers	José Antonio Apolinário Jr., Claudio Augusto Saunders, Vitor Teixeira Klingelfus, Antonio L. L. Ramos* (Norway)

SESSION P-50: Transport Optimization

SESSION CHAIR(S): Tasseda Boukherroub, Sana Belmokhtar-Berraf

Paper ID	Title	Authors
262	Transport Optimization of an Anaerobic Digestion Co-Product in a Closed-Loop Supply Chain	Mathieu FAURE*, Tasseda Boukherroub, Jean-Francois Audy, Pierre-Olivier Lemire (Canada)
484	Dynamic Electric Vehicle Dispatching Problem: A Simulation Modelling Framework	Simon JEZEQUEL*, Tasseda Boukherroub, Sana Belmokhtar-Berraf (Canada)
302	A Blockchain Framework for Incentivized Data Sharing in Autonomous Vehicle Networks	Giuseppe Olivieri*,Agostino Marcello Mangini,Maria Pia Fanti (Italy)

386	Autonomous Vehicles for On-Demand Transport Service: Field Experimentation	Neila Bhouri*, Hassan Mahdavi (France)
521	A Local Search-Based Heuristic for Optimizing AGV Routing in Automated Port Environment	Tess NOUY*, Ghassen CHERIF, Sandra Ulrich NGUEVEU, Mikhail Zakharov (France)
230	Drone-Based Delivery in Logistics: Interdisciplinary Challenges	Mariem BELHOR*, Danielle NYAKAM NYA (France)
137	Lane-Independent Highway Traffic Management for Random Anomalies Using Reinforcement Learning	Márk Mitrenga, György Csippán, Bálint Kővári*, Tamás Bécsi, Szilárd Aradi (Hungary)

SESSION V-01: Applied and Multi-Objective Optimization

SESSION CHAIR(S): Martin Sébastien & Ines Sbai

Paper ID	Title	Authors
578	A Comprehensive and Optimised Waste Management System for Smart Cities	Sampson Akwafuo*, Akshay Ram Chaudhari (USA)
580	A Hybrid Method for Solving the Multi-Traveling Salesman Problem	Firas Houssein*, Vladimir Kostyukov (Russia)
643	New Approach to Optimize Vulnerabilities Management of Smart Contract in Blockchain Network	Zilga Heritiana Randriamiarison*, Hajarisena RAZAFIMAHATRATRA (Madagascar)
164	A Unified Approach for Optimal Cruise Airspeed with Variable Cost Index	Lucas Souza e Silva*, Luis Rodrigues, Ali Akgunduz (Canada)
288	A DSS Based on Intelligent Optimisation Algorithms for Solving the Postal Transportation Problem	Ines Sbai*, Saoussen Krichen, Hashem Abusenenh (Tunisia)
104	An Approach Combining Consensus with Optimization for Distributed Multi-Robot Task Allocation with Limited Communications	Mohamad Ali RAAD*, François Guerin, Dimitri Lefebvre (France)
616	Multi-Objective Optimization of the Taper Ratio for Conical Flywheels	Miguel Garcia*, Juan Onofre Orozco López, Orlando Castro-Ocampo, Jesús Úr

SESSION V-02: Artificial Intelligence for Forecasting

SESSION CHAIR(S): Chaari Lotfi & Mohamed El Koujok

Paper ID	Title	Authors
520	PathoGaitNet: A Deep Temporal Model for Predicting Pathological Gait Trajectories in Pediatric Patients	Jyotindra Narayan*, Abhijeet Mishra, Hassène Gritli (India)
640	Long-Term Energy Consumption Forecasting Using a Hybrid LSTM-XGBoost Approach	Nourhene Aouidi*, Ben Naceur Ferdaws, Chokri BEN SALAH (Tunisia)
550	Adaptive RDP-FL: Enhancing Privacy-Preserving Federated Learning with Robust Differential Privacy Mechanisms	Ibtissem BEN OUHIBA, KODIA Zahra*, Nadia BEN AZZOUNA (Tunisia)
178	Predicting Household electricity Consumption with Machine Learning and Smart Meter Data	Houda KHELIFI* (Tunisia)
435	HA-VReID: An Effective Hard Attention Model with Deep Learning for Vehicle Re-Identification	Imen ZITOUNI*,Emna Ben Baoues,Taher Slimi,Ibtissem Cherni,Anouar BEN KHALIFA (Tunisia)

SESSION V-03: Control Applications in Engineering

SESSION CHAIR(S): Li Jinfeng & Ehsani Mohsen

Paper ID	Title	Authors
518	Hybrid Fuzzy-State Feedback Control for Fast Mechatronic Systems: Modeling and Experimental Validation on a Rotary Inverted Pendulum	Ali Gamal Mahmoud*, Mohamed Emad Kahter, Essam Shaban, Ayman Ali Nada (Egypt)
303	Maglev System Control Using a New Adaptive Super Twisting Theory	Norolahzadegan Mohsen, Safiye Ghasemi, Samaneh Sedighi Maragheh, Mohsen Ehsani, Vahid Behnamgol, Barzamini Roohollah* (United Kingdom)
583	Attitude Tracking Control for a Quadrotor UAV Using an Adaptive Chattering-Free SMC	Mert Serhat Sarıhan*, Fatih Adiguzel, fikret caliskan (Turkey)
428	Comparison of recursive and nonrecursive processing schemes in the federated filtering	Yulia Litvinenko*, Oleg A. Stepanov (Russia)

347	Linear Quadratic Regulator Controller and Observer for Controlling Transient Oscillations Near Resonance in Non-Colocated Compliant Mechanism System	Siddhesh Chaudhari*, Prasanna Gandhi (India)
210	Intelligent Control of Electronic Wedge Brakes: A Fuzzy-SMC Approach with UKF-Based Friction Estimation	Mehrullah Soomro, Mohd Khair Hassan, Ghulam E Mustafa Abro* (Saudi Arabia)
278	Discrete-Time Observer Based Nonlinear Control for a BLDC Motor	Rezaei Samaneh, Ghahestani Mina, Nazanin Seyed Gogani*, Mohsen Ehsani, Vahid Behnamgol, Barzamini Roohollah, Sohani Behnaz (Iran)

SESSION V-04: Special Session on"Emerging theories, tools and methodologies for cybersecurity and digital forensics"

SESSION CHAIR(S): Jaouhar Fattahi, Mohamed Mejri, Ridha Ghayoula & Hager Kammoun

Paper ID	Title	Authors
197	A LIME-Explained VGG16 Model for Disguise and Makeup Face Recognition in Forensics	Abdelkarim Khedher, Jaouhar Fattahi*, Mohamed Mejri, Ridha Ghayoula, Lassaad Latrach (Canada)
398	A BERT Deep Learning Model for Arabic Spam Detection	Hadir Driss, Jaouhar Fattahi*, Mohamed Mejri, Sahbi Bahroun, Ridha Ghayoula (Canada)
43	Inception-Based Deep Learning Model for Arabic Audio Emotion Recognition for Forensics	Jaouhar Fattahi*, Mohamed Mejri, Ridha Ghayoula, Sawssen Jalel, Laila Boumlik, Feriel Sghaier (Canada)
443	Cyber-Troll Detection Using Deep Learning and NLP : A Comparative Study	Djibrim Mahaman Tahir M Atto, Jaouhar Fattahi*, Mohamed Mejri, Hnich Brahim, O. Thiombiano Abdoul Majid (Canada)
46	Parallel CNN Deep Learning Model for Security Monitoring and Fault Prediction in Electrical Systems	Jaouhar Fattahi*, Mohamed Mejri, Ridha Ghayoula, Laila Boumlik, Feriel Sghaier, Marwa Ziadia (Canada)
47	RansFighter: A GRU-Based Tool for Ransomware Detection	Jaouhar Fattahi*, Mohamed Mejri, Ridha Ghayoula, Sawssen Jalel, Laila Boumlik, Feriel Sghaier (Canada)
48	Reassessing CAPTCHAs in the Era of Advanced Deep Learning	Jaouhar Fattahi*, Feriel Sghaier, Mohamed Mejri, Ridha Ghayoula, Nadia Mesghouni (Canada)

SESSION V-05: Advanced Control Applications

SESSION CHAIR(S): Abro Ghulam E Mustafa & Chertovskih Roman

Paper ID	Title	Authors
297	BDFIG Control Using Dynamic Sliding Mode Based on Discrete Time Disturbance Observer	Mohsen Ehsani, Seyed Gogani Nazanin, Alan Ramsey, Samira Razmara, Vahid Behnamgol, Barzamini Roohollah* (United Kingdom)
426	Synchronization Analysis of Circadian Rhythms Using Kim-Forger Dynamics	Shyam Krishan Joshi*, Satnesh Singh, Pranjali Gajbhiye, K Hemchandra (India)
622	A Modular and Layered Perspective on Lateral Vehicle Motion Control: A Survey for ADAS and Autonomous Driving Systems	Mert Sever*, Melih Cakmakci, Mehmet Selçuk Arslan, Mehmet Turan Söylemez (Turkey)
56	Experimental Comparison of ALO and MRAS Speed Observers for Induction Motors	Denis Panxhi*, Aida Spahiu, Nuri Rusta, Donald Selmanaj (Albania)
67	A Study on Control Techniques for Single-Phase Asynchronous Motors: Bipolar and Unipolar Approaches	Omar FEZAZI*, Jaouher chrouta (Algeria)
68	Comparative Analysis of Sawtooth and Triangular PWM Techniques for Buck Chopper Applications	Omar FEZAZI*, Jaouher chrouta (Algeria)
149	Real-Time Adaptive Attitude Control of Lynx Helicopter with Hybrid LQR-Neural Network Architecture	Ahmet Kara*, Mehmet Önder Efe (Turkey)

SESSION V-06: Control Design Methods

SESSION CHAIR(S): Hammer Jacob & Deveerasetty Kranthi Kumar

Paper ID	Title	Authors
683	Scalar Sign Function-Based NFTSMC for 2-DOF Robotic Arms	lotfi chaouech*, Moez SOLTANI, Achraf Jabeur Telmoudi, Abdelkader Chaari (Tunisia)
362	Design and Experimental Analysis of a Fractional-Order Integral Controller for a Decoupled TITO Coupled Tank System	Chahira BOUSSALEM*, Fouad Yacef, Laid DEGAA, Mahmoud Belhocine, Pr.rizoug Rizoug Nassim (Algeria)

388	Combined Symbolic Regression Approach and Its Application for Synthesized Optimal Control	Askhat Diveev* (Russia)
573	Hyperexponential ILF-Based Control for Synchronous Motor Using Model-Free Approach	Dmitry Bazylev*, Konstantin Zimenko (Russia)
587	Minimizing Switchings in Global Bang-Bang Feedback Control	Jacob Hammer* (USA)
533	Optimal Investment in a Multi-Asset Market with Borrowing and Unbounded Random Coefficients	Nuha Alasmi*, Bujar Gashi (United Kingdom)
535	Optimal Control Problem Solving Using an Identified Neural Network-Based Dynamic Model of a Car-Like Robot	Elizaveta Shmalko*, Nikita Eliseev, Ivan Gromov (Russia)

SESSION V-07: Artificial Intelligence

SESSION CHAIR(S): Zhou Mi & Rezgui Kalthoum

Paper ID	Title	Authors
679	BrainReportAI: An End-to-End Deep Learning Framework for Low-Grade Glioma Segmentation and Automated Radiology Reporting	Raouf AZAZA, Amal Jlassi*, Khaoula Elbedoui (Tunisia)
660	Implementation of DMAIC Using Machine Learning to Analyze Product Defects in the Welding Consumables Industry	Evan Adriel*, Harito Christian (Indonesia)
293	Lightweight vs. Advanced Architectures: Performance Analysis of YOLOv8n and YOLOv9T in RF Spectrogram-Based UAV Detection	Feten Slimeni*, Tijeni Delleji, Ahmed SIALA (Tunisia)
193	Deep Learning for Multivariate ICU Beds Forecasting During Global Healthcare Crisis: COVID-19 Case Study	Amal ABID*, Mounira TLILI, Feten Maaroufi, Ouajdi Korbaa (Tunisia)
544	Addressing Climate Change and Port Emissions: An In-Depth Analysis and Optimization of Maritime Trajectory Reconstruction Using Hybrid AI Methodologies	Boutheina Jlifi*, Senda Sellami, Claude Duvallet (France)
423	Kernel Functions for Support Vector Machines: A Survey	Boutkhil Sidaoui*, Halima ABDELMOUMENE (Algeria)
647	A Neural Koopman Framework for CubeSat Modeling and Control	Omar Shouman*, Mohamed Mabrok, Tamer Khattab (Qatar)

SESSION V-08: Graphs and Networks

SESSION CHAIR(S): Hazarika Hemanta & Anouar Ban Khalifa

Paper ID	Title	Authors
411	A Novel Graph Isomorphism Network for Hand Gesture Recognition with Leap Motion Controller	Rahma Amri, Nahla MAJDOUB BHIRI*, Hajer Chtioui, Bassem Seddik, Anouar BEN KHALIFA (Tunisia)
538	Application of the Projective Geometry Principle to Describe the Dynamics of Smart Grid Modes	Elena Sosnina, Rustam Bedretdinov, Anton Ivanov* (Russia)
298	Clustering-Based Algorithm for Workload Allocation to Heterogeneous Processors with Constraint on Interprocessor Data Exchange	Vasily Balashov*, Yaroslav Basalov (Russia)
83	Integrating Graph and Recurrent Neural Networks for Spatiotemporal Reasoning	Victoria Magdalena Dax*, Jiachen Li, Zhi Li, Xiaowei Zhang, Hemabh Shekhar, Mykel Kochenderfer (USA)
153	Multipolar Dynamics of Social Segregation	Luka Bakovic*, David Ohlin, Emma Tegling (Sweden)
173	Explainable Graph Neural Networks for Psychiatry Disorder Diagnosis Using Brain Networks	Nesrine Jellali*, Rebh Soltani, Ltifi Hela (Tunisia)
621	A Greedy Randomized Adaptive Search Procedure Variant for MRTA Problems with Multiple Depots	Chaima BACCOUCHE*, Edouard LECLERCQ, Achraf Jabeur Telmoudi, Dimitri Lefebvre (France)

SESSION V-09: Control Theory

SESSION CHAIR(S): Wang Ziming & Behnamgol Vahid

Paper ID	Title	Authors
663	Adaptive Roll Autopilot Design for Interceptor Missile	SHIVENDRA NATH TIWARI, Ketan Detroja* (India)

182	A Comparative Study between Flatness-Based Control with an Exact Observer and Functional Observer-Based Feedback Control	Safa Amara*, Mounir Ayadi, Mohamed BEN ABDALLAH, Mariem Hamdoun (Tunisia)
566	Reinforcement Learning Based Adaptive PID Controller for Non-Minimum Phase Unstable Systems with Delay	Sourabh Yadav, Ketan Detroja* (India)
678	Effective Fixed-Time Control for Constrained Nonlinear System	Chenglin Gong, Ziming Wang, Guanxuan Jiang, Xin Wang, Yiding Ji* (China)
558	Finite-Time Synchronization of Master-Slave Chaotic Systems with Constant Time Delays	Pallov Anand*, A. Pedro Aguiar (Portugal)
574	State-of-Charge Estimation of Lithium-ion Battery using Super-Twisting Algorithm with Extended State Observer	POOJA SINGH, Rahul Kumar Sharma*, DHANALAKSHMI K, Ambareesh Veeraraghavan (India)
569	Implementation of PI Control for Angular Speed Regulation in Magnetic Levitation Systems	Juan Diego Landeros Saucedo, Missael Eduardo Becerra Aguilera, Hernandez Umanel, Sergio Dominguez-Sanchez, Flabio Dario Mirelez Delgado* (Mexico)

SESSION V-10: Monitoring and Supervision

SESSION CHAIR(S): Bindu Thomas & Chaima Chaieb

Paper ID	Title	Authors
524	Estimation of Lithium-Ion Battery State of Charge and Health Using LSTM Networks	Nahed Ghanay*, Abdelmoudjib Benterki, Moussa Boukhnifer, Achraf Jabeur Telmoudi (Tunisia)
601	Assessing the Feasibility of Time-Series Integration for Large-Scale Forest Monitoring	Kittichai Lavangnananda*, Boonyarit Changaival, Panruthai Tangprasert, Jiranan Thammakosit (Luxembourg)
414	Data-Driven Crack Detection in the Realm of Structural Health Monitoring: An Overview	Hassan Dabaja*, Hassan Noura, Mustapha Ouladsine (France)
407	Improvement in the Performance of Formula 1 Cars	Mattia Braggio,Sorrenti Lorenzo,Melesse Tsega Y.*,Roberto Mosca,Simone Arena,Pier Francesco Orrù,Marco Mosca (Italy)
589	Fault-Tolerant Electric Actuator for Heavy Unmanned Aerial Vehicles Using a Harmonic Drive	Mohamed A.A. Ismail* (Saudi Arabia)
381	CGAN Based Data Generation for Process Monitoring	Jing Wang*, Meng Zhou, Yanzhu Zhang (China)

SESSION V-11: Electronic System Design and Wireless Communications

SESSION CHAIR(S): Feten Slimen & Khaled Hamouid

Paper ID	Title	Authors
221	Graph Matching Via Multidimensional Embeddings: A Novel Approach for Complex Ontology Alignment	Houda AKREMI*, Taher Slimi, Sami Zghal, Anouar BEN KHALIFA (Tunisia)
469	Developing a Method for an Optimized Static Vehicle Function Distribution	Jan Ruhnau*, Steffen Becker (Germany)
641	Energy-Saving Approaches for 5G and Beyond: New Classification and Analysis	Hasna Fourati*, Maaloul Rihab, Lamia Chaari, Mohamed JMAIEL (Tunisia)
65	Towards a Lightweight and Efficient Gaussian Mixture Model for Detecting Mirai Botnet Attacks in IoT Environments	Brahim Boutra, Khaled Hamouid*, Mawloud OMAR, Mohamed Rahouti, Hamza Drid (France)
408	Liquid Crystal-centric Artificial Intelligence of Things for Urban Scenes and City-scale Public Sector Modernization Towards General Reconfigurability for Artificial General Intelligence and Artificial Superintelligence	Jinfeng Li*, Haorong Li (China)
120	Hybrid Bias Controller for GaN HEMT Radio Frequency Power Amplifier	Amine TRABELSI*, Mejri Fethi, Tijeni Delleji, Ahmed SIALA (Tunisia)
220	Hierarchical Embedding Techniques for Medical Ontology Matching and Semantic Interoperability	Houda AKREMI*, Taher Slimi, Sami Zghal, Anouar BEN KHALIFA (Tunisia)

SESSION V-12: Special Session on"AI and Intelligent Transportation Systems: Innovations and Challenges"

SESSION CHAIR(S): Nadia Ben Azzouna, Lilia Rejeb & Lamjed Ben Said

Paper ID	Title	Authors
485	Inventory Routing Optimization with Working Capital Requirement consideration	Meriem CHAIRAT*, Najet Boussaa, Fahima Alili, Lilia Rejeb, Issam NOUAOURI (Tunisia)
341	Real-Time Traffic Prediction Using ADAptive GRAdient Descent	Yasmine Amor*, Lilia Rejeb, Nabil Sahli, Lamjed Ben Said, Mohamed Wassim TROJET, Ghaleb HOBLOS (Tunisia)
342	Intelligent Multi Agent Systems Based Traffic Simulation for Adaptive Traffic Regulation Using Dynamic Message Signs	Maram Mohamad, Rihab Abidi*, Yasmine Amor, Nabil Sahli (Tunisia)
636	A Multi-Start Tabu Search with Set Partitioning for the Green VRP	Atef Dridi*, Dalila TAYACHI, Aziz Moukrim, Lamjed Ben Said (Tunisia)
483	Ecological Multimodal Freight Transport Optimization	Mokhtar Labidi, Lilia Rejeb*, Lamjed Ben Said (Tunisia)

SESSION V-13: Image and information Processing

SESSION CHAIR(S): Akremi Houda & Nesrine Jellali

Paper ID	Title	Authors
595	Robust Multiobject Tracking Using MmWave Radar-Event-Camera Sensor Fusion	Leonard Haensel*, Torsten Bertram (Germany)
409	GABrain-Net : An Optimized Gabor-Integrated U-Net for Multimodal Brain Tumor MRI Segmentation	Ekram Chamseddine*, Lotfi TLIG, Lotfi Chaari, Mounir Sayadi (Tunisia)
116	Physics-Informed Loss Functions for Enhancing Concrete Compressive Strength Prediction with Neural Networks	Oğuz Akif Tüfekcioğlu*, Mehmet Önder Efe (Turkey)
169	Retinal Layer Segmentation and Classification in OCT Images for Disease Detection	Maria Valentina Leyba Mesa*, Elijah Ray, Bayan Ahmad, Buket Barkana (USA)
496	Detecting Critical Infrastructures in Disaster Images by Combining PSPNet and Genetic Algorithm-Driven Hyperparameter Optimization	Iyed Dhahri*, Mahmoud Golabi, Karim Hammoudi, Lhassane Idoumghar (France)

SESSION V-14: Smart System Applications

SESSION CHAIR(S): Jyotindra Narayan & Sampson E. Akwafuo

Paper ID	Title	Authors
368	Control of Steering and Brake Actuator Dynamics in Driverless Vehicles: A Real-World Formula SAE Skid-Test Scenario	Danilo Menegatti*, Francesco Pappalardo, Francesco Luzi, Alessandro Giuseppi (Italy)
441	Least Squares Support Vector Machines-based Imitation Learning of Nonlinear Model Predictive Control	Luca Cavanini, Francesco Ferracuti, Andrea Monteriù, Francesco Vella* (Italy)
351	Reinforcement Learning for Enhanced Path Tracking in Autonomous Vehicles: A Formula SAE Skid-Test Validation	Danilo Menegatti*, Francesco Luzi, Francesco Pappalardo, Alessandro Giuseppi (Italy)
385	Fault Detection for Wastewater Treatment Plants Based on H-/L∞ Observer	Meng Zhou, Haolong Li, Jing Wang* (China)
115	Mobile Robot Path Following Using Chaotic Grasshopper Algorithm Based Fuzzy Control Approach	Turki Abdalla*, Abdulkareem Abdalla, Adala Chyaid (Iraq)
364	Dynamic Mode Decomposition (DMD) for Enhanced Epilectic Seizure Prediction from EEG Signals	Danilo Menegatti*, Bianchi Camilla, Filippo Federiconi, Alessandro Giuseppi (Italy)
401	Multi-Terrain Classification for Legged Robots Using HistGradient Boosting Machine Learning Technique	Yash Vardhan, Jyotindra Narayan*, Achraf Jabeur Telmoudi (India)

SESSION V-15: Learning Systems in Engineering

SESSION CHAIR(S): Zahra Kodia & Umawathy Techanamurthy

Paper ID	Title	Authors
285	Transfer Learning for Predicting Thermal Comfort in Office Environments with Climate Similar to Tunisia: Overcoming Data Scarcity with Deep GRU-BiGRU Models	Mohamed Khayri RAHMANI*, Hajer Chtioui, Jalel BEN HADJ SLAMA, Mireille GETTLER SUMMA, Anouar BEN KHALIFA (Tunisia)
397	XAI-Driven Deep Learning for Real-Time Wireless Sensor Failure Prediction in Healthcare	Naima Samout* (Tunisia)
673	A Vector Quantization-Based U-Net for Robust Segmentation of Corpus Callosum	HAFSI Sami*, Jlassi Amal, Issaoui Maram, de la ROSA Ezequiel, Harbaoui Ahmed (Tunisia)
223	Gender Role in Thermal Comfort Prediction in Industrial Environments Using a Novel XGBoost Approach	Mohamed Khayri RAHMANI*, Hajer Chtioui, Jalel BEN HADJ SLAMA, Mireille GETTLER SUMMA, Anouar BEN KHALIFA (Tunisia)
549	A Novel Approach for Enhancing LoRaWAN Performances Based on Optimization Algorithms	Yassine Latreche, Mokhtar ESSAID, Mahmoud Golabi, Ismail BENNIS*, Lhassane Idoumghar (France)
175	Cybersecurity and Intrusion Detection in Big Data's Wireless Sensor Networks: A Survey	Naima Samout* (Tunisia)
267	Reinforcement Learning Based Optimization for Road-Side-Units Placement Along Highways	Mohammed Saeed*, Shaheer Sherif, Youssef Mahran, Lina Ghonim, Mohamed Sabry, Mariam Fathi, Mohamed A.Ibrahim, Omar Shehata (Egypt)

SESSION P-51: System Identification

SESSION CHAIR(S): Anita Banjac & Lukasz Stettner

Paper ID	Title	Authors
517	New approach for the identification of a class of time-varying parameters dynamic systems	Francis A. Okou*, Lauhic Jean Marie Ndong Mezui, Donatien Nganga-Kouya, Rachid Beguenane (Canada)
676	Parametric Modelling of Radiation Forces for Hybrid Wind-Wave Energy Converters	Maria Luisa Celesti*, Nicolas Faedo, Giuliana Mattiazzo (Italy)
384	An Extended Kalman Filter with Updated Noise Covariance for Parameter Estimation in Chemical Reaction Networks	Suryasnata Dash, Sai Sasi Kumar Appana, Abhishek Dey* (India)
448	Sparse Bayesian Learning for Koopman Based System Identification	Selin Ezgi Özcan*, MUSTAFA Mert ANKARALI (Turkey)
603	Real-Time Parameter Estimation of Central Air Handling Unit: Algebraic and Recursive Least Squares Techniques	Xingyi LI*, Danielle NYAKAM NYA, Franco FALCONI, Tarek Raïssi (France)

SESSION P-52: Special Session on "Artificial Intelligence-based models and methods for smart logistics, manufacturing and healthcare"

SESSION CHAIR(S): Maria Pia Fanti, Agostino Marcello Mangini & Michele Roccotelli

Paper ID	Title	Authors
260	A DRL Approach for Optimizing the Vehicles Motorway Entry in Congested Traffic Scenarios	Antonio Salcuni*,Gaetano Volpe,Agostino Marcello Mangini,Maria Pia Fanti (Italy)
503	Learning Insertion Heuristics for the Traveling Salesman Problem via Neural Networks and Black-Box Optimization	Mariusz Kaleta*, Tomasz Śliwiński (Poland)
92	Diagnosis of Parkinson's Disease Using Machine Learning Algorithms	Ilaria Pia Battista,Michele Roccotelli,Wasim Ali,Maria Pia Fanti* (Italy)
307	Case Study for Distributional Transport Agant-Based Modeling and Optimization	Patryk Ploski, Radzikowski Kacper, Pawel Dariusz Domanski* (Poland)
308	Stochastic Multi Agent-Based Warehouse Model	Sobas Artur, Cyperski Szymon, Maciejewski Piotr, Pawel Dariusz Domanski* (Poland)
309	Order Piking Optimization for Agent-Based Warehouse	Cyperski Szymon, Sobas Artur, Maciejewski Piotr, Pawel Dariusz Domanski* (Poland)
363	Sustainable Last-Mile Delivery with Autonomous Aerial Vehicles and Autonomous Terrestrial Robots: A Case Study	Angelina Krendeleva*, Bartolomeo Silvestri, Maria Pia Fanti, Agostino Marcello Mangini (Italy)

SESSION V-16: Special Session on"OptiQ – from (nonlinear) optics to quantum computing, simulation, visualization and image processing: on Earth and in space"

SESSION CHAIR(S): Krzysztof Cyran, Kamil Wereszczyński & Dmytro Babets

Paper ID	Title	Authors
249	Software-Based Collection and Classification of Scientific Papers: A Use Case in Quantum Optics Research	Serhii Prykhodchenko*, Oksana Prykhodchenko, Dmytro Babets, Andrii Kolb, Marcin Paszkuta, Krzysztof Cyran (Ukraine)
264	FRQI Pairs method for image classification using Quantum Recurrent Neural Network	Rafał Potempa*, Michał Kordasz, Sundas Khan, Faisal, Krzysztof Werner, Kamil Wereszczyński, Krzysztof Siminski, Krzysztof Cyran (Poland)
292	Advancements and Challenges in Linear Quantum Optics: A Comprehensive Review of Quantum Information Processing	Sundas Khan, Faisal*, Samra Urooj Khan, Michał Kordasz, Krzysztof Cyran (Poland)
512	Game-Based Generation of Binary Data for Use in Bell Inequality Experiments	Anna Daniłowicz*, Piotr Bartosz, Maja Wola, Jakub Sarno, Agnieszka Michalczuk, Kamil Wereszczyński, Krzysztof Cyran (Poland)
93	Revolutionizing Quantum Learning: Mach-Zehnder Interferometer in Augmented Reality	Onyeka Josephine Nwobodo*, Michał Kordasz, Kamil Wereszczyński, Krzysztof Cyran (Poland)

SESSION V-17: Special Session on"Recent Advances in Explainable AI (XAI) for Smart Systems"

SESSION CHAIR(S): Zahra Kodia & Nadia Yacoubi

Paper ID	Title	Authors
551	Towards solving the Cold Start and Explainability Challenges in Recommender Systems Using Knowledge Graphs and User Demographics Data	Nadia Ben Hadj Boubaker*, Nadia Yacoubi, KODIA Zahra (Tunisia)
236	The Impact Mechanism of Perceived AI Interaction Style on Citizen Experience of Innovative Smart Cities in China	Hong Tao*, Zhengang Zhang (China)
366	Explainable AI Planning:literature review	ALI ABDELGHAFOUR BEJAOUI* (Tunisia)
644	DeepUCS for knowledge extraction applied to sleep stages	Rahma Ferjani* (Tunisia)
638	Improved Information Sharing Mechanism (I2SM) for Metaheuristic Efficiency: A PSO Case Study	Maria Zemzami*, Chakib Benmhamed, Hakima Reddad, Farouk Yalaoui, Nhan Quy Nguyen (Morocco)
675	AI-based algorithm for the management and optimization of smart agricultural IoT system	Aya Saad, Ben Naceur Ferdaws*, Achraf Jabeur Telmoudi, Chokri BEN SALAH (Tunisia)

SESSION V-18: Optimization and Operational Research

SESSION CHAIR(S): Martin Sébastien & Wassila Aggoune-Mtalaa

Paper ID	Title	Authors
519	A Hybrid Machine Learning Model for Predicting Surgical Procedure Duration: Integrating Random Forest and K-Means Clustering	Amira BRAHMI*, Asma Ouled Bedhief, SAFA BHAR LAYEB, Najla Aissaoui (Tunisia)
184	Enhancing the Performance of Quantum Neutral-Atom-Assisted Benders Decomposition	Anna Joliot, M. Yassine Naghmouchi*, Wesley Coelho (France)
132	Application of Hybrid Memetic Algorithm to Solve Dynamic Vehicle Routing Problem with Overtime in the Context of Reverse Logistics	BERAHHOU AMINA*, YOUSSEF BENADADA (USA)
610	A Clustering Based Bi-Objective Optimization of the Location of Electric Charging Stations in Tunis	Amira Mzita, Wassila Aggoune-Mtalaa*, Hend Bouziri (Luxembourg)
568	Pricing-Driven Optimization of Lot-Sizing and Scheduling in Hybrid Manufacturing-Remanufacturing Systems	Latifa Belhocine*, Hajar Nouinou, Dagna Elkhouni (France)
454	Reduction of Flow Resistance with Hybrid TPMS Heat Exchangers	Issam EL KHADIRI*, Mohamed Abouelmajd, Maria Zemzami, Nabil Hmina, Soufiane Belhouideg (Morocco)
163	A Hybrid Optimization Approach for a Continuous and Efficient Pump Operation Scheduling in Water Supply Systems	Brás Marlene*, Ana Moura, António Andrade Campos (Portugal)

SESSION V-19: Applied Optimal Control

SESSION CHAIR(S): Zhou Mi & Alshaya Abdullah

Paper ID	Title	Authors
406	Finding Time-Optimal Path through a Forest of Circles by Graph Search	Vadim Belotelov*, Anna Daryina (Russia)
315	Mobile Robot Motion Planning Based on Synthesized Optimal Control with Particle Swarm Optimization	Elizaveta Shmalko,Konstantin Yamshanov* (Russia)
211	Stochastic Model Predictive Control for Networked Systems with Random Delays and Packet Losses in All Channels	Marijan Palmisano, Martin Steinberger*, Martin Horn (Austria)
432	Machine Learning and Derivative-Free Optimization for PID Tuning: Case Study of Improved Black Liquor Concentration Control	Mohamed EL KOUJOK*, Haitian Zhang, Hakim Ghezzaz, Mouloud Amazouz, Ali Elkamel (Canada)
477	Adaptive Toolpath Correction for Robotic Finishing Based on Workpiece Shape Deviation	Luka Drobilo*, Mihovil Legin, Tomislav Staroveski, Danko Brezak (Croatia)
377	Optimal Regulator for Linear Stochastic Systems with Markovian-Switching Coefficients and State-Delay	Nuha Alasmi*, Bujar Gashi (United Kingdom)

SESSION V-20: Robotics Control Applications

SESSION CHAIR(S): Jyotindra Narayan & Abro Ghulam E Mustafa

Paper ID	Title	Authors
427	Emulating Underwater Locomotion: Design and Development of CPG-Controlled Biomimetic Robotic Fish	Sourish Varanasi, Aditya Bisla, Jyotindra Narayan*, Bhavik Patel, Santosha K. Dwivedy (India)
473	Autonomous Terrain Leveling Using a Multi Robots System: A Formal Framework for Architecture and Motion Planning	Thanh Binh DO*, François Guerin (France)
108	Learning by Doing: Online Learning to Compensate Gravity with a Computed Torque Controller Using Lagrangian Neural Networks	Manuel Weiss*, Alexander Pawluchin, Arnold Schwarz, Thomas Seel, Ivo Boblan (Germany)
135	Model Predictive Control (MPC) for Task Allocation under Constraints in Mobile Robotics: Application to Industrial Logistics	Arnaud BELHOMME*, François Guerin (France)
499	Optimal PID Control for Quadruped Robot Using Puma Optimizer: A Numerical Study	Gupta Suvansh, Chahek Sarawagi, Jay Dhamija, Jyotindra Narayan*, Ashish Singla, Achraf Jabeur Telmoudi (India)
413	Extended Model Approach for Solving Optimal Control Problem in Class of Implemented Control Functions	Askhat Diveev*, Elena Sofronova, Artem Dmitrievich Barabash (Russia)
671	LiDAR-Enhanced Dynamic Control Barrier Functions for Real-Time Collision Avoidance in an Unknown Environments	Nidhi Agarwal, Shyam kamal, Kyle Collins, KRANTHI KUMAR DEVEERASETTY*, Diwakar Saini, Sandip Ghosh, Anchal Bhardwaj (USA)

SESSION V-21: Scheduling Optimization

SESSION CHAIR(S): Oludolapo Akanni Olanrewaju & Meriem Touat

Paper ID	Title	Authors
493	Efficient Scheduling of Electric Vehicle Charging Via Tabu Search and Exact Optimization Techniques	Abdennour Azerine, Mahmoud Golabi*, Ammar Oulamara, Lhassane Idoumghar (France)
674	MOSA-based Q-Learning for the Unrelated Parallel Machine Scheduling Problem with Maintenance Planning	Meriem TOUAT*, Karima BENATCHBA, Lyna-Razane MEGUELLATI (France)
501	Optimizing Profile Block Bids in Short-Term Hydropower Scheduling: A Two-Phase Model for the Day-Ahead Market	Mohammad Jafari Aminabadi, Sara Séguin*, Stein-Erik Fleten, Ellen Krohn Aasgard (Canada)
355	Metaheuristic Optimization for Efficient Food Production Scheduling	Aseel Abdelkarim*, rawan hegazy, Ganna Salem, Jessica Magdy Gergis Haleem, Omar Shehata (Egypt)
492	Tailoring a Red Deer Algorithm for Solving an Integrated Surgery Planning and Scheduling Problem	Asma Ouled Bedhief*, Amira BRAHMI, Najla Aissaoui, SAFA BHAR LAYEB (Tunisia)

95	Minimum Energy Policies for Machines in Job-Shops During Their Idle Periods	Oludolapo Akanni Olanrewaju*, Fabio Krykhtine, F. Mora-Camino (South Africa)
577	Data-Driven Models for Predicting No-Show Rates and Service Times in Outpatient Appointment Scheduling	Moustapha Fall, Ilhem Slama, Yassine Ouazene*, Achraf Jabeur Telmoudi (France)

SESSION V-22: Smart Systems and Technologies

SESSION CHAIR(S): Mahdi Hammami & Kalthoum Rezgui

Paper ID	Title	Authors
199	Distribution Feeder Hardening for Improving the Grid Resilience in Adverse Weather Conditions	Mohammad Shahidehpour*, Meher Preetam Korukonda, Matin Farhoumandi, Keith Dsouza (USA)
96	Radiofrequency Sensor for Real-Time Engine Oil Quality Monitoring	Mejri Fethi*, TAOUFIK AGUILI (Tunisia)
528	IoT Security: Attacks, Security Tools, Machine Learning and Frameworks	Jozef Fiala, Slavomír Tatarka*, Papán Jozef, Michal Kvet, Jan Panus (Slovakia)
171	Design and Implementation of an IoT-Based Air Treatment Single-Room Ventilation System Using ESP-NOW	Mahdi Hammami*, Jihen Souifi, Mohsen Ghribi, Serge Colin, Hayfa SOUIFI (Canada)
531	Entropy and information analysis of the interoperability of the emergency early warning system	Viktor Drogovoz* (Russia)
516	Investigating OpenSim for Simulating Gait Restoration with a Knee Exoskeleton	Anish Behera, Samyak Kumar Mishra, Japteshwar Singh, Jyotindra Narayan*, Matthew Wong Sang (India)
356	New Approach to Observe the Radio Signatures of the Galactic Continuum	Mejri Fethi*, TAOUFIK AGUILI, MONCEF GHOURABI (Tunisia)

SESSION V-23: Neural Networks Applications

SESSION CHAIR(S): Gefeson Mendes Pacheco & Kiss Gábor

Paper ID	Title	Authors
205	Federated Multiple Dataset Learning Using Levenberg Marquardt Algorithm	Sedat Akbal*, Mehmet Önder Efe (Turkey)
126	Hard Attention-Based VGG16 for Disease Tomato Re-Identification	Youssef Laatiri*, Mohamed Ali MAHJOUB (Tunisia)
133	Neural Network Bias Compensator for Flight Control Actuators	Aysenur Bodur*, Oguz Kaan Hancioglu, Mehmet Önder Efe (Turkey)
606	Comparative Study of Web Attack Detection on WAF: Gradient Boosting and Neural Networks for HTTP Traffic Classification	Cristian Chindrus*, Constantin-Florin Caruntu (Romania)
415	Enhancing Fault Tolerance in Multimodal Learning: A VAE-Based Approach with Probabilistic Fusion	Diyar Altinses, Andreas Schwung* (Germany)
548	Attention-Optimized Fusion of Multiple Data Modalities for Psychological Disorder Assessment	Slah Rabaoui, Samar Bouazizi*, Hela Ltifi (Tunisia)
649	Pretrained Convolutional Neural Networks for Bladder Cancer Diagnosis Via White Light Cystoscopy	Dahimi Haithem, Hifi Mhand*, Saint Fabien (France)

SESSION V-24: Optimal Control Applications

SESSION CHAIR(S): Chertovskih Roman & Mandar Datar

Paper ID	Title	Authors
387	Robust Entanglement Generation in Bipartite Quantum Systems Using Optimal Control	Nahid Dehaghani*, A. Pedro Aguiar, Rafael Wisniewski (Denmark)
90	Multi-Impulse Input Shaper for Vibration Control with Smoothness-Adjustability	Abdullah Alshaya* (Kuwait)
263	Optimal Ensemble Control of Neural Populations: Numerical Experiments	Roman Chertovskih*, Nikolay Pogodaev, Maxim Staritsyn, A. Pedro Aguiar (Portugal)
440	Bellman Function Search by Symbolic Regression	Askhat Diveev, Elena Sofronova* (Russia)
266	Integration of Acoustic Constraints in Trajectory Generation	Damien Hoareau, Danil Berrah, Joris Tillet, Alexandre Chapoutot* (France)
646	Safe Data-Driven Optimal Control for Type-1 Diabetes	Mohab Mahdy Helmy Atanasious*, Valentina Becchetti, Alessandro Giuseppi (Italy)
481	Piecewise Reinforcement Learning for Hybrid Systems	MI ZHOU*, Jiazhi Li, Masood Mortazavi, Ning Yan, Chaouki Abdallah (USA)

631	Non Linear Model Predictive Control (NMPC) for a Linear Take-off Procedure of an Airborne Wind Energy (AWE) System	Mohammed Saeed*, Youssef Mahran, Zeyad Gamal, Royia Soliman, Florian Holzapfel, Ayman El-Badawy (Egypt)

SESSION V-25: Identification and Control Systems

SESSION CHAIR(S): Giuseppe Franze' & Jaafar ALMutawa

Paper ID	Title	Authors
268	A Sampled Observer for a Three-Branch Supercapacitor Model: Voltages Estimation for SOC under NEDC and WLTP Cycles	Imane BELGHAZI, Eric Magarotto*, Tarek Ahmed-Ali, MADJID HADDAD (France)
417	Nonlinear Adaptive Differentiator Estimator for Ideal Signals	Karim Khayati* (Canada)
284	Advancing Bacterial Cellulose-Based Sensors: A Simplified 1D White-Box Model and Parametric Study for Single Carrier Mechanoelectric Transduction	Francesca Sapuppo*, Luca Patané, Riccardo Caponetto, Sara Hosseini, Salvatore Graziani, Antonino Pollicino, M. Gabriella Xibilia (Italy)
619	A Dynamical Hybrid LTS-EnKF Approach for Robust State Estimation under Outlier Contamination	JAAFAR ALMUTAWA* (Bahrain)
498	Characteristic Parameter Identification by Recursive Ordinary Least Squares	Esten Ingar Grøtli*, Mark Haring, Synne Fossøy (Norway)
416	On Convergent Smooth Differentiator Estimator for Ideal Signals	Karim Khayati* (Canada)

SESSION V-26: Systems Engineering and Control

SESSION CHAIR(S): Anna Daryina & Vahid Behnamgol

Paper ID	Title	Authors
394	An Outer Bounding Ellipsoid-Based Algorithm for Identifying Piecewise Affine Output-Error Models	Abdelhak GOUDJIL*, Mathieu Pouliquen, Eric Pigeon, Mostafa SMAIL, Abdelwahhab Boudjelal (France)
547	Interpretable Fuzzy-ELSTM Framework for EEG-Based Stroke Prediction	Noura Salhi, Samar Bouazizi*, Ltifi Hela (Tunisia)
212	Decentralized Control Strategy for Path-Following in Snake Robots	Arpit Dwivedi, Hemanta Hazarika*, Dwaipayan Mukherjee, Debasattam Pal (India)
81	Topological Roughness of the Phase Space of Dynamic Systems	Roman Omorov* (Kyrgyzstan)
140	DC Encoder Motor Control based on Koopman Framework	Ravi Kiran Akumalla*, Ravi Shankar Bahuguna, Tushar Jain (India)
80	System Approach of Smart Home Implementation with Cybersecurity Elements	Ivana Bridova*, Peter Brida, Michal Janovec (Slovakia)
113	Comparative Study of the Control Performance in DC Grid Tied DFIG Based Marine Current Turbine Generator System	Yosra Smai, Bilel Touaiti*, Hechmi Ben Azza, Abdoul Rjoub (Tunisia)

SESSION V-27: Special Session on"Shaping the Future Through Serious Games, Gamification, and AI-Driven Innovation Across Domains"

SESSION CHAIR(S): Lamjed Ben Said, Hédia Mhiri Sellami, Nadia Ben Azzouna, Kalthoum Rezgui & Besma Ben Amara

Paper ID	Title	Authors
112	Assessing the Effectiveness of ChatGPT for Enhancing Programming Skills Among Second-Year Computer Science Students in Tunisia	Noureddine aissa*, Hédia Mhiri Sellami (Tunisia)
117	A Study of Adaptations and Support in Serious Games Dedicated to Learning Programming	Chaker Abid*, Hédia Mhiri Sellami, Lamjed Ben Said (Tunisia)
118	A Serious Game for Learning of Variables and Operators Priority Rules in Programming	Chaker Abid*, Hédia Mhiri Sellami, Lamjed Ben Said (Tunisia)
119	Difficulties of learning Programming	Chaker Abid*, Hédia Mhiri Sellami, Lamjed Ben Said (Tunisia)
536	Towards a Cross-Domain Ontology for Serious Games	Kalthoum Rezgui*, Hédia Mhiri Sellami, Besma Ben amara (Tunisia)
537	A Framework for Designing Serious Games with Extended Reality to Enhance Learning	Besma Ben amara*, Hédia Mhiri Sellami, Lamjed Ben Said (Tunisia)

Table of Contents

Welcome Message 2
CoDIT 2025 Committees 3
Venue and Practical Information 4
Keynotes 6
Workshops & IEEE-IFAC WiE Activities 14
Papers / Session & Sessions chairs 15

2025 11th International Conference on Control, Decision and Information Technologies (CoDIT)
IEEE Conference Record Number: 66093
Conference Dates: 2025-07-15 - 2025-07-18
Split, Croatia