

An aerial photograph of Mexico City, Mexico, featuring the Angel of Independence statue in the foreground. The statue is a large, golden, winged figure standing on a pedestal. In the background, a wide, multi-lane highway stretches into the distance, flanked by lush green trees. The city skyline is visible in the background, with several tall buildings, including one with the 'CHUBB' logo. The sky is filled with soft, golden clouds, suggesting a sunset or sunrise.

2023 IEEE Symposium Series on Computational Intelligence

**December 5th – 8th 2023
Mexico City, Mexico**



Table of Contents

• Welcome Message from General Chair of SSCI 2023	2
• SSCI 2023 Organizing Committee	3
• Program At A Glance	8
• Conference Venue	12
• Plenary Talks	14
• Tutorials and Workshops	21
• Panel Session	29
• Student Activities	30
• Symposia and Chairs	31
• Special Sessions	36
• SSCI 2023 statistics	38
• History of SSCI Meetings	43
• Technical Program	23
• SSCI 2023 Keyword Index	70
• SSCI 2023 Author Index	73

Welcome to the 2023 IEEE Symposium Series on Computational Intelligence

On behalf of the organizing committee, it is my pleasure to welcome all participants and friends to the 2023 IEEE Symposium Series on Computational Intelligence (SSCI 2023), held in Mexico City from December 5th to 8th, 2023.

SSCI 2023 is a flagship meeting organized by the IEEE Computational Intelligence Society. It serves as a primary forum for multidisciplinary research in the field of computational intelligence. It includes plenary sessions, panel discussion, contributed paper sessions, workshops, tutorial sessions numerous social events, and student activities.

In the history of SSCI conferences, this is the first time the conference is held in Latin America, specifically in Mexico City, the largest Spanish-speaking city. It is one of the world's largest cities, boasting a wealth of cultural and historical attractions. The conference venue is the Sheraton Mexico City Maria Isabel Hotel, located on Paseo de la Reforma in the bustling business and shopping district.

SSCI 2023 is an in-person conference and features 40 symposia and 13 special sessions, each dedicated to a special topic within or related to computational intelligence. SSCI 2023 has received 442 submissions from 47 different countries, with 1,157 authors contributing symposium papers, special session papers, and presentation-only papers. In the final program, 307 technical papers were selected, including 281 regular papers which will be included in the IEEE Xplore, and 26 presentation-only papers.

In addition to the papers, SSCI 2023 has 5 plenary sessions, 5 tutorials, 3 workshops, a panel discussion, and a best paper award sponsored by the Sociedad Mexicana de Inteligencia Artificial. We are very proud to be able to offer such a comprehensive technical program, both in terms of its depth and breadth.

I appreciate the CIS community including the authors, the 704 reviewers, and the symposia and special session chairs. Without their support we would not have been able to reach such a good number of submissions and high-quality evaluations.

I would like to thank the organizing committee and the volunteers for their efforts in ensuring that SSCI 2023, the final annual meeting of SSCI, becomes a reality. I sincerely hope that SSCI 2023 will be an engaging and memorable experience for all attendees.

Wen Yu
General Chair
CINVESTAV-IPN
Mexico City, Mexico

Organizing Committee

General Chair



Wen Yu
CINVESTAV-IPN
Mexico

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Brazil

Tuesday December 5, 2023

Track 1		Track 2		Track 3		Track 4	
09:00-10:00 TuA1 Imperio A	T1: Evolutionary Multi-Objective Feature Selection for Machine Learning	09:00-10:00 TuA2 Constitución A	T2: A Tutorial on Evolutionary Bilevel Optimization Concepts, Algorithms, and Applications 1	09:00-10:00 TuA3 Constitución B	W1: Trustworthy AI through Model Risk Management 1	09:00-10:00 TuA4 Constitución C	W2: Computational Intelligence Techniques for Solving Equity, Diversity, and Inclusivity Problem 1
10:30-11:30 TuB1 Foyer 2nd floor	T1: Evolutionary Multi-Objective Feature Selection for Machine Learning 2	10:30-11:30 TuB2 Constitución A	T2: A Tutorial on Evolutionary Bilevel Optimization Concepts, Algorithms, and Applications 2	10:30-11:30 TuB3 Constitución B	W1: Trustworthy AI through Model Risk Management 2	10:30-11:30 TuB4 Constitución C	W2: Computational Intelligence Techniques for Solving Equity, Diversity, and Inclusivity Problem 2
11:30-13:00 TuLc Imperio A - Constitución C Box Lunch							
13:00-14:00 TuC1 Imperio A	T3: Real-World Robot Evolution 1	13:00-14:00 TuC2 Constitución A	T2: A Tutorial on Evolutionary Bilevel Optimization Concepts, Algorithms, and Applications 3	13:00-14:00 TuC3 Constitución B	W1: Trustworthy AI through Model Risk Management 3	13:00-14:00 TuC4 Constitución C	W2: Computational Intelligence Techniques for Solving Equity, Diversity, and Inclusivity Problem 3
14:00-15:00 TuD1 Bugambillas	T3: Real-World Robot Evolution 2	14:00-15:00 TuD2 Constitución A	W3: Quantum Machine Learning 1	14:00-15:00 TuD3 Constitución B	T5: Computational Intelligence: Applications in System Identification, Control, and Optimization 1	14:00-15:00 TuD4 Constitución C	W2: Computational Intelligence Techniques for Solving Equity, Diversity, and Inclusivity Problem 4
15:00-15:30 TuC2b Foyer 2nd floor Coffee Break 6							
15:30-16:30 TuE1 Imperio A	T4: Adversarial Attacks, GAN, TrojAI, and Defense Mechanisms 1	15:30-16:30 TuE2 Constitución A	W3: Quantum Machine Learning 2	15:30-16:30 TuE3 Constitución B	T5: Computational Intelligence: Applications in System Identification, Control, and Optimization 2	15:30-16:30 TuE4 Constitución C	W2: Computational Intelligence Techniques for Solving Equity, Diversity, and Inclusivity Problem 5
16:30-17:30 TuF1 Imperio A	T4: Adversarial Attacks, GAN, TrojAI, and Defense Mechanisms 2	16:30-17:30 TuF2 Constitución A	W3: Quantum Machine Learning 3	16:30-17:30 TuF3 Constitución B	T5: Computational Intelligence: Applications in System Identification, Control, and Optimization 3	16:30-17:30 TuF4 Constitución C	W2: Computational Intelligence Techniques for Solving Equity, Diversity, and Inclusivity Problem 6
18:00-20:00 TuDa Bugambillas Welcome Reception							

Wednesday December 6, 2023

Track 1	Track 2	Track 3	Track 4	Track 5	Track 6	Track 7	Track 8
			08:45-09:00 WeP3T1 Room T1 Opening Session				
			09:00-10:00 WeP1a Independencia				
			Tianyou Chai, Intelligent Control System for Low-Carbon Operation of Energy Intensive Equipment Based on End-Edge-Cloud Collaboration				
			10:00-10:30 WeC1b Independencia Coffee Break 7				
			10:30-11:30 WeP2c Independencia				
			Alice Smith, Women Led Research in Computational Intelligence				
			12:00-13:30 WeLd Bugambillas Lunch 3				
13:30-15:30 WeA1 Imperio A Deep Learning (DL) 1	13:30-15:30 WeA2 Imperio B CI for Brain Computer Interfaces (CIBCI)	13:30-15:30 WeA3 Imperio C CI for Financial Engineering and Economics (CIFEr) 1	13:30-15:30 WeA4 Constitución A CI for Human-Like Intelligence (CIHLI)	13:30-15:30 WeA5 Constitución B CI for Industrial Process (CIIP) 1	13:30-15:30 WeA6 Constitución C CI in Vehicles and Transportation Systems (CIVTS)	13:30-15:30 WeA7 Colonia CI Applications in Smart Grid (CIASG)	13:30-15:30 WeA8 Conquista CI for Multimedia Signal and Vision Processing (CIMSIVP) ₁
			15:30-16:00 WeC2e Foyer 2nd floor Coffee Break 8				
16:00-18:00 WeB1 Imperio A Deep Learning (DL) 2	16:00-18:00 WeB2 Imperio B Automated Algorithm Design, Configuration and Selection (AADCS)	16:00-18:00 WeB3 Imperio C CI for Financial Engineering and Economics (CIFEr) 2	16:00-18:00 WeB4 Constitución A CI and Ensemble Learning (CIEL)	16:00-18:00 WeB5 Constitución B CI for Industrial Process (CIIP) 2	16:00-18:00 WeB6 Constitución C CI for Engineering Solutions (CCES)	16:00-18:00 WeB7 Colonia CI in IoT and Smart Cities (CIIoT)	16:00-18:00 WeB8 Conquista CI for Multimedia Signal and Vision Processing (CIMSIVP) ₂

Thursday December 7, 2023

Track 1	Track 2	Track 3	Track 4	Track 5	Track 6	Track 7	Track 8
09:00-10:00 ThPa Independencia Leobardo Morales, Generative AI Revolution							
10:00-10:30 ThC1b Independencia Coffee Break/Panel Session: Artificial Intelligence in Mexico (10:30 - 11:30)							
10:30-11:30 ThC1 Imperio A Swarm Intelligence (POP)	10:30-11:30 ThC2 Imperio B Image Processing (POP)	10:30-11:30 ThC3 Imperio C Deep Learning 1 (POP)	10:30-11:30 ThC4 Constitución A Learning Algorithms (POP)	10:30-11:30 ThC5 Constitución B Deep Learning 2 (POP)	10:30-11:30 ThC6 Constitución C Automated Algorithm (POP)	10:30-11:30 ThC7 Colonia Decision Making (POP)	10:30-11:30 ThC8 Conquista Data Mining (POP)
12:00-13:30 ThLc Fiestas Lunch 1							
13:30-15:30 ThA1 Imperio A Deep Learning (DL) 3	13:30-15:30 ThA2 Imperio B CI in Data Mining (CIDM) 1	13:30-15:30 ThA3 Imperio C CI in Healthcare and E-Health (CICARE) 1	13:30-15:30 ThA4 Constitución A Computational Intelligence in Power and Energy Systems (CIPES)	13:30-15:30 ThA5 Constitución B CI for Security and Defense Application (CISDA)	13:30-15:30 ThA6 Constitución C CI in Cyber Security (CICS) 1	13:30-15:30 ThA7 Colonia Computational Intelligence for Robotics (CIR)	13:30-15:30 ThA8 Conquista Model-Based Evolutionary Algorithms (MBEA)
15:30-16:00 ThCd Foyer 2nd floor Coffee Break 1							
16:00-18:00 ThB1 Imperio A Deep Learning (DL) 4	16:00-18:00 ThB2 Imperio B CI in Data Mining (CIDM) 2	16:00-18:00 ThB3 Imperio C CI in Healthcare and E-Health (CICARE) 2	16:00-18:00 ThB4 Constitución A Evolvable Systems (ICES)	16:00-18:00 ThB5 Constitución B CI in Feature Analysis, Selection and Learning in Image and Pattern Recognition (FASLIP)	16:00-18:00 ThB6 Constitución C CI in Cyber Security (CICS) 2	16:00-18:00 ThB7 Colonia Swarm Intelligence Symposium (SIS)	16:00-18:00 ThB8 Conquista Evolutionary Scheduling and Combinatorial Optimisation (ESCO)
19:00-21:00 ThBe Independencia Banquet							

Friday December 8, 2023

Track 1	Track 2	Track 3	Track 4	Track 5	Track 6	Track 7	Track 8
09:00-10:00 FrP2c Independencia Hani Hagras, Type-2 Fuzzy Systems Based True Explainable Artificial Intelligence for Real-World Applications							
10:00-10:30 FrC1b Independencia Coffee Break 2							
10:30-11:30 FrP1a Independencia Carlos A. Coello Coello, Lessons Learned after 25 Years Designing Multi-Objective Evolutionary Algorithms							
12:00-13:30 FrLd Fiestas Lunch 2							
13:30-15:30 FrA1 Imperio A CI in Control and Automation (CICA)	13:30-15:30 FrA2 Imperio B CI in Data Mining (CIDM) 3	13:30-15:30 FrA3 Imperio C CI in Healthcare and E-Health (CICARE) 3	13:30-15:30 FrA4 Constitución A Foundations of CI (FOCI)	13:30-15:30 FrA5 Constitución B Adaptive Dynamic Programming and Reinforcement Learning (ADPRL)	13:30-15:30 FrA6 Constitución C Computational Intelligence and Cognitive Science (CIMEX)	13:30-15:30 FrA7 Colonia Multicriteria Decision-Making (MCDM)	13:30-15:30 FrA8 Conquista Evolving and Autonomous Learning Systems (EALS)
15:30-16:00 FrC2e Room T10 Coffee Break 3							
16:00-18:00 FrB1 Imperio A Intelligent Biomedical Data Analysis (IBDA)	16:00-18:00 FrB2 Imperio B Robotic Intelligence in Informationally Structured Space (RiiSS)	16:00-18:00 FrB3 Imperio C CI in Biometrics and Identity Management (CIBIM)	16:00-18:00 FrB4 Constitución A Multi-Agent System Coordination and Optimization (MASCO)	16:00-18:00 FrB5 Constitución B Computational Intelligence for Fault Detection and Isolation (CIFDI)	16:00-18:00 FrB6 Constitución C Computing Intelligence in Scheduling and Optimization of Complex Systems (CISO)	16:00-18:00 FrB7 Colonia Ethical, Social and Legal Implications of Artificial Intelligence (ETHAI)	16:00-18:00 FrB8 Conquista Evolutionary Neural Architecture Search and Applications (ENASA)
18:00-20:00 FrDf Salon Angel Farewell Dinner							

Conference Venue

Sheraton Maria Isabel Hotel

Address: Av. Paseo de la Reforma 325, Cuauhtémoc, 06500 Mexico City, Mexico



The luxury 5-star Sheraton Maria Isabel Hotel locates in the heart of Mexico City surrounded by the Zona Rosa district, you will be steps from extravagant shopping centers, restaurants, nightlife, monuments of Angel, the city park Bosque de Chapultepec, museums, and historic grounds such as the National Palace, Palacio de Bellas Artes, and Metropolitan Cathedral.

Within the Sheraton Maria Isabel Hotel, enjoy gourmet meals at a selection of restaurants or sip cocktails in the lobby bar. When you need some relaxation, enjoy our heated outdoor pool and fitness center with a sauna, or slip off to your stylish suite featuring thoughtful amenities with gorgeous views of the city and the Sheraton Signature Sleep Experience beds.



Plenary Talks

Intelligent Control System for Low-Carbon Operation of Energy Intensive Equipment Based on End-edge-cloud Collaboration

Tianyou Chai, State Key Laboratory, Northeastern University, China

Process industry in China mainly include raw material industry such as petrochemicals, steel, nonferrous metals, building materials, mining, and energy industry such as electric power. The scale of China's process industry is the largest in the world. It serves as an important basic support industry for China. However, its energy consumption accounts for more than half of China's total energy consumption. Improving energy efficiency is essential for reducing carbon dioxide emission intensity. Therefore, saving industrial electricity has become an important means to realize low-carbon industry. Energy intensive equipment are commonly used in the above-mentioned industries. Due to the comprehensive complexity of energy intensive equipment, it is difficult to use the existing modelling, control and optimization methods to realize its operational optimized control. Therefore, manual operational control methods are adopted in the energy intensive equipment. The manual operational control method is a key reason for the high energy consumption of energy intensive equipment. Realizing the operational optimized control of energy intensive equipment, and achieving energy saving and emission reduction are the keys to its low-carbon operation.

CPS provides new research ideas for realizing low-carbon operational control of energy intensive equipment. Industrial Artificial Intelligence (AI) provides a new technical foundation for realizing low-carbon operational control of energy intensive equipment. With the development of mobile internet represented by 5G, edge computing, cloud computing and cloud platform software, the Industrial Internet has been born. Industrial Internet creates conditions for obtaining industrial big data. The end-edge-cloud collaboration technology of Industrial Internet creates conditions for the realization of big data-driven industrial AI algorithms. The synergy of industrial AI and Industrial Internet creates conditions for realization of intelligent control for low-carbon operation of energy intensive equipment. Based on the analysis of the operational control behavior of operation experts of energy intensive equipment, this talk proposes an intelligent control method for low-carbon operation by combining mechanism analysis with deep learning, control and optimization with prediction. The method makes the energy consumption per ton as small as possible within the target range. It consists of setpoint control, self-optimized tuning and tracking control. An intelligent control system for low-carbon operation is developed by adopting end-edge-cloud collaboration technology of Industrial Internet. The system is successfully applied to the fused magnesium furnace and achieves remarkable results in reducing carbon emissions.



Tianyou Chai received the Ph.D. degree in control theory and engineering in 1985 from Northeastern University, Shenyang, China, where he became a Professor in 1988. He is the founder and Director of the Center of Automation, which became a National Engineering and Technology Research Center and a State Key Laboratory. He is a member of Chinese Academy of Engineering, IFAC Fellow and IEEE Fellow. He has served as director of Department of Information Science of National Natural Science Foundation of China from 2010 to 2018. His current research interests include modeling, control, optimization and integrated automation of complex industrial processes. He has published 322 peer reviewed international journal papers. His paper titled *Hybrid intelligent control for optimal operation of shaft furnace roasting process* was selected as one of three best papers for the Control

Engineering Practice Paper Prize for 2011-2013. He has developed control technologies with applications to various industrial processes. For his contributions, he has won 5 prestigious awards of National Natural Science, National Science and Technology Progress and National Technological Innovation, the 2007 Industry Award for Excellence in Transitional Control Research from IEEE Multiple-conference on Systems and Control, and the 2017 Wook Hyun Kwon Education Award from Asian Control Association.

Women Led Research in Computational Intelligence

Alice E. Smith, Auburn University, USA

This talk will give a current overview of some of the exciting and impactful research endeavors in computational intelligence by women led investigative teams from around the world. The work is taken from the 2022 landmark volume *Women in Computational Intelligence: Key Advances and Perspectives on Emerging Topics*, <https://link.springer.com/book/10.1007/978-3-030-79092-9>. The 34 authors of this book are nearly all women and represent thirteen countries across five continents. All chapters are authored by IEEE Women in Computational Intelligence members except the first which is a professional biography of computer pioneer Admiral Grace Hopper by Jill S. Tietjen, an esteemed author on women and technology.

The book is structured into four main sections of Intelligence, Learning, Modeling, and Optimization. The primary technical methods include artificial neural networks, evolutionary and swarm computation, and fuzzy logic and systems. The wealth of applications can be seen throughout the nineteen chapters within this volume. These include natural language processing, intelligent tutoring, autonomous systems, digital pathology, intrusion detection, and energy management. The talk will highlight several of these research chapters, explaining the importance and novelty of the work described. A unique part of this book is the biographies of the authors which include information concerning their beginnings and advancement in computational intelligence research along with advice for those considering this field and its possibilities. The talk will also give excerpts from these with the aim to celebrate the contributions of women in CI and to inspire future generations of CI scholars through a lens of diversity and inclusion.



ALICE E. SMITH is a Life Fellow of IEEE and is the Joe W. Forehand/Accenture Distinguished Professor of the Industrial and Systems Engineering Department at Auburn University, where she served as Department Chair from 1999-2011. She also has a joint appointment with the Department of Computer Science and Software Engineering. Dr. Smith's research focus is analysis, modeling, and optimization of complex systems with emphasis on computational intelligence. She holds one U.S. patent and several international patents and has authored more than 200 publications which have garnered over 17,000 citations and an H Index of 52 (Google Scholar). She is the editor of *Women in Computational Intelligence: Key Advances and Perspectives on Emerging Topics* (<https://link.springer.com/book/10.1007/978-3-030-79092-9>) and *Women in Industrial and Systems Engineering: Key Advances and Perspectives on Emerging Topics* (<https://www.springer.com/us/book/9783030118655#aboutBook>). Several of her computational intelligence papers are among the most highly cited in their respective journals including the most cited paper of *Reliability Engineering & System Safety* and the 4th most cited paper of *IEEE Transactions on Reliability*. Dr. Smith is the Editor in Chief of *INFORMS Journal on Computing* and an Area Editor of *Computers & Operations Research*. Dr. Smith has been a principal investigator on over \$10 million of sponsored research with funding by NASA, U.S. Department of Defense, Missile Defense Agency, National Security Agency, NIST, U.S. Department of Transportation, Lockheed Martin, Adtranz (now Bombardier Transportation), the Ben Franklin Technology Center of Western Pennsylvania, and U.S. National Science Foundation, from which she has been awarded 18 distinct grants including a CAREER grant and an ADVANCE Leadership grant. International research collaborations have been sponsored by Germany, Mexico, Japan, Turkey, United Kingdom, The Netherlands, Egypt, South Korea, Iraq, China, Colombia, Chile, Algeria, and the U.S., and by the Institute of International Education. In 2013 she was a Fulbright Senior Scholar at Bilkent University in Ankara, Turkey, in 2016 a Fulbright Specialist at EAFIT in Medellin, Colombia, in 2017 a Senior Fulbright Fellow at Pontifical Catholic

University of Valparaíso, Chile, and in 2020, a Fulbright Specialist at University La Sabana in Bogota, Colombia. Dr. Smith is a fellow of the Institute of Electrical and Electronics Engineers (IEEE), the Institute for Operations Research and Management Science (INFORMS), the Institute of Industrial and Systems Engineers (IISE), and a senior member of the Society of Women Engineers, a member of Tau Beta Pi, and a Registered Professional Engineer. She was elected to serve on the Administrative Committee of the IEEE Computational Intelligence Society from 2013-18 and 2020-24 and served as associate editor for two IEEE journals. She was a keynote speaker at the IEEE World Congress on Computational Intelligence (2018) and will be a keynote speaker at the same conference in 2024. She is a current and past IEEE CIS Distinguished Lecturer.

Generative AI Revolution

Leobardo Morales, IBM, Mexico

How did we get to the point where we find ourselves in generative AI, what are the challenges and how do we take advantage of it in the best way? My background in Business Development and experience as a Product Manager enable me to assist customers with complex solutions. As a consultant, I have collaborated with a diverse range of clients throughout Mexico and Latin America. I previously served as a Servers Brand Manager and currently hold the role of Offering Manager for Hybrid Cloud Integration. Furthermore, I have long been an active ambassador for the IBM Academic Initiative. I derive immense satisfaction from speaking at various industry and research forums. I am deeply passionate about Artificial Intelligence, and I am confident in my ability to catalyze AI development in Mexico.



Leobardo Morales holds the position of Senior Customer Success Manager at IBM Public Cloud for Latin America. His extensive background in Business Development and Product Management equips him with the skills necessary to assist clients in navigating complex solutions. As a seasoned consultant, he has collaborated with a diverse range of clients throughout Mexico and Latin America. Leobardo has also held significant roles within IBM, including serving as the Brand Manager for IBM servers and as the Product Manager for Hybrid Cloud solutions. Leobardo frequently engages as a speaker at various research and industry forums. He exhibits a profound passion for Artificial Intelligence and actively promotes the adoption of OpenSource and Linux within American companies. He actively participates as an ambassador for IBM's academic initiatives and plays an integral role on the board of the Mexican Society of Artificial Intelligence. Additionally, he co-organizes numerous Artificial Intelligence congresses in Mexico.

Type-2 Fuzzy Systems Based True Explainable Artificial Intelligence for Real-World Applications

Hani Hagrass, University of Essex, UK

The recent advances in computing power coupled with the rapid increases in the quantity of available data has led to a resurgence in the theory and applications of Artificial Intelligence (AI). However, the use of complex AI algorithms could result in a lack of transparency to users which is termed as black/opaque box models. Thus, for AI to be trusted and widely used by governments and industries, there is a need for greater transparency through the creation of human friendly explainable AI (XAI) systems. XAI aims to make machines understand the context and environment in which they operate, and over time build underlying explanatory models that allow them to characterize real-world phenomena. The XAI concept provides an explanation of individual decisions, enables understanding of overall strengths and weaknesses, and conveys an understanding of how the system will behave in the future and how to correct the system's mistakes. In this keynote speech, Hani Hagrass introduce the concepts of type-2 fuzzy systems based XAI to achieve a significantly positive impact on communities and industries all over the world and will present novel techniques enabling to deliver human friendly XAI systems which could be easily understood, analysed and augmented by humans. This will allow to the wider deployment of AI systems which are trusted in various real world applications



Hani Hagrass is a Professor of Artificial Intelligence, Head of the Artificial Intelligence Research Group and and Director of the Computational Intelligence Centre in the University of Essex, UK. He is a Fellow of Institute of Electrical and Electronics Engineers (IEEE), a Fellow of the Institution of Engineering and Technology (IET), Principal Fellow of the UK Higher Education Academy (PFHEA) and Fellow of the Asia-Pacific Artificial Intelligence Association (AAIA). His major research interests are in Explainable Artificial Intelligence, computational intelligence and data science. He has authored more than 500 papers in international journals, conferences and books. He is Among the top 2% of the most-cited scientists in the world (Scopus August 2023). His work has received funding from major research councils and industry. He has also Elven industrial patents in the field of Explainable AI, computational intelligence and intelligent control.

His research has won numerous prestigious international awards where he was awarded by the IEEE Computational Intelligence Society (CIS), the 2013 Outstanding Paper Award in the IEEE Transactions on Fuzzy Systems and also he has won the 2004 Outstanding Paper Award in the IEEE Transactions on Fuzzy Systems. He was also awarded the 2015 and 2017 Global Telecommunications Business award for his joint project with British Telecom. In 2016, he was elected as Distinguished Lecturer by the IEEE Computational Intelligence Society. His work has also won best paper awards in several conferences including the 2014 and 2006 IEEE International Conference on Fuzzy Systems and the 2012 UK Workshop on Computational Intelligence.

He is an Associate Editor of the IEEE Transactions on Fuzzy Systems, IEEE Transactions on Artificial Intelligence, Knowledge Based Systems, Discover AI and others. He was also the General Co-Chair of numerous major IEEE conferences where he was General Co-Chair of FUZZ-IEEE 2007 and Programme Chair of FUZZ-IEEE 2017 and FUZZ-IEEE 2021. He served in various committees in IEEE CIS including the Conference committee, the Fellows committee, the Senior members committee, the Fuzzy systems technical committee and others.

Lessons Learned after 25 Years Designing Multi-Objective Evolutionary Algorithms

Carlos A. Coello Coello, CINVESTAV-IPN, Mexico

In this talk, I will describe my origins as a researcher working in a field which is now known as “evolutionary multi-objective optimization” (EMOO), 25 years ago. Then, I’ll describe the inception of my research group at Cinvestav (in Mexico City, Mexico) in 2001, including some of the issues (good and bad) that researchers had to face at that time in Mexico. I will also mention some of the main differences between the way in which research on EMOO was conducted 25 years ago with respect to current research practices including, among other things, topics and methodological issues. In the last part of the talk, I’ll briefly mention some of the pioneering contributions developed at my research group, but not without mentioning some of our biggest failures, too. The discussion will include some of the research topics in which I am currently interested. I’ll finalize the talk with my personal (and a bit critical) view of the way in which research on EMOO is being conducted today, including some advice for young researchers working in this exciting field.



Carlos Artemio Coello Coello received a PhD in Computer Science from Tulane University (USA) in 1996. His research has mainly focused on the design of new multi-objective optimization algorithms based on bio-inspired metaheuristics (e.g., evolutionary algorithms), which is an area in which he has made pioneering contributions. He currently has more than **570 publications**, including more than 200 journal papers and 50 book chapters. He has published a monographic book and has edited 3 more books with publishers such as *World Scientific* and *Springer*. He has supervised 22 PhD theses (including 3 in Argentina) and 48 Masters thesis (including one in France). Several of the PhD theses that he has supervised,

have received awards in national competitions. He has also received (with his students) several “**best paper awards**” at different international conferences. He is also the only Latin American who has been awarded (twice) the “**outstanding paper award**” of the *IEEE Transactions on Evolutionary Computation*. His publications currently report **68,359 citations** in *Google Scholar*. According to *Scopus*, Dr. Coello has **28,948 citations**, excluding self-citations and citations from all his co-authors. His h-index is **102**, according to *Google Scholar*, **73** according to *Scopus* and **67** according to Clarivate Analytics (known before as *ISI Web of Science*). In the *ShanghaiRanking’s Global Ranking of Academic Subjects 2016* developed by *Elsevier*, he appears as one of the **300 most highly cited scientists** in the world in “Computer Science”, occupying the first place in Mexico.

He has received several awards, including the **National Research Award** (in 2007) from the Mexican Academy of Science (in the area of *exact sciences*), the **2009 Medal to the Scientific Merit** from Mexico City’s congress, the **Ciudad Capital: Heberto Castillo 2011 Award** for scientists under the age of 45, in *Basic Science*, the **2012 Scopus Award** (Mexico’s edition) for being the most highly cited scientist in engineering in the 5 years previous to the award and the **2012 National Medal of Science in Physics, Mathematics and Natural Sciences** from Mexico’s presidency (this is the most important award that a scientist can receive in Mexico). He also received the **Luis Elizondo Award** from the Tecnológico de Monterrey in 2019. Additionally, he is the recipient of the **2013 IEEE Kiyo Tomiyasu Award**, “for pioneering contributions to single- and multiobjective optimization techniques using bioinspired metaheuristics”, of the **2016 The World Academy of Sciences (TWAS) Award** in “Engineering Sciences”, and of the **2021 IEEE Computational Intelligence Society Evolutionary Computation Pioneer Award**. Since January 2011, he is an **IEEE Fellow**. He is currently the **Editor-in-Chief** of the *IEEE Transactions on Evolutionary Computation*. He is Full Professor with distinction (Investigador Cinvestav 3F) at the Computer Science Department of CINVESTAV-IPN in Mexico City, Mexico

Tutorials and Workshops

T1: Evolutionary Multi-objective Feature Selection for Machine Learning

We are now in the era of big data, where vast amounts of high-dimensional data become ubiquitous in a variety of domains, such as social media, healthcare, and cybersecurity. When machine learning algorithms are applied to such high-dimensional data, they suffer from the curse of dimensionality, where the data becomes very sparse. Furthermore, the high-dimensional data might contain redundant and/or irrelevant features that blur useful information from relevant features.

Feature selection can address the above issues by selecting a small subset of relevant features which can improve the performance of machine learning methods, reduce the dimensionality of data, reduce space storage, improve computational efficiency, and facilitate data visualization and understanding. Feature selection plays a critical role in data mining, computational intelligence, and machine learning. Compared with other dimensionality reduction techniques, such as feature construction and feature extraction, feature selection can preserve the original semantics of the data, making it an effective method with interpretability and facilitating human understanding of the results.

Feature selection is inherently a multi-objective problem. The two main goals of feature selection are to maximize the classification performance and minimize the number of selected features. However, these two objectives are usually in conflict. For example, removing relevant and/or complementary features can deteriorate classification performance. There is no single best feature subset, but rather a set of non-dominated subsets showing trade-offs between the two objectives. Optimizing the two objectives can more accurately reflect the decision-making reality of feature selection problems in practical applications.

In this tutorial, the essential components in multi-objective feature selection such as solution representation, evaluation function (wrapper/filter/embedded), population initialization, offspring generation, environmental selection, and decision making will be discussed extensively, and the strength and weakness of each category of methods will be summarized. In addition, this tutorial will introduce the applications of multi-objective feature selection in various fields, such as image and signal processing, biological and biomedical tasks, business and financial problems, network/web service, and engineering problems, and illustrate the necessity of multi-objective feature selection for these fields. While state-of-the-art techniques have made significant

progress in solving multi-objective feature selection, this tutorial will also identify and summarize the major issues and challenges when using evolutionary multi-objective optimization methods for multi-objective feature selection, and suggest some possible future research directions.

Dr. Ruwang Jiao is currently a postdoctoral research fellow in artificial intelligence with the School of Engineering and Computer Science at Victoria University of Wellington (VUW). His research focuses mainly on evolutionary constrained optimization, Bayesian optimization, multi-objective machine learning, feature selection, and evolutionary antenna design. He has published over 20 papers in fully refereed journals and conferences such as *IEEE Transactions on Evolutionary Computation*, *Evolutionary Computation (MIT Press)*, *IEEE Transactions on Cybernetics*, *IEEE Transactions on Antennas and Propagation*, and *Information Sciences*.

Dr. Bing Xue is currently a Professor of artificial intelligence and the Deputy Head of the School of Engineering and Computer Science, VUW. She has more than 300 articles published in fully refereed international journals and conferences. Her research focuses mainly on evolutionary computation, machine learning, classification,

symbolic regression, feature selection, evolving deep NNs, image analysis, transfer learning, and multi-objective machine learning.

Dr. Xue is currently the Chair of the IEEE Computational Intelligence Society (CIS) Evolutionary Computation Technical Committee and IEEE CIS Task Force on Evolutionary Deep Learning and Applications, and an Editor of IEEE CIS Newsletter. She has also served as an Associate Editor for several international journals, such as *IEEE Computational Intelligence Magazine*, *IEEE Transactions on Evolutionary Computation*, and *ACM Transactions on Evolutionary Learning and Optimization*. She is a fellow of Engineering New Zealand.

Dr. Mengjie Zhang is currently a Professor of computer science, the Head of the Evolutionary Computation Research Group, and the Associate Dean (Research and Innovation) of the Faculty of Engineering, Victoria University of Wellington, Wellington, New Zealand. He has published more than 700 research articles in refereed international journals and conferences. His current research interests include machine learning, evolutionary computation, genetic programming, image analysis, multiobjective decision-making, feature selection and reduction, scheduling and combinatorial optimization, and evolutionary deep learning and transfer learning.

Prof. Zhang is a fellow of IEEE, a fellow of the Royal Society of New Zealand, a fellow of Engineering New Zealand, and an IEEE Distinguished Lecturer. He was the Chair of the IEEE Computational Intelligence Society (CIS) Intelligent Systems and Applications Technical Committee, the IEEE CIS Emergent Technologies Technical Committee, and the IEEE CIS Evolutionary Computation Technical Committee. He is currently the Chair of the IEEE CIS PubsCom Strategic Planning Committee and the IEEE CIS Outstanding Ph.D. Dissertation Award Committee, and the Founding Chair of the IEEE Computational Intelligence Chapter in New Zealand.

T2: A Tutorial on Evolutionary Bilevel Optimization_ Concepts, Algorithms, and Applications

Bilevel optimization is a challenging problem that arises in various fields, requiring solving an optimization problem with a nested optimization task. This tutorial aims to provide a comprehensive overview of evolutionary bilevel optimization, focusing on concepts, algorithms, and applications. The tutorial begins by introducing important concepts on evolutionary optimization. Subsequently, the fundamental concepts and mathematical formulation of bilevel optimization is given. After that, it delves into the principles and methodologies of evolutionary bilevel algorithms, highlighting their suitability for tackling bilevel optimization problems but also their limitations. Various evolutionary bilevel algorithms are discussed, along with their adaptations and enhancements for bilevel optimization. Moreover, the tutorial explores diverse real-world applications of evolutionary bilevel optimization across domains such as engineering, economics, transportation, and machine learning. Case studies and practical examples illustrate the efficacy of evolutionary approaches in addressing complex bilevel decision-making scenarios.

Dr. Alejandro Rodríguez-Molina received the B.S. degree in computer systems engineering from the Escuela Superior de Cómputo (ESCOM) of the Instituto Politécnico Nacional (IPN) in 2013, the M.Sc. in computer science from the Centro de Investigación y de Estudios Avanzados (CINVESTAV) of the IPN in 2015, and the Ph.D. in robotics and mechatronic systems engineering at the Centro de Innovación y Desarrollo Tecnológico en Cómputo (CIDETEC) of the IPN in 2019.

He is currently a full-time professor at the research and postgraduate division in the Instituto Tecnológico de Tlalnepantla (ITTILA) of the Tecnológico Nacional de México (TecNM). His research interests are the design and implementation of AI techniques and bio-inspired metaheuristics for optimization and their application to engineering problems.

T3: Real-World Robot Evolution

The main goal of the tutorial is to outline the WHAT, the WHY and the HOW of real-world robot evolution. It will review the current state of the art and the main research directions to advance that in the short, mid and long term. As for the WHAT, it is about having a system of robots that can evolve, not inside a simulator, but in the physical realm. By the definition, this means selection, reproduction and heredity working in populations of real robots. The similarities and differences between natural and artificial evolution will be discussed, based on [1]. Based on [2], I will briefly summarise the key concepts of EC and describe the main components of Evolutionary Algorithms (EA). This part will end with elaborating on the differences between artificial evolution in software and artificial evolution in hardware. As for the WHY, I will discuss two principal motivations, one with engineering and one with science as the main angle. I will also explain that robot evolution can be used in two modi. First, as an *off-line* optimiser/designer that stops when a good solution is achieved. After this, many copies of a good solution can be produced and deployed. Second, in an *on-line* mode, similar to natural evolution of living organisms that never stops. This version is not about optimisation, but about adaptation, offering the ability to adjust the robots if the circumstances change. The main body of the tutorial is about the HOW with technical details and lots of examples, borrowing from “all” literature about the state of the art, including but not limited to [3]. Special attention is paid to the morphology-controller (body-brain) dichotomy, the role of individual (lifetime) learning after birth and the reality gap or sim2real gap. In this part I will distinguish:

- Case 1: fixed morphologies, evolvable controllers (huge majority of existing work)
- Case 2: evolvable morphologies, evolvable controllers (research line starting with Sims)
- Case 3: Case 2 with additional lifetime learning, both the Darwinian and Lamarckian variants
- Case 4: Case 3, but with real robots.

[1] A.E. Eiben and J. Smith, From evolutionary computation to the evolution of things, *Nature*, 521:476-482, doi:10.1038/nature14544, 2015.

[2] A.E. Eiben and J. Smith, *Introduction to Evolutionary Computing*, 2nd edition, Springer, 2015, doi:10.1007/978-3-662-44874-8

[3] S. Doncieux and N. Bredeche and J.-B. Mouret and A.E. Eiben, Evolutionary robotics: what, why, and where to, *Frontiers in Robotics and AI*, 2(4), doi:10.3389/frobt.2015.00004, 2015

Dr. A.E. Eiben is a professor at Vrije Universiteit Amsterdam and Univeristy of York. Dr. Eiben is one of the world leading researchers in Evolutionary Computing who literally wrote the book (Eiben-Smith, *Introduction to Evolutionary Computing*, Springer, 2003, 2007, 2015) and in Evolutionary Robotics with papers in *Nature* and *Science*.

T4: Adversarial Attacks, GAN, TrojAI, and Defense Mechanisms

Adversarial attacks have become a significant concern in the field of deep learning, posing threats to the security and reliability of AI systems. This comprehensive 2-hour tutorial delves into the realms of adversarial attacks, Generative Adversarial Networks (GANs), Trojan AI (TrojAI), and defense mechanisms. The tutorial begins with an introduction to adversarial attacks, highlighting the vulnerabilities of deep learning models and their real-world implications. Various types of adversarial attacks, including gradient-based attacks, generative attacks, and poisoning attacks, are explored through case studies and examples. Next, the tutorial delves into the world of GANs, elucidating their architecture, training process, and their applications in generating adversarial examples. The vulnerabilities and weaknesses of GANs are examined to provide a holistic understanding of their security implications. Trojan AI, another emerging threat, is then examined in detail. The tutorial uncovers the

methodologies and techniques behind Trojan attacks on AI systems, highlighting the challenges in detection and mitigation, and the potential risks associated with these attacks. The tutorial also emphasizes defense mechanisms against adversarial attacks, GANs, and TrojAI. Adversarial training, robust optimization techniques, and specific defense strategies are explored. Detection and mitigation methods for GAN-based attacks, as well as Trojan detection and prevention mechanisms, are discussed in-depth. We will also discuss Generative AI advancements like GPTs, Bard, diffusion models, and LLMs offer great potential but also pose adversarial risks. Advanced defense mechanisms and ongoing research are also addressed. The tutorial concludes with a focus on evaluating and assessing model security, including metrics for evaluating model robustness, security considerations in model deployment, and future directions in this rapidly evolving field. Through hands-on demonstrations, interactive sessions, and participant engagement, this tutorial equips attendees with a comprehensive understanding of adversarial attacks, GANs, TrojAI, and defense mechanisms. Participants will gain valuable insights into the challenges, techniques, and emerging trends in securing deep learning models against adversarial threats. We will also present details of the federated learning and its applications in several domains and the recent advances in the area of understanding threats in the federated learning environments and possible remedy available.

Dr. Dipankar Dasgupta is a Professor of Computer Science at the University of Memphis; he completed his Ph.D in 1994 in the area of nature-inspired algorithms for Search and Optimization. His research interests are broadly in the area of scientific computing, design, and development of intelligent solutions inspired by biological processes. His book, “Immunological Computation”, is a graduate level textbook, was published by CRC press in 2009. He also edited two books: one on Evolutionary Algorithms in Engineering Applications (1996) and the other is entitled “Artificial Immune Systems and Their Applications”, published by Springer-Verlag in 2008 . His latest textbook on Advances in User Authentication is published by Springer-Verlag, 2016. Dr. Dasgupta has more than 300 publications with 19000+ citations and having h-index of 62 as per Google scholar. He received four Best Paper Awards at international conferences (1996, 2006, 2009, and 2012) and two Best Runner-Up Paper Awards (2013 and 2014). Among other awards, he is the recipient of 2012 Willard R. Sparks Eminent Faculty Award, the highest distinction and most prestigious honor given to a faculty member by the University of Memphis. Prof. Dasgupta received the 2014 ACM SIGEVO Impact Award, an ACM Distinguished Speaker from 2015-2020, and currently IEEE Distinguished Lecturer until 2024.

Dr. Arunava Roy is currently a Research Assistant Professor of Computer Science at The University of Memphis. His area of interests includes Machine Learning, Security, Statistical Modeling, and Reliability. Dr. Roy obtained his Ph.D. from the Dept. of Applied Mathematics, IIT ISM Dhanbad, India in 2015. Dr. Roy then continued his research in the development of the Machine Learning and Statistical methods for mitigating cyber-attacks, Big Data and Artificial Intelligence in the Dept. of Computer Science at The University of Memphis, USA as a Post- Doctoral Research fellow until 2016. Then joined the National University of Singapore (NUS) as a Research Fellow in the Dept. of Industrial and Systems Engineering in 2016 and later, he joined the Singapore University of Technology and Design (SUTD) in 2017 as a Post-Doctoral Fellow in Computational Statistics for mitigating cyber issues in the CorpLab. Dr. Roy worked as a Research Assistant Professor of Computer Science in the Dept. of Computer Science & Engineering at the SRM Institute of Science and Technology (SRM IST), Chennai, India in 2017, where Artificial Intelligence, Machine Learning, and Cyber Security were his subjects of interests. He then worked in the Research Faculty of Computer and Information Science (CIS) at the Universiti Teknologi Petronas (UTP) Malaysia and the School of IT at Monash University between 2019-2021. Currently, he is a Research Assistant Prof. of Computer Science in the University of Memphis, TN, USA. Dr. Roy has several publications in various Q1 journals including IEEE, Elsevier, Springer, Taylor & Francis, and Wiley. He also co-authored a book entitled “Advances in User Authentication” published by Springer USA in 2017. He has four US Patents, one of which is recently licensed by a Silicon Valley security startup called i2chain. He also filed another US patent on 2020 jointly with The University of Memphis, TN, USA. Presently, he is authoring a book entitled “Emerging Trends Techniques in Reliability Engineering & Security”, which will be published by Springer-Nature, Switzerland.

Dr Kishor Datta Gupta: Kishor Datta Gupta is an assistant professor of computer and information Science at Clark Atlanta University, GA. He completed his Ph.D. in computer science from the University of Memphis in 2021. He is presently researching Autonomous system vulnerabilities. His research interest includes evolutionary computation, Adversarial machine learning, algorithm bias. He is co-inventor of adversarial defense system patent.

T5: Computational Intelligence: Applications in system identification, control, and optimization

The objective of this tutorial is to expose researchers from the academia and industry to field of computational intelligence (CI) and learning methods and their applications for solving numerous engineering problems including system identification/modeling, nonlinear control, and optimization in uncertain and dynamic environments. This four-hour tutorial will focus on the following major topics, starting with introduction to the field of computational intelligence, the different CI paradigms, and their applications in system identification, control and optimization. Topics to be covered will include:

- Computational Intelligence – Neural networks, fuzzy systems, evolutionary computations, differential evolution, swarm intelligence, artificial immune systems (AIS).
- Heuristic Optimization Methods – Mean variance optimization, mapping functions.
- Dynamic Optimization using learning methods.
- Nonlinear System identification – Using neural networks and particle swarm optimization.
- Intelligent Control – Adaptive and optimal using neural networks, fuzzy control and AIS.
- Applications:
 - Smart Grid – Definition(s) and objectives, renewable energy sources, wide area monitoring and control, generator maintenance scheduling, voltage predictions, reactive power and voltage control, microgrids, cybersecurity, forecasting of renewable energy sources such solar PV power and wind power.
 - Electric vehicles – scheduling, energy and power management, vehicle-to-grid technology, and SmartParks.

This tutorial focuses on the dominant paradigms of CI. Concepts, models, algorithms and tools for development of fuzzy logic, artificial neural networks, evolutionary computing, swarm intelligence and artificial immune systems and their applications will be covered. Implementations of these algorithms will be demonstrated, and a comparative performance analysis will be carried out. Some reported applications of these algorithms will be discussed in detail with an emphasis on their pros and cons. Theoretical background, mathematical formalism, implementation considerations, case studies on applications of each of these paradigms will be provided.

Nonlinear modeling and control have been proposed using intelligent techniques such as neural networks, fuzzy, reinforcement learning and many others using inverse models, direct/indirect adaptive, or cloning a linear controller. There are merits for each approach adopted. There is a wide gap between applications of these methods in real time and in simulation. Issues such as stability, processor speeds, learning time, types of training algorithms etc. arise when it comes to real-time implementations.

Static and dynamic optimizations using CI methods will be covered with emphasis on evolutionary computation and swarm intelligence.

Adaptive Critic designs are neural networks capable of optimization over time under conditions of noise and uncertainty. The optimization technique is based on a combination of the concept of reinforcement learning and approximate dynamic programming. The Adaptive Critic method determines an optimal control law for a system by successively adapting two neural networks, an *Action* network (which dispenses the control signals) and

a *Critic* network (which ‘learns’ the desired performance index for some function associated with the performance index).

The primary aim of this tutorial is to provide engineers/researchers from industry/academia, new to the field of computational intelligence and learning methods with the fundamentals required to benefit from and contribute to the rapidly growing field of intelligent systems applications in uncertain and dynamic environments.

Dr. G. Kumar Venayagamoorthy is the Duke Energy Distinguished Professor of Power Engineering and Professor of Electrical and Computer Engineering at Clemson University since January 2012. Prior to that, he was a Professor of Electrical and Computer Engineering at the Missouri University of Science and Technology (Missouri S&T), Rolla, USA where he was from 2002 to 2011. Dr. Venayagamoorthy is the Founder and Director of the Real-Time Power and Intelligent Systems Laboratory at Missouri S&T and Clemson University. Dr. Venayagamoorthy received his PhD and MScEng degrees in Electrical Engineering from the University of Natal, Durban, South Africa. He received his BEng degree with a First-Class Honors in Electrical and Electronics Engineering from Abubakar Tafawa Balewa University, Bauchi, Nigeria. He holds an MBA degree in Entrepreneurship and Innovation from Clemson University, USA.

Dr. Venayagamoorthy’s research interests are in the development and innovation of smart grid and artificial intelligence technologies. Dr. Venayagamoorthy is an inventor of technologies for scalable computational intelligence for complex systems and dynamic stochastic optimal power flow. He has published over 550 refereed technical articles which are cited over 23,000 times with a *h*-index of 70 and i10-index of > 300. Dr. Venayagamoorthy has given over 500 invited technical presentations including keynotes and plenaries in over 40 countries to date. Dr. Venayagamoorthy is the Chair and Founder of the IEEE PES Working Group on Intelligent Control Systems and IEEE Computational Intelligence Society (CIS) Task Force on Smart Grid. He has served/serves as Editor/Associate Editor/Guest Editor of several IEEE Transactions and Elsevier Journals. He is the Editor for the IEEE Press Series on Power and Energy Systems. Dr. Venayagamoorthy is a Fellow of the IEEE, IET (UK), the South African Institute of Electrical Engineers (SAIEE) and Asia-Pacific Artificial Intelligence Association (AAIA), and a Senior Member of the International Neural Network Society (INNS). He is an IEEE CIS and IES Distinguished Lecturer and a Member of the Board of Governors and Vice-President for Industry Relations of the INNS.

W1: Trustworthy AI through Model risk Management

The workshop will focus on model risk management (MRM) for trustworthy AI which is an open and emerging area of research in data science, mathematics, and statistics. In particular, development of AI/ML models without understanding the underlying risk and uncertainty, particularly where pathological bias exists, can be detrimental to our society. As more and more complex and critical systems decision making relies on ML for applications ranging from financial to biological to defense. It is crucial to develop rigorous scientific techniques for decision making under risk and uncertainty using ML. The workshop will introduce the new center established at UNC Charlotte called TAIM² and invite speakers to provide overview of the current state as well as help identify future directions of the emerging area of identification and management of risks when adopting AI.

Speakers:

Taufiqar Khan, University of North Carolina at Charlotte

Jake Lee, University of North Carolina at Charlotte

Andrew Pangia, University of North Carolina at Charlotte

Michael Pokojovy, Old Dominion University

Yuekai Sun, University of Michigan

Dr. Taufiqar Khan is the PI for the research Center for TAIMing AI and Affiliate of the School of Data Science at the University of North Carolina at Charlotte (UNC Charlotte). He is currently a Professor and the Chair of the Department of Mathematics and Statistics. He was a Professor and an Associate Director of Graduate Studies of the School of Mathematical and Statistical Sciences, Clemson University, Clemson, SC, USA, before joining UNC Charlotte in 2020. He is a recipient of the Humboldt Fellowship from Germany. His research interests include machine learning, applied analysis, mathematical modeling, simulation, and coefficient inverse problems involving ordinary and partial differential equations.

Dr. Yuekai Sun is an associate professor of statistics at the University of Michigan. His research leverages statistical science to make AI more safe and reliable in the real world. Some topics of recent interest include AI alignment & safety, algorithmic fairness, learning under distribution shifts. Before coming to Michigan, Yuekai obtained his PhD in computational mathematics from Stanford University, where he worked with Michael Saunders and Jonathan Taylor, and his BA (also in computational math) from Rice University.

Dr. Jake Lee is an assistant professor of the Department of Computer Science and School of Data Science at the University of North Carolina at Charlotte. He received a PhD from Colorado State University in 2017. He is a Co-lead of the research Center for TAIMing AI and codirecting the Charlotte Machine Learning Lab (CharMLab). His research interests are in the knowledge acquisition and transfer for AI (reinforcement learning) agents, human-AI interactions, and trustworthy AI without sacrificing the efficiency of learning.

Dr. Michael Pokojovy is an Associate Professor of Data Science and School of Data Science Statistics Fellow at Old Dominion University, Norfolk, VA. He holds PhD and Dipl.-Math. degrees in Mathematical Sciences (with minor in Computer Science), both from the University of Konstanz, Germany. His research interests include Statistical & Machine Learning, Big Data Analytics, Scientific Computing, etc. In addition to numerous theoretical and methodological developments, he has a track record of applied and collaborative research in statistical process control, quantitative finance, engineering, biomedical sciences, rational mechanics, etc. He has authored/co-authored 40+ publications in various professional outlets and secured 10+ grants from NSF, DoEd, DHHS, DFG, etc.

Dr. Andrew Pangia is the inaugural industrial postdoc at the Center for TAIMing AI at UNC Charlotte. He received his PhD from the School of Mathematical Sciences in 2023. His research interest is in multi-criteria optimization and machine learning with applications to model risk management.

W2: Computational Intelligence Techniques for Solving Equity, Diversity, and Inclusivity Problem

In recent years, government organizations, universities, granting agencies, and industries have been committed to addressing equity, diversity and inclusivity (EDI) in their policies and strategies. Although this is the first step in promoting awareness of EDI issues, the research in this field is still limited. The focus of this workshop, therefore, is to explore *research* questions in EDI and their solutions through computational intelligence techniques, namely, evolutionary computation, neural networks, fuzzy logic and probabilistic modelling. The workshop aims to create a forum to discuss: (i) how to design algorithmic and data-driven approaches to detect EDI parameters such as bias and fairness in models and data using computational intelligence; (ii) how to develop computational intelligence system tools to study EDI parameters; (iii) what metrics and evaluation criteria are required to measure and assess the computational intelligence system; (iv) how to use social media dialogues and large language models to identify the general well-being of equity deserving groups, amongst others.

Topics of Interest with respect to computational intelligence research in EDI

Meta-heuristic Techniques Probabilistic Models Evolutionary Computation Fuzzy Logic Techniques Agent Based Techniques Transfer Learning Automated Design
Neural Networks and Deep Learning Explainable AI
Responsible AI
Data Science
Multi objective optimization
EDI Applications
EDI Metrics
EDI Performance Measurements

Nelishia Pillay

Professor

SARChI Chair in Artificial Intelligence Multichoice Joint Chair in Machine Learning Department of Computer Science University of Pretoria
Hillcrest, Pretoria

Parimala Thulasiraman

Professor

Department of Computer Science University of Manitoba
Winnipeg, MB, Canada

W3: Quantum Machine Learning

The objective of this workshop is to present the fundamental ideas, concepts and elements used in quantum machine learning through several examples executed in the Qiskit environment based on Python. Among those examples, the participants will study the quantum implementation of supervised machine learning algorithms oriented for regression and classification.

Quantum computing and quantum information theory are currently two research areas of great interest in the international academic community of electronic engineering, computer science, telecommunications and other related fields. On the other hand, quantum machine learning (QML) explores the interplay of ideas from quantum computing and machine learning, such that QML extends the set of hardware available for machine learning, through a new type of computing device based on quantum mechanics.

Given the above, this workshop offers a basic understanding of QML, first introducing quantum phenomenology applied to computing, through concepts such as the “qubit”, superposition and quantum entanglement.

Subsequently, the Parameterized Quantum Circuit (PQC) will be studied in order to establish the necessary bases to implement various models of Quantum Neural Networks defined in the IBM-Qiskit environment for classification and regression tasks.

Dr. Gustavo Patino is an Electronic Engineer from the University of Antioquia in Colombia, with a Master and a PhD from the University of São Paulo in Brazil, where he lived for more than 8 years between 2003 and 2012. He is currently Associate Professor at the University of Antioquia in Medellín (Colombia), carrying out teaching activities in Quantum Computing and Real Time Systems. Also, there he develops research activities in modeling and performance analysis of quantum algorithms and embedded systems. His most recent research project deals with the modeling and intelligent management of vehicular traffic for the control of air quality in the city of Medellín (Colombia) based on reinforcement learning techniques and taking into account climate and mobility variables.

Panel Session

Artificial Intelligence in Mexico: Opportunities and Challenges

- Thursday, December 7, 2023
- Venue: Duque
- Session Time: 10:30 – 11:30

Artificial and computational intelligence have achieved huge success over the past years in theory and applications, which has also created unprecedented social and economic impacts. This panel aims to discuss the opportunities and challenges in the field in Mexico, and efforts that need to be made to ensure a healthy and sustainable growth in Mexico.

Panel Chair: Hiram Calvo, CIC-IPN, Mexico

Panellists:

- Leobardo Morales, IBM, Mexico
- Government officer 1, TBD • Government officer 2, TBD
- Government officer 3, TBD
- Government officer 4, TBD

Student Activities

PhD thesis session

- Wednesday, December 6, 2023
- Chair: Miguel González, Tecnológico de Monterrey, Mexico
- Venue: Duque
- Session Time: 14:30 -- 17:00. 15:30 – 16:00: coffee break

We invite participation by students at any phase in the dissertation process, including those beginning the process, those with more developed theoretical frameworks and preliminary findings, and those in the final stages of writing.

The session provides an informal setting for students to discuss their ideas with faculty and students from a variety of disciplines. Participants may find it helpful to receive feedback, and as a way to refine ideas, get suggestions for measurement and analysis, and simply talk through your dissertation.

Organised by the Sociedad Mexicana de Inteligencia Artificial (SMIA).

IEEE CIS Mexico Chapters

- Friday, December 8, 2023
- Chair: Bella Martinez, UPIITA-IPN, Mexico
- Venue: Duque
- Session Time: 17:00 – 1800

Organized by the IEEE CIS Student Chapter Region 9

- IEEE UPIITA
- IEEE CIC
- IEEE Monterrey

Symposia and Chairs

1. Automated Algorithm Design, Configuration and Selection (**AADCS**)
Nelishia Pillay, University of Pretoria
Rong Qu, University of Nottingham
2. Adaptive Dynamic Programming and Reinforcement Learning (**ADPRL**)
Zhen Ni, Florida Atlantic University
Jennie Si, Arizona State University
Chaoxu Mu, Tianjin University
3. CI Applications in Smart Grid (**CIASG**)
Dipti Srinivasan, Nanyang Technological University
Naran Pindoriya, Indian Institute of Technology
Anupam Trivedi, National University of Singapore
Kumar Venayagamoorthy, Clemson University
Fernando Lezama Cruzvillasante, Polytechnic of Porto
4. CI for Brain Computer Interfaces (**CIBCI**)
Yu-Kai Wang, University of Technology Sydney
Fani Deligianni, University of Glasgow
Chun-Shu Wei, National Yang Ming Chiao Tung University
Gang Li, University of Glasgow
5. CI in Biometrics and Identity Management (**CIBIM**) Svetlana Yanushkevich,
University of Calgary, Canada
Masood Khan, Curtin University, Australia
Ajita Rattani, Wichita State University, USA
6. CI in Big Data (**CIBD**)
Junping Du, Beijing University of Posts and Telecommunications
Handing Wang, Xidian University
Yaochu Jin, Bielefeld University
Spencer Thomas, NPL, UK
7. CI in Control and Automation (**CICA**)
Daoyi Dong, UNSW Canberra
Xiaojun Zeng, The University of Manchester
8. CI in Healthcare and E-health (**CICARE**)
Amir Hussain, Edinburgh Napier University, UK
Aziz Sheikh, University of Edinburgh, UK
Mufti Mahmud, Nottingham Trent University, UK

9. CI in Cyber Security (**CICS**)
Dipankar Dasgupta, The University of Memphis, USA
Kaushik Roy, North Carolina A&T, USA
Kishor Datta Gupta, Clark Atlanta University, USA
10. CI in Data Mining (**CIDM**)
Zhen Ni, Florida Atlantic University
11. CI in Dynamic and Uncertain Environments (**CIDUE**)
Michalis Mavrovouniotis, University of Cyprus, Cyprus
Changhe Li, China University of Geosciences, China
Shengxiang Yang, De Montfort University, UK
12. CI and Ensemble Learning (**CIEL**)
P. N. Suganthan, Nanyang Technological University, Singapore
Xin Yao, University of Birmingham, UK
13. CI for Engineering Solutions (**CIES**)
Michael Beer, Leibniz University Hannover, Germany
Vladik Kreinovich, University of Texas at El Paso, USA
Rudolf Kruse, Otto-von-Guericke University, Germany
14. CI for Financial Engineering and Economics (**CIFEr**)
Ruppa K. Thulasiram, University of Manitoba, Canada
Biliana Alexandrova-Kabadjova, Banco de México, Mexico
15. CI for Human-like Intelligence (**CIHLI**)
Jacek Mańdziuk, Warsaw University of Technology, Poland
Włodzisław Duch, Nicolaus Copernicus University, Poland
Marcin Woźniak, Silesian University of Technology, Poland
16. CI in IoT and Smart Cities (**CIIoT**)
Amir H. Gandomi, University of Technology Sydney, Australia
Mahmoud Daneshmand, Stevens Institute of Technology, USA
Huansheng Ning, University of Science and Technology Beijing, China
Mohammad S. Khan, East Tennessee State University, USA
Honggang Wang, University of Massachusetts Dartmouth, USA
Chonggang Wang, InterDigital, USA
17. CI for Industrial Process (**CIIP**)
Wen Yu, CINVESTAV-IPN, Mexico
Jinliang Ding, Northeastern University, China

18. CI for Multimedia Signal and Vision Processing (**CIMSIVP**)
Pablo Mesejo, University of Granada, Spain
Harith Al-Sahaf, Victoria University of Wellington, New Zealand
Ying Bi, Victoria University of Wellington, New Zealand
Mengjie Zhang, Victoria University of Wellington, New Zealand
19. CI in Remote Sensing (**CIRS**)
Jayavelu Senthilnath, Institute for Infocomm Research (I2R), A*STAR, Singapore
Jon Atli Benediktsson, University of Iceland, Iceland
20. CI for Security and Defense Applications (**CISDA**)
Rami Abielmona, Larus Technologies, Canada
Robert Bolia, Defence Science & Technology Group, Australia
Robert Hunjet, Defence Science & Technology Group, Australia
21. CI in Vehicles and Transportation Systems (**CIVTS**)
Yi Lu Murphey, University of Michigan-Dearborn, USA
Xian Wei, Chinese Academy of Sciences
Justin Dauwels, Nanyang Technological University
22. Deep Learning (**DL**)
Alessandro Sperduti, University of Padova, Italy
Plamen Angelov, Lancaster University, UK
Jose C. Principe, University of Florida, USA
23. Evolving and Autonomous Learning Systems (**EALS**)
Plamen Angelov, Lancaster University, UK
Nikola Kasabov, Auckland University of Technology, New Zealand
24. Evolutionary Neural Architecture Search and Applications (**ENASA**)
Yanan Sun, Sichuan University, China
25. Evolutionary Scheduling and Combinatorial Optimization (**ESCO**)
Yi Mei, Victoria University of Wellington, New Zealand
Nelishia Pillay, University of Pretoria, South Africa
Liang Gao, Huazhong University of Science and Technology, China
Rong Qu, University of Nottingham, UK
26. Ethical, Social and Legal Implications of Artificial Intelligence (**ETHAI**)
Keeley Crocket, Manchester Metropolitan University, United Kingdom
Matt Garratt, UNSW Canberra, Australia

27. CI in Feature Analysis, Selection and Learning in Image and Pattern Recognition (**FASLIP**)
Mengjie Zhang, Victoria University of Wellington, New Zealand
Bing Xue, Victoria University of Wellington, New Zealand
Hisao Ishibuchi, Southern University of Science and Technology, China
Brijesh Verma, Central Queensland University, Australia
28. Foundations of CI (**FOCI**)
Domingo Lopez, University of Malaga, Spain
Leonardo Franco, University of Florida, USA
Chao Qian, Nanjing University, China
29. Evolvable Systems (**ICES**)
Andy Tyrrell, University of York, UK
Martin A. Trefzer, University of York, UK
30. Immune Computation (**IComputation**)
Wenjian Luo, Harbin Institute of Technology, Shenzhen, China
Mario Pavone, University of Catania, Italy
Uwe Aickelin, The University of Melbourne, Australia
Licheng Jiao, Xidian University, China
31. Intelligent Agents (**IA**)
Sabrina Senatore, University of Salerno, Italy
Mario G.C.A. Cimino, University of Pisa, Italy
Riyaz Sikora, University of Texas at Arlington, USA
32. Intelligent Biomedical Data Analysis (**IBDA**)
Alan Wang, University of Auckland, New Zealand
Nikola Kasabov, Auckland University of Technology, New Zealand
Yuefeng Li, Queensland University of Technology, Australia
33. Multi-agent System Coordination and Optimization (**MASCO**)
Jing Liu, Xidian University, China
Kai Wu, Xidian University, China
34. Model-Based Evolutionary Algorithms (**MBEA**)
Ran Cheng, Southern University of Science and Technology, China
Cheng He, Southern University of Science and Technology, China
Jose A. Lozano, University of the Basque Country, Spain
Yaochu Jin, University of Surrey, UK
35. Multicriteria Decision-Making (**MCDM**)

Hemant Singh, UNSW Canberra, Australia
Kalyanmoy Deb, Michigan State University, USA

36. Nature-Inspired Computation in Engineering (**NICE**)

João Paulo Papa, São Paulo State University, Brazil
Xin-She Yang, Middlesex University London, UK

37. Robotic Intelligence in Informationally Structured Space (**RiiSS**)

Janos Botzheim, Budapest University of Technology and Economics, Hungary
Wei Hong Chin, Tokyo Metropolitan University, Japan
Chu Kiong Loo, University of Malaya, Malaysia
Hiroyuki Masuta, Toyama Prefectural University, Japan
Naoki Masuyama, Osaka Prefecture University, Japan

38. Cooperative Metaheuristics (**SCM**)

Mohammed El-Abd, American University of Kuwait
Shi Cheng, Shaanxi Normal University, China
Seyedali Mirjalili, Obuda University, Hungary
Diego Oliva, Universidad de Guadalajara, CUCEI, Mexico

39. Differential Evolution (**SDE**)

Rammohan Mallipeddi, Kyungpook National University, South Korea
Guohua Wu, Central South University, Changsha, China

40. Swarm Intelligence Symposium (**SIS**)

Sanaz Mostaghim, Otto von Guericke University Magdeburg, Germany
Yuhui Shi, Southern University of Science and Technology, China
Shi Cheng, Shaanxi Normal University, China

Special Sessions

1. Computational Intelligence and Cognitive Science (**CIMEX**)
Hiram Calvo, CIC-IPN, Mexico
Miguel Gonzalez, Tecnologico de Monterrey, Mexico
2. AI for Aerial Robotics (**AIAR**)
Israel Cruz Vega, National Institute of Astrophysics, Optics and Electronics (INAOE), Mexico
José Martínez Carranz, INAOE, Mexico
3. AI in Autonomous Vehicles (**AIIV**)
Filiberto Muñoz Palacios, CINEVESTAV-CNRS, Mexico
Jorge Said Cervantes Rojas, CINEVESTAV-CNRS, Mexico
4. Computational Intelligence for Fault Detection and Isolation (**CIFDI**)
Alma Y. Alanis, Universidad de Guadalajara, Mexico
Juan Anzurez-Marin, Universidad Michoacana de San Nicolas de Hidalgo, Mexico
5. Computational Intelligence for Robotics (**CIR**)
Wen Yu, CINEVESTAV-IPN, Mexico
Zeng-Guang Hou, Chinese Academy of Sciences, China
6. Computing Intelligence in Scheduling and Optimization of Complex Systems (**CISO**)
Lijun He, Wuhan University of Technology, China
Wenfeng Li, Wuhan University of Technology, China
7. Computational Intelligent for Data Stream Analysis (**CIDSA**)
Shengxiang Yang, De Montfort University, UK
8. Computational Intelligence in Power and Energy Systems (**CIPES**)
Fernando Lezama, Polytechnic of Porto, Portugal
Joao Soares, Polytechnic of Porto, Portugal
Kumar Venayagamoorthy, Clemson University, USA
Zita Vale, Polytechnic of Porto, Portugal
9. Extreme Learning Machines (**ELM**)
Guang-Bin Huang, Nanyang Technological University, Singapore
Bao-Liang Lu, Shanghai Jiao Tong University, China
Jonathan Wu, University of Windsor, Canada
Donald C. Wunsch II, Missouri University of Science and Technology, USA

Amaury Lendasse, University of Houston, USA

10. Intelligent Control with State Constraint (**ICSC**)

Isaac Chairez, IPN, Mexico

Ivan Salgado, IPN, Mexico

11. Interactive Reinforcement Learning (**IARL**)

Minwoo Jake Lee, University of North Carolina, Charlotte, USA

12. Machine Learning for Knowledge-Based Systems (**MLKBS**)

Asdrúbal López-Chau, Universidad Autónoma del Estado de México, Mexico

David Valle-Cruz, Universidad Autónoma del Estado de México, Mexico

13. Randomized Algorithms for Training Neural Networks (**RANN**)

Dianhui Wang, China University of Mining and Technology, China

Ivan Tyukin, King's College of London, UK

Simone Scardapane, Sapienza University of Rome, Italy

IEEE SSCI 2023 Statistics

Country/Region	Authors	Submissions	Accepted
China	171	63	44
United States of America	127	53	36
Mexico	145	53	35
Canada	124	45	37
United Kingdom	99	34	23
Germany	117	30	26
Brazil	42	18	13
Japan	41	13	13
Netherlands	36	11	10
Australia	17	13	6
Italy	21	12	5
India	26	9	5
South Africa	9	8	5
Spain	23	7	5
Poland	9	6	2
Greece	16	5	4
Norway	11	5	4
Portugal	11	5	3
Finland	17	4	4
Singapore	7	7	3
Denmark	9	3	3
Slovenia	8	3	3
Turkey	1	3	1
Korea, South	4	3	0
Israel	0	2	0
Malaysia	3	2	1
Oman	4	2	2
Romania	4	2	2
Russia	8	2	2
Slovakia	2	2	1
Taiwan	5	2	2

Country/Region	Authors	Submissions	Accepted
New Zealand	5	5	1
Hungary	7	2	1
Bangladesh	7	1	1
Belgium	7	1	1
France	7	1	1
Lebanon	0	1	0
Qatar	1	1	1
Uruguay	1	1	1
Cyprus	3	1	0
Kuwait	0	1	0
Colombia	1	0	0
Iceland	0	0	0
Iran	1	0	0
Lithuania	1	0	0
Sweden	2	0	0
Ukraine	3	0	0
Total	1,163	442	307

	Submissions	Accepted
Show all (442)	442	307
Adaptive Dynamic Programming and Reinforcement Learning (ADPRL) (9)	9	8
AI for Aerial Robotics (AIAR) (1)	1	
AI in Autonomous Vehicles (AIAV) (3)	4	2
Automated Algorithm Design, Configuration and Selection (AADCS) (7)	10	6
CI and Ensemble Learning (CIEL) (4)	4	3
CI Applications in Smart Grid (CIASG) (6)	7	5
CI for Brain Computer Interfaces (CIBCI) (8)	10	6
CI for Data Stream Analysis (CIDSa) (4)	4	2
CI for Engineering Solutions (CIES) (8)	8	7
CI for Financial Engineering and Economics (CIFEr) (15)	24	13
CI for Human-like Intelligence (CIHLI) (7)	11	5
CI for Industrial Process (CIIP) (16)	16	10
CI for Multimedia Signal and Vision Processing (CIMSIVP) (11)	13	10
CI for Security and Defense Applications (CISDA) (3)	4	2
CI in Big Data (CIBD) (2)	3	1
CI in Biometrics and Identity Management (CIBIM) (7)	7	6

	Submissions	Accepted
Show all (442)	442	307
CI in Control and Automation (CICA) (5)	5	4
CI in Cyber Security (CICS) (16)	19	14
CI in Data Mining (CIDM) (19)	19	17
CI in Dynamic and Uncertain Environments (CIDUE) (2)	3	1
CI in Feature Analysis, Selection and Learning in Image and Pattern Recognition (FASLIP) (5)	5	4
CI in Healthcare and E-health (CICARE) (19)	19	15
CI in IoT and Smart Cities (CIIoT) (6)	7	5
CI in Remote Sensing (CIRS) (2)	3	1
CI in Vehicles and Transportation Systems (CIVTS) (10)	10	8
Computational Intelligence and Cognitive Science (CIMEX) (8)	7	5
Computational Intelligence for Fault Detection and Isolation (CIFDI) (6)	7	5
Computational Intelligence for Robotics (CIR) (6)	8	5
Computational Intelligence in Power and Energy Systems (CIPES) (7)	7	5
Computing Intelligence in Scheduling and Optimization of Complex Systems (CISO) (6)	7	5
Cooperative Metaheuristics (SCM) (3)	4	2
Deep Learning (DL) (22)	28	20
Differential Evolution (SDE) (3)	4	2
Ethical, Social and Legal Implications of Artificial Intelligence (ETHAI) (6)	7	5

	Submissions	Accepted
Show all (442)	442	307
Evolutionary Neural Architecture Search and Applications (ENASA) (6)	6	5
Evolutionary Scheduling and Combinatorial Optimisation (ESCO) (6)	6	4
Evolvable Systems (ICES) (8)	8	6
Evolving and Autonomous Learning Systems (EALS) (5)	6	4
Extreme Learning Machines (ELM) (1)	1	
Foundations of CI (FOCI) (8)	8	6
Immune Computation (IComputation) (2)	3	1
Intelligent Agents (IA) (3)	4	2
Intelligent Biomedical Data Analysis (IBDA) (9)	9	7
Intelligent Control with State Constraint (ICSC) (4)	4	3
Interactive Reinforcement Learning (IARL) (1)	1	
Machine Learning for Knowledge-Based Systems (MLKBS) (3)	4	1
Model-Based Evolutionary Algorithms (MBEA) (8)	8	7
Multi-agent System Coordination and Optimization (MASCO) (4)	4	3
Multicriteria Decision-Making (MCDM) (11)	15	9
Nature-Inspired Computation in Engineering (NICE) (3)	4	2
Randomized Algorithms for Training Neural Networks (RANN) (3)	4	1
Robotic Intelligence in Informationally Structured Space (RiISS) (3)	4	2
Swarm Intelligence Symposium (SIS) (11)	10	9
Other submission, Presentation-only	29	26

History of SSCI

- SSCI 2022
December 4-7, 2022, Singapore
- SSCI 2021
December 5-7, 2021, Orlando, USA
- SSCI 2020
1-4 December, 2020, Canberra, Australia
- SSCI 2019
December 6-9, 2019, Xiamen, China
- SSCI 2018
November 18-21, 2018, Bengaluru, India
- SSCI 2017
November 27-December 1, 2017, Honolulu, USA
- SSCI 2016
December 6-9, 2016, Athens, Greece
- SSCI 2015
December 8-10, 2015, Cape Town, South Africa
- SSCI 2014
December 9-12, 2014, Orlando, USA
- SSCI 2013
April 16-19, 2013, Singapore
- SSCI 2011
April 11-15, 2011, Paris, France
- SSCI 2009
March 30 – April 2, 2009, Nashville, USA
- SSCI 2007
April 1-5, 2007, Hawaii, USA

Content List of 2023 IEEE Symposium Series on Computational Intelligence (SSCI 2023)

Wednesday December 6, 2023

WeA1	Imperio A
Deep Learning (DL) 1	
Organizer: Sperduti, Alessandro	University of Padova
Organizer: Angelov, Plamen	Lancaster University
Organizer: Principe, Jose C.	University of Florida
13:30-13:50	WeA1.1
<i>A Deep Mixture of Experts Network for Drone Trajectory Intent Classification and Prediction Using Non-Cooperative Radar Data</i> , pp. 1-6.	
Fraser, Benjamin	Cranfield University
Perrusquia, Adolfo	Cranfield University
Panagiotakopoulos, Dimitrios	Cranfield University
Guo, Weisi	Cambridge University
13:50-14:10	WeA1.2
<i>Machine Learning Approaches for Community Detection in Online Social Networks</i> , pp. 7-12.	
Ribeiro Costa, Aurélio	University of Brasília
Henrique Nogalha de Lima, Rafael	University of Brasília
Ghedini Ralha, Célia	University of Brasília
14:10-14:30	WeA1.3
<i>An Actor-Critic Architecture for Community Detection Ablation Study</i> , pp. 13-18.	
Henrique Nogalha de Lima, Rafael	University of Brasília
Ribeiro Costa, Aurélio	University of Brasília
Faleiros, Thiago de Paulo	University of Brasília
Ghedini Ralha, Célia	University of Brasília
14:30-14:50	WeA1.4
<i>OSVAE-GAN: Orthogonal Self-Attention Variational Autoencoder Generative Adversarial Networks for Time Series Anomaly Detection</i> , pp. 19-24.	
Li, Zhi	Northeastern University
Xu, Danya	Northeastern University
Li, Yuzhe	Northeastern University
Chai, Tianyou	Northeastern University
Yang, Tao	Northeastern University
14:50-15:10	WeA1.5
<i>Cryptocurrency Portfolio Optimization by Neural Networks</i> , pp. 25-32.	
Nguyen, Quoc Minh	Tampere University
Tran, Dat Thanh	Tampere University
Kanniainen, Juho	Tampere University

Iosifidis, Alexandros	Aarhus University
Gabbouj, Moncef	Tampere University
15:10-15:30	WeA1.6
<i>Physics Informed Data Driven Techniques for Power Flow Analysis</i> , pp. 33-40.	
Parodi, Guido	University of Genoa
Oneto, Luca	University of Genoa
Coraddu, Andrea	Delft University of Technology
Ferro, Giulio	University of Genoa
Zampini, Stefano	University of Genoa
Robba, Michela	University of Genoa
Anguita, Davide	University of Genoa

WeA2	Imperio B
CI for Brain Computer Interfaces (CIBCI)	
Organizer: Wang, Yu-Kai	University of Technology Sydney
Organizer: Deligianni, Fani	University of Glasgow
13:30-13:50	WeA2.1
<i>Integrated Connectivity-Based Stacking Ensemble Learning with GCNNs for EEG Representation</i> , pp. 41-46.	
Almohammadi, Abdullah	CIBCI Lab, Faculty of Engineering and Information Technology, Un
Wang, Yu-Kai	CIBCI Lab, Faculty of Engineering and Information Technology, Un
13:50-14:10	WeA2.2
<i>Resting-State EEG in the Vestibular Region Can Predict Motion Sickness Induced by a Motion-Simulated In-Car VR Platform</i> , pp. 47-52.	
Li, Gang	University of Glasgow
Wang, Yu-Kai	University of Technology, Sydney
McGill, Mark	University of Glasgow
Pöhlmann, Katharina	KITE Research Institute
Brewster, Stephen	University of Glasgow
Pollick, Frank	University of Glasgow
14:10-14:30	WeA2.3
<i>EEG-Based TNN for Driver Vigilance Monitoring</i> , pp. 53-57.	
Sia, Justin	University of Technology Sydney
Chang, Yu-Cheng	University of Technology Sydney
Lin, Chin-Teng	University of Technology Sydney
Wang, Yu-Kai	University of Technology Sydney

14:30-14:50	WeA2.4
<i>Residual Attention Module on EEGNet for Brain-Computer Interface</i> , pp. 58-63.	

dos Santos, Davi Esteves	Federal University of Juiz De Fora
de Souza, Gabriel Henrique	Federal University of Juiz De Fora
Bernardino, Heder	Federal University of Juiz De Fora
Vieira, Alex Borges	Federal University of Juiz De Fora
Motta, Luciana Paixão	Federal University of Juiz De Fora
14:50-15:10	WeA2.5
<i>Quantitative Quality Assessment for EEG Data: A Mini Review</i> , pp. 64-68.	
Wei, Chun-Shu	National Yang Ming Chiao Tung University
15:10-15:30	WeA2.6
<i>Adversarial Attention for Human Motion Synthesis</i> , pp. 69-74.	
Malek-Podjaski, Matthew	University of Glasgow
Deligianni, Fani	University of Glasgow
WeA3	Imperio C
CI for Financial Engineering and Economics (CIFer) 1	
Organizer: Thulasiram, Ruppa	University of Manitoba
Organizer: Alexandrova	Banco De México
Kabadjova, Biliana	
13:30-13:50	WeA3.1
<i>Comparing Effects of Price Limit and Circuit Breaker in Stock Exchanges by an Agent-Based Model</i> , pp. 75-82.	
Mizuta, Takanobu	SPARX Asset Management Co., Ltd
Yagi, Isao	Kogakuin University
13:50-14:10	WeA3.2
<i>Fundamental, Technical and Sentiment Analysis for Algorithmic Trading with Genetic Programming</i> , pp. 83-89.	
Christodoulaki, Evangelia	University of Essex
Paraskevi	
Kampouridis, Michael	Univ. of Essex, Essex, UK
14:10-14:30	WeA3.3
<i>Stock Volatility Forecasting with Transformer Network</i> , pp. 90-96.	
Sababipour ASL, GOLNAZ	University of Manitoba
Thulasiram, Ruppa	University of Manitoba
Thavaneswarn,	University of Manitoba
Aerambamoorthy	
14:30-14:50	WeA3.4
<i>Portfolio Diversification with Clustering Techniques</i> , pp. 97-102.	
Dip Das, Joy	University of Manitoba
Bowala Mudiyansele,	University of Manitoba
Sulalitha	
Thulasiram, Ruppa	University of Manitoba
Thavaneswarn,	University of Manitoba
Aerambamoorthy	
14:50-15:10	WeA3.5
<i>Facilitating Investment Strategy Negotiations through Logic</i> , pp. 103-108.	
Callewaert, Benjamin	KU Leuven
Decleyre, Nicholas	Intelli-Select
Vandeveldt, Simon	KU Leuven
Nuno, Comenda	Intelli-Select
Coppens, Bart	Intelli-Select

Vennekens, Joost	KULeuven
15:10-15:30	WeA3.6
<i>FinSenticNet: A Concept-Level Lexicon for Financial Sentiment Analysis</i> , pp. 109-114.	
Du, Kelvin	Nanyang Technological University
Xing, Frank	National University of Singapore
Mao, Rui	Nanyang Technological University
Cambria, Erik	Nanyang Technological University
WeA4	Constitución A
CI for Human-Like Intelligence (CIHLI)	
Organizer: Mańdziuk, Jacek	Warsaw University of Technology
13:30-13:50	WeA4.1
<i>A Definition and a Test for Human-Level Artificial Intelligence</i> , pp. 115-120.	
Park, Deokgun	University of Texas at Arlington
Mondol, Md Ashaduzzaman	University of Texas at Arlington
Rubel	
Pothula, Aishwarya	University of Texas at Arlington
Islam, SM Mazharul	University of Texas at Arlington
13:50-14:10	WeA4.2
<i>Why Is That a Good or Not a Good Frying Pan? – Knowledge Representation for Functions of Objects and Tools for Design Understanding, Improvement, and Generation</i> , pp. 121-128.	
Ho, Sengbeng	Institute of High Performance Computing
14:10-14:30	WeA4.3
<i>Appearance-Based Gaze Estimation Enhanced with Synthetic Images Using Deep Neural Networks</i> , pp. 129-134.	
Herashchenko, Dmytro	Comenius University Bratislava
Farkaš, Igor	Comenius University Bratislava
14:30-14:50	WeA4.4
<i>Comparing Behaviour Tree and Hierarchical Task Network Planning Methods for Their Impact on Player Experience</i> , pp. 135-139.	
Kedalo, Alexander	Innopolis University
Zykov, Andrey	Innopolis University
Aslam, Hamna	Innopolis University
Mazzara, Manuel	Innopolis University
14:50-15:10	WeA4.5
<i>Comparative Analyzes of Human and Machine Randomness: Insights into Decision-Making Models</i> , pp. 140-145.	
Marshallowitz, Sofia Tzvika	Federal University of Rio Grande Do Sul
PIGNATON DE FREITAS, EDISON	Federal University of Rio Grande Do Sul
15:10-15:30	WeA4.6
<i>Superiority of Neural Networks for Trading Volume Forecasts of Stocks and Cryptocurrencies</i> , pp. 146-151.	
Bowala Mudiyansele,	University of Manitoba
Sulalitha	
Thavaneswaran,	University of Manitoba
Aerambamoorthy	
Thulasiram, Ruppa	University of Manitoba
Hoque, Md Erfanul	Thompson Rivers University
Paseka, Alex	University of Manitoba

WeA5		Constitución B
CI for Industrial Process (CIIP) 1		
Organizer: Yu, Wen	CINVESTAV-IPN	
Organizer: Ding, Jinliang	Northeastern University	
13:30-13:50	WeA5.1	
<i>Multi-Objective Evolution for Automated Chemistry</i> , pp. 152-157.		
Aslan, Bilal	University of Cape Town	
Soares Correa da Silva, Flavio	University of São Paulo	
NITSCHKE, GEOFFREY	University of Cape Town	
13:50-14:10	WeA5.2	
<i>Type-2 Fuzzy LSTM for Nonlinear System Modeling</i> , pp. 158-163.		
Francisco, Vega	CINVESTAV-IPN	
Li, Xiaouu	CINVESTAV-IPN	
Ovilla-Martinez, Brisbane	CINVESTAV-IPN	
Yu, Wen	CINVESTAV-IPN	
14:10-14:30	WeA5.3	
<i>Imitation Learning of Diverse Expert Behaviors for Advanced Machining System Optimizations</i> , pp. 164-169.		
Xiao, Qinge	Shenzhen Institute of Advanced Technology	
Yang, Zhile	Shenzhen Institute of Advanced Technology	
Wu, Chengke	Shenzhen Institute of Advanced Technology	
Guo, Yuanjun	Shenzhen Institute of Advanced Technology	
14:30-14:50	WeA5.4	
<i>Carbon Monoxide Emission Prediction Based on Concept Drift Detection Using KPCA for Municipal Solid Waste Incineration Processes</i> , pp. 170-173.		
Runyu, Zhang	Beijing University of Technology	
Jian, Tang	Beijing University of Technology	
Xia, Heng	Beijing University of Technology	
14:50-15:10	WeA5.5	
<i>Online Soft Sensing of Dioxin Emission Based on Fast Tree BLS and Robust PCA</i> , pp. 174-179.		
Xia, Heng	Beijing University of Technology	
Jian, Tang	Beijing University of Technology	
Runyu, Zhang	Beijing University of Technology	
15:10-15:30	WeA5.6	
<i>Leveraging Ensemble Structures to Elucidate the Impact of Factors That Influence the Quality of Ultra-High Performance Concrete</i> , pp. 180-187.		
Rezazadeh P., Farzad	University of Kassel	
Duerbaum, Axel	University of Kassel	
Zimmermann, Gregor	G.tecz Engineering GmbH	
Kroll, Andreas	University of Kassel	
WeA6		Constitución C
CI in Vehicles and Transportation Systems (CIVTS)		
Organizer: Yi Lu, Murphey	University of Michigan-Dearborn	
Organizer: wei, xian	CAS	
13:30-13:50	WeA6.1	

<i>Estimation of Drivers' Cognitive Load through Foot Placement Analysis in a Car-Sharing Service</i> , pp. 188-193.		
Sukegawa, Takuya	The University of Aizu	
Hashimoto, Yasuhiro	The University of Aizu	
Hata, Keisuke	University of Aizu	
13:50-14:10		WeA6.2
<i>A Novel Traffic Sign Dataset with Condition Annotations</i> , pp. 194-199.		
Sandhu, Hanni	IAV GmbH	
Kühne, Joana	IAV GmbH	
Sawade, Oliver	IAV GmbH	
Stellmacher, Martin	IAV GmbH	
Matthes, Elmar	IAV GmbH	
Hellwich, Olaf	Technical University Berlin	
14:10-14:30		WeA6.3
<i>Airport Ground Movement Optimization Revisited: Coupling Airport Runway Spacing to Multi-Objective Routing and Scheduling through Genetic Algorithms</i> , pp. 200-206.		
Parra Perea, Francisco Ruben	Queen Mary University of London	
Chen, Jun	Queen Mary University of London	
Weiszer, Michal	University of Westminster	
Korna, John	NATS	
Cannon, Richard	NATS	
14:30-14:50		WeA6.4
<i>HSI-Drive V2.0: More Data for New Challenges in Scene Understanding for Autonomous Driving</i> , pp. 207-214.		
Gutiérrez-Zaballa, Jon	University of the Basque Country	
Basterretxea, Koldo	University of the Basque Country	
Echanobe, Javier	University of the Basque Country	
Martínez, M. Victoria	University of the Basque Country	
Martinez-Corral, Unai	University of the Basque Country	
14:50-15:10		WeA6.5
<i>Multi-Sensor Object Detection System for Real-Time Inferencing in ADAS</i> , pp. 215-220.		
Mandumula, Sai Rithvik	Kettering University	
Jungme, Park	Kettering University	
Asolkar, Ritwik Prasad	Kettering University	
Somashekar, Karthik	Kettering University	
15:10-15:30		WeA6.6
<i>Traffic Scene Similarity: A Graph-Based Contrastive Learning Approach</i> , pp. 221-227.		
Zipfl, Maximilian	FZI Research Center for Information Technology	
Jarosch, Moritz	KIT	
Zöllner, Marius	FZI Research Center for Information Technology	

WeA7		Colonia
CI Applications in Smart Grid (CIASG)		
Organizer: Srinivasan, Dipti	National University of Singapore	
Organizer: Venayagamoorthy, Ganesh	Clemson University	
13:30-13:50		WeA7.1
Integrating Agent-Based Control for Normal Operation in Interconnected Power and Communication Systems Simulation , pp. 228-233.		

Radtke, Malin	University of Oldenburg
Stucke, Christoph	University of Oldenburg
Trauernicht, Malte	University of Oldenburg
Montag, Carsten	University of Oldenburg
Oest, Frauke	University of Oldenburg
Frost, Emilie	University of Oldenburg
Bremer, Jörg	University of Oldenburg
Lehnhoff, Sebastian	University of Oldenburg
13:50-14:10	WeA7.2
<i>Differential Evolution Algorithm Based Hyper-Parameters Selection of Transformer Neural Network Model for Load Forecasting</i> , pp. 234-239.	
Sen, Anuvab	Indian Institute of Engineering Science and Technology, Shibpur,
Mazumder, Arul	Carnegie Mellon University
Sen, Udayon	Indian Institute of Engineering Science and Technology, Shibpur,
14:10-14:30	WeA7.3
<i>Industry-Led Blockchain Projects for Smart Grids: An In-Depth Inspection</i> , pp. 240-245.	
Zhao, Wenbing	Cleveland State University
Qi, Quan	Shihezi University
Zhou, Jiong	Northwestern Polytechnical University
Luo, Xiong	University of Science and Technology Beijing
14:30-14:50	WeA7.4
<i>Data-Driven Digital Twins for Power Estimations of a Solar Photovoltaic Plant</i> , pp. 246-251.	
Walters, Michael	Clemson University
Yonce, John	Clemson University
Venayagamoorthy, Ganesh	Clemson University
14:50-15:10	WeA7.5
<i>Digital Twins for Creating Virtual Models of Solar Photovoltaic Plants</i> , pp. 252-257.	
George, Deborah	Clemson University
Venayagamoorthy, Ganesh	Clemson University
15:10-15:30	WeA7.6
<i>Parameter Optimisation for Context-Adaptive Deep Layered Network for Semantic Segmentation</i> , pp. 258-263.	
Mandal, Ranju	Torrens University
Verma, Brijesh	Institute for Integrated and Intelligent Systems, Griffith Univer
WeA8	Conquista
CI for Multimedia Signal and Vision Processing (CIMSIVP) 1	
Organizer: Al-Sahaf, Harith	Victoria University of Wellington
Organizer: Mesejo, Pablo	University of Granada
Organizer: Bi, Ying	Victoria University of Wellington
13:30-13:50	WeA8.1
<i>Neural-Based Cross-Modal Search and Retrieval of Artwork</i> , pp. 264-269.	
Gong, Yan	Loughborough University
Cosma, Georgina	Loughborough University
Finke, Axel	Loughborough University
13:50-14:10	WeA8.2

<i>Return of Small-Scale Crowd Counting Via Fast and Accurate Semi-Supervised Least Squares Model</i> , pp. 270-275.	
Luo, Hao	Xi'an Jiaotong University
Du, Shaoyi	Xi'an Jiaotong University
Tian, Zhiqiang	Xi'an Jiaotong University
14:10-14:30	WeA8.3
<i>A Self-Supervised Few-Shot Detection Method for Magnetic Tile Defects Detection</i> , pp. 276-281.	
Zhang, Zhiyu	Xi'an Jiaotong University
Dong, Liangjie	Xi'an Jiaotong University
Luo, Hao	Xi'an Jiaotong University
Tian, Zhiqiang	Xi'an Jiaotong University
14:30-14:50	WeA8.4
<i>Hyperbolic Tangent Sigmoid As a Transformation Function for Image Contrast Enhancement</i> , pp. 282-287.	
Perez-Enriquez, Laritza	INAOE
Zapotecas-Martinez, Saul	INAOE
Altamirano-Robles, Leopoldo	INAOE
Oliva, Diego	Universidad De Guadalajara
14:50-15:10	WeA8.5
<i>Neuromorphic Event Alarm Time-Series Suppression</i> , pp. 288-293.	
Harrigan, Shane Patrick	Ulster University
Coleman, Sonya	University of Ulster
Kerr, Dermot	University of Ulster
Quinn, Justin	Ulster University
Madden, Kyle	K.madden@ulster.ac.uk
Lindsay, Leeanne	Ulster University
Henderson, Benn	Ulster University
Rahman, Shammii	Ulster University
15:10-15:30	WeA8.6
<i>Quantifying Temporal Entropy in Neuromorphic Memory Forgetting: Exploring Advanced Forgetting Models for Robust Long-Term Information Storage</i> , pp. 294-299.	
Harrigan, Shane Patrick	Ulster University
Coleman, Sonya	University of Ulster
Kerr, Dermot	University of Ulster
Quinn, Justin	Ulster University
Madden, Kyle	K.madden@ulster.ac.uk
Liu, Shuo	Ulster University
Lindsay, Leeanne	Ulster University
WeB1	Imperio A
Deep Learning (DL) 2	
Organizer: Sperduti, Alessandro	University of Padova
Organizer: Angelov, Plamen	Lancaster University
Organizer: Principe, Jose C.	University of Florida
16:00-16:20	WeB1.1
<i>Improved Knowledge Distillation Via Teacher Assistants for Sentiment Analysis</i> , pp. 300-305.	
Dong, Ximing	University of Manitoba
Huang, Olive	University of Auckland
Thulasiraman, Parimala	University of Manitoba
Mahanti, Aniket	University of Auckland

16:20-16:40	WeB1.2
<i>Fuzzy Detectors against Adversarial Attacks</i> , pp. 306-311.	
Li, Yi	Lancaster University
Angelov, Plamen	Lancaster University
Suri, Neeraj	Lancaster University
16:40-17:00	WeB1.3
<i>SemanticSLAM: Learning Based Semantic Map Construction and Robust Camera Localization</i> , pp. 312-317.	
Li, Mingyang	Syracuse University
Ma, Yue	Syracuse University
Qiu, Qinru	Syracuse University
17:00-17:20	WeB1.4
<i>Improving Natural Language Inference in Arabic Using Transformer Models and Linguistically Informed Pre-Training</i> , pp. 318-322.	
Saad Al Deen, Mohammad Majd	Fraunhofer IAIS and Hochschule Bonn-Rhein-Sieg
Pielka, Maren	Fraunhofer IAIS
Hees, Jörn	Hochschule Bonn-Rhein-Sieg
Abdou, Bouthaina Soulef	Fraunhofer IAIS and University of Bonn
Sifa, Rafet	Fraunhofer IAIS and University of Bonn
17:20-17:40	WeB1.5
<i>Variational Voxel Pseudo Image Tracking</i> , pp. 323-328.	
Oleksienko, Illia	Aarhus University
Nousi, Paraskevi	Aristotle University of Thessaloniki
Passalis, Nikolaos	Aristotle University of Thessaloniki
Tefas, Anastasios	Aristotle University of Thessaloniki
Iosifidis, Alexandros	Aarhus University
17:40-18:00	WeB1.6
<i>Opinion Classifier Transfer Learning from Review Data</i> , pp. 329-334.	
Ozeki, Jin	Meiji University
Sakurai, Yoshitaka	Meiji University
Terada, Yuna	TSP Co., Ltd
WeB2 Imperio B	
Automated Algorithm Design, Configuration and Selection (AADCS)	
Organizer: Pillay, Nelishia	University of Pretoria
Organizer: Qu, Rong	University of Nottingham
16:00-16:20	WeB2.1
<i>Analyzing the Generalizability of Automated Algorithm Selection: A Case Study for Numerical Optimization</i> , pp. 335-340.	
Škvorc, Urban	Jožef Stefan Institute
Eftimov, Tome	Jožef Stefan Institute
Korošec, Peter	Jožef Stefan Institute
16:20-16:40	WeB2.2
<i>How Far Out of Distribution Can We Go with ELA Features and Still Be Able to Rank Algorithms?</i> , pp. 341-346.	
Petelin, Gašper	Jožef Stefan Institute
Cenikj, Gjorgjina	Jožef Stefan Institute
16:40-17:00	WeB2.3
<i>Algorithm Package of AI-Driven SDN Controller-Switch Load</i>	

Balancing Strategies , pp. 347-354.

Emu, Mahzabeen	Queen's University
Hassan, Md Yeakub	Siemens Digital Industries Software
Fadlullah, Zubair Md	Western University
Choudhury, Salimur	Queen's University

17:00-17:20 WeB2.4

Breaking the Cycle: Exploring the Advantages of Novel Evolutionary Cycles , pp. 355-360.

Tisdale, Braden N.	Auburn University
Tauritz, Daniel R.	Auburn University

17:20-17:40 WeB2.5

Using Reinforcement Learning for Per-Instance Algorithm Configuration on the TSP , pp. 361-368.

Seiler, Moritz Vinzent	University of Münster, Germany
Rook, Jeroen	University of Twente, Netherlands
Heins, Jonathan	TU Dresden, Germany
Preuß, Oliver Ludger	University of Münster, Germany
Bossek, Jakob	RWTH Aachen University, Germany
Trautmann, Heike	University of Münster, Germany

17:40-18:00 WeB2.6

Characterization of CEC Single-Objective Optimization Competition Benchmarks and Algorithms , pp. 369-374.

Misir, Mustafa	Duke Kunshan University
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WeB3 Imperio C

CI for Financial Engineering and Economics (CIFer) 2

Organizer: Thulasiram, Ruppa	University of Manitoba
Organizer: Alexandrova	Banco De México
Kabadjova, Biliana	

16:00-16:20 WeB3.1

High Frequency Data-Driven Dynamic Portfolio Optimization for Cryptocurrencies , pp. 375-380.

Bowala Mudiyansele, Sulalitha	University of Manitoba
Thavaneswaran, Aerambamoorthy	University of Manitoba
Thulasiram, Ruppa	University of Manitoba
Ranathungage, Thimani Dananjana	University of Manitoba
Dip Das, Joy	University of Manitoba

16:20-16:40 WeB3.2

Domain-Specific Large Language Model Finetuning Using a Model Assistant for Financial Text Summarization , pp. 381-386.

Avramelou, Loukia	Aristotle University of Thessaloniki
Passalis, Nikolaos	Aristotle University of Thessaloniki
Tsoumakas, Grigorios	Aristotle University of Thessaloniki
Tefas, Anastasios	Aristotle University of Thessaloniki

16:40-17:00 WeB3.3

High Frequency Trading with Deep Reinforcement Learning Agents under a Directional Changes Sampling Framework , pp. 387-394.

Rayment, George	University of Essex
Kampouridis, Michael	University of Essex

17:00-17:20 WeB3.4

Deep Learning-Based Credit Score Prediction: Hybrid LSTM-GRU Model , pp. 395-400.

Sababipour ASL, GOLNAZ	University of Manitoba
Shamsi, Kiarash	University of Manitoba
Thulasiram, Ruppa	University of Manitoba
Akcora, Cuneyt Gurcan	University of Manitoba
Leung, Carson	University of Manitoba

17:20-17:40 WeB3.5

Portfolio Return Maximization Using Robust Optimization and Directional Changes , pp. 401-406.

Almeida, Rui Jorge	School of Business and Economics, Maastricht University
Basturk, Nalan	School of Business and Economics, Maastricht University
Rodrigues, Paulo	School of Business and Economics, Maastricht University

17:40-18:00 WeB3.6

Credit Card Fraud Detection with Subspace Learning-Based One-Class Classification , pp. 407-412.

Zaffar, Zaffar	Tampere University
Sohrab, Fahad	Tampere University
Kanniainen, Juho	Tampere University
Gabbouj, Moncef	Tampere University

WeB4 Constitución A **CI and Ensemble Learning (CIEL)**

Organizer: Suganthan, Ponnuthurai Nagarathnam	Nanyang Technological University
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16:00-16:20 WeB4.1

A Weighted Ensemble of Regression Methods for Gross Error Identification Problem , pp. 413-420.

Dobos, Daniel	Robert Gordon University
Dang, Truong	National Subsea Centre, Robert Gordon University
Nguyen, Tien Thanh	National Subsea Centre, Robert Gordon University
McCall, John	National Subsea Centre, Robert Gordon University
Wilson, Alan	Accord Energy Solutions
Corbett, Helen	Accord Energy Solutions
Stockton, Phil	Accord Energy Solutions

16:20-16:40 WeB4.2

Enhancing Conducting Gesture Analysis: Integrating Laban Movement Analysis with Tree Ensembles and Neural Networks , pp. 421-426.

Tsang, Herbert H.	Trinity Western University
Pierce, Sean	Trinity Western University

16:40-17:00 WeB4.3

An Ensemble Deep Learning Approach for Enhanced Classification of Pituitary Tumors , pp. 427-432.

Deen Muhammad, Sumaiya	University of Windsor
Kobti, Ziad	University of Windsor

17:00-17:20 WeB4.4

Empirical Hypervolume Optimal μ -Distributions on Complex Pareto Fronts , pp. 433-440.

Shang, Ke	Southern University of Science and Technology
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Shu, Tianye	Southern University of Science and Technology
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Wu, Guotong	Southern University of Science and Technology
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Nan, Yang	Southern University of Science and Technology
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Pang, Lie Meng	Southern University of Science and Technology
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Ishibuchi, Hisao	Southern University of Science and Technology
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17:20-17:40 WeB4.5

Analysis of Partition Methods for Dominated Solution Removal from Large Solution Sets , pp. 441-448.

Shu, Tianye	Southern University of Science and Technology
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Nan, Yang	Southern University of Science and Technology
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Shang, Ke	Southern University of Science and Technology
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Ishibuchi, Hisao	Southern University of Science and Technology
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17:40-18:00 WeB4.6

Normalization in R2-Based Hypervolume and Hypervolume Contribution Approximation , pp. 449-456.

Wu, Guotong	Southern University of Science and Technology
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Shu, Tianye	Southern University of Science and Technology
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Shang, Ke	Southern University of Science and Technology
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Ishibuchi, Hisao	Southern University of Science and Technology
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WeB5 Constitución B **CI for Industrial Process (CIIP) 2**

Organizer: Yu, Wen	CINVESTAV-IPN
Organizer: Ding, Jinliang	Northeastern University

16:00-16:20 WeB5.1

Local Search Enhanced Multi-Objective Evolutionary Algorithm for Fuzzy Flexible Job Shop Scheduling , pp. 457-462.

Zhang, xuwei	Northeastern University
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Zhao, Ziyang	Northeastern University
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Liu, Shixin	Northeastern University
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16:20-16:40 WeB5.2

Protecting Vulnerable Road Users: Semantic Video Analysis for Accident Prediction , pp. 463-469.

Petzold, Julian	University of Lübeck
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Wahby, Mostafa	University of Lübeck
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Ziad, Youssef	University of Lübeck
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EISheikh, Mostafa	University of Lübeck
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Dawood, Ahmed	University of Lübeck
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Berekovic, Mladen	University of Lübeck
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Hamann, Heiko	University of Konstanz
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16:40-17:00 WeB5.3

Parameter-Adaptive Paired Offspring Generation for Constrained Large-Scale Multiobjective Optimization Algorithm , pp. 470-475.

Zhu, Haiyue	Northeastern University
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Chen, Qingda	Northeastern University
Ding, Jinliang	Northeastern University
Zhang, Xingyi	Anhui University
Wang, Hongfeng	Northeastern University

17:00-17:20 WeB5.4

Mechanism-Integrated LSTMM Model for Speed Trajectory Prediction of Heavy Haul Trains , pp. 476-481.

Xu, Kexuan	Northeastern University
Liu, Qiang	Northeastern University

17:20-17:40 WeB5.5

Energy-Efficient Hot-Rolling Scheduling of High-Quality Steel Products , pp. 482-487.

Zhao, Ziyang	Northeastern University
Bian, Zikuo	Northeastern University
Wang, Chenglong	Shandong Iron & Steel Group Rizhao Co., Ltd
Zou, Kun	Northeastern University
Liu, Shixin	Northeastern University

17:40-18:00 WeB5.6

Exploring the Potential of World Models for Anomaly Detection in Autonomous Driving , pp. 488-495.

Bogdoll, Daniel	FZI Forschungszentrum Informatik
Bosch, Lukas	Karlsruhe Institute of Technology
Joseph, Tim	FZI Forschungszentrum Informatik
Gremmelmaier, Helen	FZI Forschungszentrum Informatik
Yang, Yitian	FZI Forschungszentrum Informatik
Zöllner, Marius	Forschungszentrum Informatik

WeB6 CI for Engineering Solutions (CCES)

Constitución C

16:00-16:20 WeB6.1

Which Activation Function Works Best for Training Artificial Pancreas: Empirical Fact and Its Theoretical Explanation , pp. 496-500.

Dénes-Fazakas, Lehel	Óbuda University
Szilágyi, László	Obuda University
Eigner, Gyorgy	Obuda University
Kosheleva, Olga	University of Texas at El Paso
Ceberio, Martine	The University of Texas at El Paso
Kreinovich, Vladik	University of Texas at El Paso

16:20-16:40 WeB6.2

Why Fuzzy Control Is Often More Robust (and Smoother): A Theoretical Explanation , pp. 501-505.

Csiszar, Orsolya	Aalen University
Csiszár, Gábor	Óbuda University
Kosheleva, Olga	University of Texas at El Paso
Ceberio, Martine	The University of Texas at El Paso
Kreinovich, Vladik	University of Texas at El Paso

16:40-17:00 WeB6.3

Imprecise Survival Signature Approximation Using Interval Predictor Models , pp. 506-511.

Behrendorf, Jasper	Leibniz University Hannover
Broggi, Matteo	Leibniz University Hannover
Beer, Michael	Leibniz University of Hannover

17:00-17:20 WeB6.4

Semantically Enhanced System and Automation Design of Complex Marine Vessels , pp. 512-518.

Kougiatsos, Nikos	Delft University of Technology
Zwaginga, Jesper	Delft University of Technology
Pruyn, Jeroen	Delft University of Technology
Reppa, Vasso	Delft University of Technology

17:20-17:40 WeB6.5

ForestMonkey: Toolkit for Reasoning with AI-Based Defect Detection and Classification Models , pp. 519-524.

Zhang, Jiajun	Loughborough University
Cosma, Georgina	Loughborough University
Bugby, Sarah	Loughborough University
Watkins, Jason	Railston & Co. Ltd

17:40-18:00 WeB6.6

Applicability Study of Model-Free Reinforcement Learning towards an Automated Design Space Exploration Framework , pp. 525-532.

Hoffmann, Patrick	Robert Bosch GmbH
Gorelik, Kirill	Robert Bosch GmbH
Ivanov, Valentin	Technische Universität Ilmenau

WeB7 CI in IoT and Smart Cities (CIoT)

Colonía

Organizer: Gandomi, Amir H	University of Technology Sydney
Organizer: Daneshmand, Mahmoud	Stevens Institute of Technology

16:00-16:20 WeB7.1

Refrigerated Showcase Fault Detection by an Autoencoder with Coin Betting and Maximum Correntropy Criterion , pp. 533-538.

Igarashi, Masato	Meiji University
Fukuyama, Yoshikazu	Meiji University
Shimasaki, Yuichi	Fuji Electric Co., Ltd
Osada , Yuto	Fuji Electric Co., Ltd
Murakami, Kenya	Fuji Electric
Iizaka, Tatsuya	Fuji Electric
Santana, Adamo	Fuji Electric
Matsui, Tetsuro	Fuji Electric

16:20-16:40 WeB7.2

A Task Scheduler for Mobile Edge Computing Using Priority-Based Reinforcement Learning , pp. 539-546.

Avan, Amin	Ontario Tech University
Kheiri, Farnaz	Ontario Tech University
Mahmoud, Qusay	Ontario Tech University
Azim, Akramul	Ontario Tech University
Makrehchi, Masoud	Ontario Tech University
Rahnamayan, Shahryar	Brock University

16:40-17:00 WeB7.3

A Federated Transfer Learning-Empowered Blockchain-Enabled Secure Knowledge Sharing Scheme for Unmanned Any Vehicles in Smart Cities , pp. 547-552.

Islam, Anik	University of Calgary
Karimipour, Hadis	University of Calgary

17:00-17:20 WeB7.4

Ressource-Efficient Moth Detection for Pest Monitoring with YOLOv5 , pp. 553-558.

Farooq, Muhammad Tallal	University of Erlangen-Nuremberg
Leipert, Martin	University of Erlangen-Nuremberg
Maier, Andreas	University of Erlangen-Nuremberg
Christlein, Vincent	University of Erlangen-Nuremberg

17:20-17:40 WeB7.5

Crowd Counting on Heavily Compressed Images with Curriculum Pre-Training , pp. 559-564.

Bakhtiarnia, Arian	Aarhus University
Zhang, Qi	Aarhus University
Iosifidis, Alexandros	Aarhus University

17:40-18:00 WeB7.6

Optimal Production Scheduling by Integer Form of Population-Based Incremental Learning with Initial Probability Matrix Setting Methods and a Practical Production Simulator , pp. 565-572.

Katagiri, Ryusei	Meiji University
Fukuyama, Yoshikazu	Meiji University
Kawaguchi, Shuhei	Meiji University and Mitsubishi Electric Co
Takahashi, Kenjiro	Mitsubishi Electric Co., Ltd
Sato, Takaomi	Mitsubishi Electric Co., Ltd

WeB8 Conquista CI for Multimedia Signal and Vision Processing (CIMSIVP) 2

Organizer: Al-Sahaf, Harith	Victoria University of Wellington
Organizer: Mesejo, Pablo	University of Granada
Organizer: Bi, Ying	Victoria University of Wellington

16:00-16:20 WeB8.1

Video Anomaly Latent Training GAN (VALT GAN): Enhancing Anomaly Detection through Latent Space Mining , pp. 573-578.

Sethi, Anikeit	Indian Institute of Technology Indore
Saini, Krishanu	Indian Institute of Technology Indore
Singh, Rituraj	Indian Institute of Technology Indore
Saurav, Sumeet	CSIR-Central Electronics Engineering Research Institute
Tiwari, Aruna	IIT INDORE
Singh, Sanjay	CSIR - Central Electronics Engineering Research Institute (CSIR)
Chauhan, Vikas	NTUT Taipei

16:20-16:40 WeB8.2

Image Forgery Detection Algorithm Using Particle Swarm Optimization , pp. 579-586.

Alibrahim, Hussain	North Dakota State University
Ludwig, Simone	North Dakota State University

16:40-17:00 WeB8.3

A ResNet-9 Model for Insect Wingbeat Sound Classification , pp. 587-592.

Szekeres, Béla János	ELTE Eötvös Loránd University, Faculty of Informatics
Gyöngyössi, Natabara Máté	ELTE Eötvös Loránd University, Faculty of Informatics
Botzheim, János	ELTE Eötvös Loránd University, Faculty of Informatics

17:00-17:20 WeB8.4

Monocular Vision for 3D Distance Computation in Augmented Reality Applications , pp. 593-597.

Martínez-Díaz, Saúl	Tecnologico Nacional De Mexico/Instituto Tecnológico De La Paz
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17:20-17:40 WeB8.5

Symmetric Fine-Tuning for Improving Few-Shot Object Detection , pp. 598-602.

Mpampis, Emmanouil	Aristotle University of Thessaloniki
Passalis, Nikolaos	Aristotle University of Thessaloniki
Tefas, Anastasios	Aristotle University of Thessaloniki

17:40-18:00 WeB8.6

Prediction of Flight Arrival Delay Time Using U.S. Bureau of Transportation Statistics , pp. 603-608.

Li, Jiarui	University of Nottingham Ningbo China
Ji, Ran	University of Nottingham Ningbo China
LI, Cheng'ao	University of Nottingham Ningbo China
YANG, Xiaoying	University of Nottingham
Li, Jiayi	University of Nottingham, Ningbo China
Li, Yiran	University of Nottingham Ningbo China
Xiong, Xihan	Imperial College London
Fang, Yutong	Ningbo Open University
Ding, Shusheng	Ningbo University
Cui, Tianxiang	University of Nottingham Ningbo China

Thursday December 7, 2023

ThC1	Imperio A
Swarm Intelligence (POP)	
10:30-10:50	ThC1.1
<i>Spider Monkey Optimization for Optimal Operational Planning of Energy Plants</i> , pp. 609-610.	
Kobayashi, Yuto	Meiji University
Fukuyama, Yoshikazu	Meiji University
Wananabe, Takuya	Fuji Electric Co., Ltd
Iizaka, Tatsuya	Fuji Electric
Matsui, Tetsuro	Fuji Electric
10:50-11:10	ThC1.2
<i>City Assignment by Multi-Objective Evolutionary Artificial Neural Networks for Multiple TSP</i> , pp. 611-612.	
Katada, Yoshiaki	Setsunan University
Watanabe, Shinya	Muroran Institute of Technology
Ohkura, Kazuhiro	Hiroshima University
11:10-11:30	ThC1.3
<i>Towards Interpretable Digital Twins for Self-Aware Industrial Machines</i> , pp. 613-614.	
Santos da Silva Júnior, Adelson	University of Pernambuco
Vilar Dias, João Luiz	Universidade De Pernambuco
Buarque de Lima Neto, Fernando	University of Pernambuco
ThC2	Imperio B
Image Processing (POP)	
10:30-10:50	ThC2.1
<i>Real Time Continuous Image Stitching Algorithm Based on SIFT</i> , pp. 615-616.	
Yang, RUIJun	Shanghai Institute of Technology
Zhang, Chu	Shanghai Institute of Technology
Cheng, Yan	East China University of Political Science and Law
10:50-11:10	ThC2.2
<i>Synthetic Generation of Pneumonia Images Using CycleGAN Model</i> , pp. 617-618.	
Lugo Torres, Gerardo	Centro De Investigación En Computación, Instituto Politécnico Nac
Peralta, Diego Antonio	Instituto Politécnico Nacional
Valdez-Rodríguez, José E.	Centro De Investigación En Computación
Calvo, Hiram	CIC-IPN
11:10-11:30	ThC2.3
<i>Time Series Prediction Based on Randomly Weighted Neural Networks</i> , pp. 619-620.	
Wang, Xizhao	Shenzhen University
Wang, Qin	Shenzhen University
Liu, Qiang	Canghai Campus. Shenzhen University, Nanshan District, She
ThC3	Imperio C

Deep Learning 1 (POP)	
10:30-10:50	ThC3.1
<i>Seed Kernel Counting Using Domain Randomization and Object Tracking Neural Networks</i> , pp. 621-624.	
Margapuri, Venkata Siva Kumar	Villanova University
Thapaliya, Prapti	Villanova University
Neilsen, Mitchell	Kansas State University
10:50-11:10	ThC3.2
<i>Detecting Automated Generated Text with LLMs</i> , pp. 625-626.	
Aguilar-Canto, Fernando	CIC IPN
Cardoso-Moreno, Marco A.	Cic - Ipn
Jiménez López, Diana Laura	Centro De Investigación En Computación, Instituto Politécnico Na
Calvo, Hiram	CIC-IPN
11:10-11:30	ThC3.3
<i>Explainable Image Recognition with Graph-Based Feature Extraction and Classification</i> , pp. 627-630.	
Azam, Basim	Griffith University
Kuttichira, Deepthi	Institute for Integrated and Intelligent Systems, Griffith Univer
Verma, Brijesh	Institute for Integrated and Intelligent Systems, Griffith Univer
ThC4	Constitución A
Learning Algorithms (POP)	
10:30-10:50	ThC4.1
<i>MRNA Robust Signatures for IBD Using Machine Learning</i> , pp. 631-632.	
Rojas-Velazquez, David	Utrecht University
Kidwai, Sarah	Utrecht University
de Vries, Luciënne	Division of Pharmacology, University of Utrecht,
Garssen, Johan	Division of Pharmacology, University of Utrecht
Tonda, Alberto	UMR 518 MIA-PS, INRAE, Université Paris-Saclay
Lopez-Rincon, Alejandro	Utrecht University
10:50-11:10	ThC4.2
<i>Predicting Directional Change Reversal Points with Machine Learning Regression Models</i> , pp. 633-636.	
Rayment, George	University of Essex
Kampouridis, Michael	University of Essex
Adegboye, Adesola	University of Kent
11:10-11:30	ThC4.3
<i>Enhancing Solar Panel Efficiency through Deep Deterministic Policy Gradients (DDPG) Reinforcement Learning Control</i> , pp. 637-638.	
Ortiz-Munoz, Diana	Universidad Autonoma De Ciudad Juarez
Luviano-Cruz, David	Universidad Autonoma De Ciudad Juarez
Perez-Dominguez, Luis	Universidad Autonoma De Ciudad Juarez

ThC5	Constitución B
Deep Learning 2 (POP)	
10:30-10:50	ThC5.1
<i>Simultaneous Facial Age Transformation and Reenactment</i> , pp. 639-640.	
Zhang, Jie-Ying	National Taiwan University of Science and Technology
Hsiung, Li-Syun	National Taiwan University of Science and Technology
Hsu, Gee-Sern	National Taiwan University of Science and Technology
10:50-11:10	ThC5.2
<i>Classification of Songs in Spanish with LLMs: An Analysis of the Construction of a Dataset, through Classification</i> , pp. 641-642.	
Alcantara, Tania	Centro De Investigación En Computación, Instituto Politécnico Na
Omar, Garcia-Vazquez	CIC-IPN
Cardoso-Moreno, Marco A.	Cic - Ipn
Calvo, Hiram	CIC-IPN
11:10-11:30	ThC5.3
<i>Convolutional Autoencoder-Based Multimodal One-Class Classification</i> , pp. 643-644.	
Laakom, Firas	Tampere University
Sohrab, Fahad	Tampere University
Raitoharju, Jenni Karoliina	University of Jyväskylä
Iosifidis, Alexandros	Aarhus University
Gabbouj, Moncef	Tampere University
ThC6	Constitución C
Automated Algorithm (POP)	
10:30-10:50	ThC6.1
<i>TransOpt: Transformer-Based Representation Learning for Optimization Problem Classification</i> , pp. 645-646.	
Cenikj, Gjorgjina	Jožef Stefan Institute
Petelin, Gašper	Jožef Stefan Institute
Eftimov, Tome	Jožef Stefan Institute
10:50-11:10	ThC6.2
<i>Leveraging Automation, Optimization, and Distributed Computing to Perform High-Fidelity Regional Seismic Risk and Resilience Assessment</i> , pp. 647-648.	
Dahal, Laxman	University of California Los Angeles
Burton, Henry	University of California Los Angeles
Zhong, Kuanshi	University of Cincinnati
11:10-11:30	ThC6.3
<i>Context-Based Classification of Sensitive Personal Information</i> , pp. 649-650.	
De Jesus, Sara	CIC-IPN
Aguirre Anaya, Eleazar	Instituto Politecnico Nacional
Calvo, Hiram	CIC-IPN
Coyac-Torres, Jorge E.	Centro De Investigación En

ThC7	Colonia
Decision Making (POP)	
10:30-10:50	ThC7.1
<i>Profit Allocation in Logistics Enterprise Coalitions Based on Fuzzy Cooperative Game Theory</i> , pp. 651-652.	
He, Xi	Tsinghua University
Huang, Shuangxi	Tsinghua University
10:50-11:10	ThC7.2
<i>Optimizing a Prediction-Based, Mixed-Asset Portfolio Including REITs</i> , pp. 653-656.	
Habbab, Fatim Zahra	University of Essex
Kampouridis, Michael	Univ. of Essex, Essex, UK
11:10-11:30	ThC7.3
<i>Computational Intelligence for Equity-Aware STEM Student Recruitment</i> , pp. 657-658.	
Abid, Noor	University of Calgary
Yanushkevich, Svetlana	University of Calgary
ThC8	Conquista
Data Mining (POP)	
10:30-10:50	ThC8.1
<i>Performance Comparison of Augmented Reality Frameworks</i> , pp. 659-660.	
Villagran-Vizcarra, Dafnis Cain	Universidad Autonoma De Ciudad Juarez
Luviano-Cruz, David	Universidad Autonoma De Ciudad Juarez
Perez-Dominguez, Luis	Universidad Autonoma De Ciudad Juarez
10:50-11:10	ThC8.2
<i>Structural Analysis of the Mexico-Toluca Interurban Train with Data Science</i> , pp. 661-662.	
Arellano, Osmar David	Universidad Autónoma Del Estado De México
Valdovinos, Rosa María	Universidad Autónoma Del Estado De México
Guzmán, Angélica	Universidad Jaime I
Delgado, David Joaquín	Universidad Autónoma Del Estado De México
11:10-11:30	ThC8.3
<i>Neural Network Regression for Structural Health Monitoring Using Smartphones</i> , pp. 663-664.	
yingqin, zhu	CINVESTAV-IPN
Li, Xiaouu	CINVESTAV-IPN
Ovilla-Martinez, Brisbane	CINVESTAV-IPN
ThA1	Imperio A
Deep Learning (DL) 3	
Organizer: Sperduti, Alessandro	University of Padova
Organizer: Angelov, Plamen	Lancaster University
Organizer: Principe, Jose C.	University of Florida

13:30-13:50	ThA1.1
<i>Video-Based Skeleton Data Analysis for ADHD Detection</i> , pp. 665-670.	
Li, Yichun	Newcastle University
Nair, Rajesh	Cumbria, Northumberland, Tyne and Wear NHS Foundation Trust
Naqvi, Syed Mohsen	Newcastle University
13:50-14:10	ThA1.2
<i>Relationship between Model Compression and Adversarial Robustness: A Review of Current Evidence</i> , pp. 671-676.	
Pavlitcka, Svetlana	FZI Research Center for Information Technology
Grolig, Hannes	Karlsruhe Institute of Technology (KIT)
Zöllner, Marius	Forschungszentrum Informatik
14:10-14:30	ThA1.3
<i>Enhancing Gesture Recognition for Musical Conducting: A Study on Diverse Data Classification and Stacked Neural Network Architectures</i> , pp. 677-682.	
Tsang, Herbert H.	Trinity Western University
Woo, Gideon	Trinity Western University
Tan, Faith	Trinity Western University
14:30-14:50	ThA1.4
<i>Diffusion Model in Causal Inference with Unmeasured Confounders</i> , pp. 683-688.	
Shimizu, Tatsuhiro	Waseda University
14:50-15:10	ThA1.5
<i>PyramidEnsemble: Joining Large and Small Models</i> , pp. 689-694.	
Köring, Adrian	Otto-Von-Guericke-University Magdeburg
Steup, Christoph	Otto-Von-Guericke-University Magdeburg
15:10-15:30	ThA1.6
<i>Disentangled (Un)Controllable Features</i> , pp. 695-702.	
Kooi, Jacob Eeuwe	Vrij Universiteit Amsterdam
Hoogendoorn, Mark	Vrije Universiteit Amsterdam
Francois-Lavet, Vincent	VU Amsterdam

ThA2	Imperio B
CI in Data Mining (CIDM) 1	
Organizer: Ni, Zhen	Florida Atlantic University
13:30-13:50	ThA2.1
<i>Unsupervised Unlearning of Concept Drift with Autoencoders</i> , pp. 703-710.	
Artelt, André	Bielefeld University
Malialis, Kleanthis	University of Cyprus
Panayiotou, Christos	University of Cyprus
Polycarpou, Marios	KIOS Research and Innovation Center of Excellence and Department
Hammer, Barbara	Bielefeld University
13:50-14:10	ThA2.2
<i>Stock Price Movement Prediction Based on Optimized Traditional Machine Learning Models</i> , pp. 711-716.	
Silva, José Júnior de Oliveira	Universidade Federal De Pernambuco

Barros, Roberto Souto Maior de	Universidade Federal De Pernambuco-UFPE
Santos, Silas Garrido Teixeira de Carvalho	Universidade Federal De Pernambuco
14:10-14:30	ThA2.3
<i>Features and Classes Drift Detector to Deal with Imbalanced Data Streams</i> , pp. 717-722.	
Santos, Silas Garrido Teixeira de Carvalho	Universidade Federal De Pernambuco
Cabral, Danilo Rafael de Lima	Universidade Fderal De Pernambuco
Barros, Roberto Souto Maior de	Universidade Federal De Pernambuco-UFPE
14:30-14:50	ThA2.4
<i>Fourier U-Shaped Network for Multi-Variate Time Series Forecasting</i> , pp. 723-729.	
Xu, Baowen	Institute of Automation, Chinese Academy of Sciences
Wang, Xuelei	Institute of Automation, Chinese Academy of Sciences
Liu, Chengbao	Institute of Automation, Chinese Academy of Sciences
Li, Shuo	Institute of Automation, Chinese Academy of Sciences
14:50-15:10	ThA2.5
<i>Experimenting with Supervised Drift Detectors in Semi-Supervised Learning</i> , pp. 730-735.	
Pérez, José Luis Martínez	Universidade Federal De Pernambuco - UFPE
Barros, Roberto Souto Maior de	Universidade Federal De Pernambuco-UFPE
Santos, Silas Garrido Teixeira de Carvalho	Universidade Federal De Pernambuco
15:10-15:30	ThA2.6
<i>A Game Theoretic Based K-Nearest Neighbor Approach for Binary Classification</i> , pp. 736-740.	
Lung, Rodica Ioana	Babes-Bolyai University
Suciu, Mihai Alexandru	Babes-Bolyai University

ThA3	Imperio C
CI in Healthcare and E-Health (CICARE) 1	
Organizer: Hussain, Amir	Edinburgh Napier University
Organizer: Sheikh, Aziz	University of Edinburgh
13:30-13:50	ThA3.1
<i>Artificial Intelligence and Features Investigating to Detect Neuropsychiatric Symptoms in Patients with Dementia: A Pilot Study</i> , pp. 741-746.	
Badawi, Abeer	Ontario Tech University
Choudhury, Samira	University of Toronto
Badawi, Abeer	Ontario Tech University
M. Burhan, Amer	University of Toronto
13:50-14:10	ThA3.2
<i>Smart Camera-Based Patient-Specific Seizure Detection</i> , pp. 747-752.	
Minasyan, Georgiy	Telefactor Robotics
Chatten, Martha Jane	Telefactor Robotics
Schuman, Adam	Telefactor Robotics
Tyczka, Dale	Telefactor Robotics

Lindoefer, Daniel	Telefactor Robotics
14:10-14:30	ThA3.3
<i>Towards a Safety Culture in Workplaces: Intelligent Rest Breaks and Social Support</i> , pp. 753-758.	
Zhao, Wenbing	Cleveland State University
Cheng, Jinsai	Kent State University
Tao, Shen	Kent State University
Luo, Xiong	University of Science and Technology Beijing
14:30-14:50	ThA3.4
<i>Decision Support Component for the Localized Epidemiological Modelling of COVID-19</i> , pp. 759-764.	
Ciunkiewicz, Philip	University of Calgary
Yanushkevich, Svetlana	University of Calgary
14:50-15:10	ThA3.5
<i>On the Impact of ECG Data Quality for Arrhythmia Detection Using Convolutional Neural Networks and Wearable Devices</i> , pp. 765-771.	
Sancho, Juan Manuel	Universidad Tecnológica Del Uruguay
Tyska Carvalho, Jonata	Federal University of Santa Catarina
15:10-15:30	ThA3.6
<i>Synchronization of External Inertial Sensors and Built-In Camera on Mobile Devices</i> , pp. 772-777.	
Malawski, Filip	AGH University of Science and Technology
Kapela, Ksawery	AGH University of Science and Technology
Krupa, Marek	AGH University of Science and Technology

ThA4 Constitución A Computational Intelligence in Power and Energy Systems (CIPES)

Organizer: Lezama, Fernando	Polytechnic of Porto
Organizer: Venayagamoorthy, Ganesh	Clemson University
13:30-13:50	ThA4.1
<i>A Novel Population Optimizer for Unit Scheduling Problems in Power Systems</i> , pp. 778-782.	
Zhao, Huashi	China Southern Power Grid Dispatching and Control Center
He, Yubin	China Southern Power Grid Dispatching and Control Center
liang, shouyu	China Southern Power Grid Dispatching and Control Center
Zhou, Huafeng	China Southern Power Grid Dispatching and Control Center
Gu, Huijie	China Southern Power Grid Dispatching and Control Center
Li, Yingchen	China Southern Power Grid Dispatching and Control Center
Fu, Qiuja	China Southern Power Grid
13:50-14:10	ThA4.2
<i>Explainergy: Towards Explainability of Metaheuristic Performance in the Energy Field</i> , pp. 783-788.	
Lezama, Fernando	GECAD, LASI, Polytechnic of Porto

Almeida, José	GECAD, LASI, Polytechnic of Porto
Soares, Joao	GECAD, LASI, Polytechnic of Porto
Vale, Zita	GECAD, LASI, Polytechnic of Porto
14:10-14:30	ThA4.3
<i>Insights into the 2022 WCCI-GECCO Competition: Statistical Analysis of Evolutionary Computation in the Energy Domain</i> , pp. 789-794.	
Lezama, Fernando	GECAD, LASI, Polytechnic of Porto
Almeida, José	GECAD, LASI, Polytechnic of Porto
Soares, Joao	GECAD, LASI, Polytechnic of Porto
Canizes, Bruno	GECAD, LASI, Polytechnic of Porto
Vale, Zita	GECAD, LASI, Polytechnic of Porto
14:30-14:50	ThA4.4
<i>Optimal Allocation of PV Systems on Unbalanced Networks Using Evolutionary Algorithms</i> , pp. 795-800.	
Bai, Wenlei	Oracle Corporation
Zhang, Wen	Baylor University
Meng, Fanlin	University of Manchester
Allmendinger, Richard	University of Manchester
Lee, Kwang	Baylor University
14:50-15:10	ThA4.5
<i>Evolved Neural Networks for Building Energy Prediction</i> , pp. 801-806.	
Santana, Roberto	University of the Basque Country
Prol-Godoy, Irati	University of the Basque Country
Picallo-Perez, Ana	University of the Basque Country
Inza, Iñaki	University of the Basque Country

ThA5 Constitución B CI for Security and Defense Application (CISDA)

Organizer: Abielmona, Rami	Larus Technologies
Organizer: Bolia, Robert	Defence Science & Technology Group
13:30-13:50	ThA5.1
<i>Intrusion Detection for Wireless Sensor Network Using Graph Neural Networks</i> , pp. 807-813.	
Gharavian, Vida	Ontario Tech University
Khosrowshahli, Rasa	Ontario Tech University
Mahmoud, Qusay	Ontario Tech University
Makrehchi, Masoud	Ontario Tech University
Rahnamayan, Shahryar	Brock University
13:50-14:10	ThA5.2
<i>Multi-Agent Pathfinding with Obstacle Movement for Realistic Virtual Tactical Simulations on Topographic Terrains</i> , pp. 814-821.	
Perotti Souza, Luigi	Federal University of Santa Maria
PIGNATON DE FREITAS, EDISON	Federal University of Rio Grande Do Sul
Ceretta Nunes, Raul	Federal University of Santa Maria
de Lima Silva, Luis Alvaro	Federal University of Santa Maria

14:10-14:30	ThA5.3
<i>Federated Self-Supervised Learning for Intrusion Detection</i> , pp. 822-828.	
Meyer, Bruno Henrique	Federal University of Paraná
Pozo, Aurora	Federal University of Parana
Nogueira, Michele	Federal University of Minas Gerais
Zola, Wagner M. Nunan	Federal University of Paraná
14:30-14:50	ThA5.4
<i>Evaluation of Gender Bias in Masked Face Recognition with Deep Learning Models</i> , pp. 829-835.	
Atay, Mustafa	Winston-Salem State University
Poudyel, Megh	Winston-Salem State University
Evora, Saul	Winston-Salem State University
14:50-15:10	ThA5.5
<i>Data Augmentation for Cardiovascular Time Series Data Using WaveNet</i> , pp. 836-841.	
Feldhans, Robert	Bielefeld University
Schulz, Alexander	Bielefeld University
Kummert, Johannes	Bielefeld University
Habigt, Moriz	Anaesthesiology Clinic RWTH Aachen University
Stemmler, Maike	Institute of Automatic Control RWTH Aachen University
Kohler, Christina	Institute of Automatic Control RWTH Aachen University
Abel, Dirk	RWTH Aachen University
Rossaint, Rolf	Anaesthesiology Clinic RWTH Aachen University Faculty of Medicine
Hammer, Barbara	Bielefeld University
15:10-15:30	ThA5.6
<i>Exploring Heterogeneous Open Multi-Agent Systems on Cloud Using a Docker-Based Architecture</i> , pp. 842-849.	
de Lima, Gustavo	UFPEL
Aguiar, Marilton	UFPEL
ThA6	Constitución C
CI in Cyber Security (CICS) 1	
Organizer: Dasgupta, Dipankar	University of Memphis
13:30-13:50	ThA6.1
<i>Explainable Artificial Intelligence for Improving a Session-Based Malware Traffic Classification with Deep Learning</i> , pp. 850-855.	
Machmeier, Stefan	University Heidelberg, Engineering Mathematics and Computing Lab
Hoecker, Maximilian	University Heidelberg, Engineering Mathematics and Computing Lab
Heuveline, Vincent	University Heidelberg, Engineering Mathematics and Computing Lab
13:50-14:10	ThA6.2
<i>BLB-GAFS: An Efficient, Multi-Objective Genetic Algorithm Based Feature Selection Method for Intrusion Detection Systems</i> , pp. 856-861.	
Singh, Arihant	The Early College at Guilford
Roy, Kaushik	North Carolina A&T State University
14:10-14:30	ThA6.3

Ransomware Detection and Classification Using Machine Learning , pp. 862-866.

Zaman, ANK	Wilfrid Laurier University
Kunku, Kavitha	Wilfrid Laurier University
Roy, Kaushik	North Carolina A&T State University

14:30-14:50 ThA6.4

Facial Shape-Based Eyeglass Recommendation Using Convolutional Neural Networks , pp. 867-872.

Rifat, Rakib Hossain	BRAC University
Siddique, Sunzida	Daffodil International University
Das, Laxmi Rani	Noakhali Science and Technology University
Haque, Mohd Ariful	Clark Atlanta University

14:50-15:10 ThA6.5

Cyber Security Issues in the Industrial Applications of Digital Twins , pp. 873-878.

Siddique, Sunzida	Daffodil International University
Haque, Mohd Ariful	Clark Atlanta University
Shujae, Khalil	Clark Atlanta University
George, Roy	Clark Atlanta University
Gupta, Kishor Datta	Clark Atlanta University

15:10-15:30 ThA6.6

An Ensemble Learning to Detect Decision-Based Adversarial Attacks in Industrial Control Systems , pp. 879-884.

Babadi, Narges	University of Calgary
Karimipour, Hadis	University of Calgary
Islam, Anik	University of Calgary

ThA7 Colonia
Computational Intelligence for Robotics (CIR)

Organizer: Yu, Wen	CINVESTAV-IPN
Organizer: Hou, Zeng-Guang	Chinese Academy of Science

13:30-13:50 ThA7.1

Robot PID Control Using Reinforcement Learning , pp. 885-890.

Guillermo, Puriel	CINVESTAV-IPN
Li, Xiaouu	CINVESTAV-IPN
Ovilla-Martinez, Brisbane	CINVESTAV-IPN
Wen, Yu	CINVESTAV-IPN

13:50-14:10 ThA7.2

Digital Twin System for Home Service Robot Based on Motion Simulation , pp. 891-896.

Jiang, Zhongsong	Shandong University
Tian, Guohui	Shandong University
Cui, Yongcheng	Shandong University
Liu, Tiantian	Shandong University
Gu, Yu	Shandong University
Wang, Yifei	University of California

14:10-14:30 ThA7.3

Deep Active Perception for Object Detection Using Navigation Proposals , pp. 897-901.

Ginargiros, Stefanos	Aristotle University of Thessaloniki
Passalis, Nikolaos	Aristotle University of Thessaloniki
Tefas, Anastasios	Aristotle University of Thessaloniki

14:30-14:50	ThA7.4
<i>A Knowledge Acquisition Framework for Autonomous Decision Making in Service Robots</i> , pp. 902-907.	
Wu, Hao	ShanDong University
Zhao, Zhixian	ShanDong University
Ma, Qing	ShanDong University
Tian, Guohui	Shandong University
14:50-15:10	ThA7.5
<i>Hybrid Human/Robot Team Establishment Using E-CARGO and Role-Based Collaboration</i> , pp. 908-913.	
Zhu, Haibin	Nipissing University
AKBARI, BEHZAD	Nipissing University
Wan, Lucas	Dalhousie University
Pan, Ya-Jun	Dalhousie University
ThA8	Conquista
Model-Based Evolutionary Algorithms (MBEA)	
Organizer: Liu, Jing	Xidian University
Organizer: Wu, Kai	Xidian University
13:30-13:50	ThA8.1
<i>Adaptive Geodesic Flow Kernel Transfer for Many-Task Optimization</i> , pp. 914-919.	
Dai, Yang-Tao	Nankai University
Liu, Xiao-Fang	Nankai University
Zhan, Zhi-Hui	South China University of Technology
Zhong, Jinghui	South China University of Technology
ZHANG, Jun	Hanyang University
13:50-14:10	ThA8.2
<i>Conjugate Surrogate for Expensive Multiobjective Optimization</i> , pp. 920-925.	
Yang, Qi-Te	South China University of Technology
Luo, Liu-Yue	South China University of Technology
Xu, Xin-Xin	Ocean University of China
Chen, Chun-Hua	South China University of Technology
Wang, Hua	Victoria University
ZHANG, Jun	Hanyang University
Zhan, Zhi-Hui	South China University of Technology
14:10-14:30	ThA8.3
<i>Improved Evolutionary Strategies for Sparse Large-Scale Many-Objective Optimization Problems</i> , pp. 926-932.	
Chen, Jiawei	National University of Defense Technology
He, Lei	National University of Defense Technology
Chen, Yingwu	National University of Defense Technology
14:30-14:50	ThA8.4
<i>Effects of Initialization Methods on the Performance of Surrogate-Based Multiobjective Evolutionary Algorithms</i> , pp. 933-940.	
Zhang, Jinyuan	Southern University of Science and Technology

Ishibuchi, Hisao	Southern University of Science and Technology
He, Linjun	Southern University of Science and Technology
Nan, Yang	Southern University of Science and Technology
14:50-15:10	ThA8.5
<i>Offline Data-Driven Mixed-Variable Optimization Algorithm Using a Step-Wise Strategy</i> , pp. 941-946.	
Xu, Yiteng	Xidian University
Wang, Handing	Xidian University
15:10-15:30	ThA8.6
<i>Exploring the Uncertainty of Approximated Fitness Landscapes Via Gaussian Process Realisations</i> , pp. 947-952.	
Karatas, Melike Dila	University of Exeter
Goodfellow, Marc	University of Exeter
Fieldsend, Jonathan Edward	University of Exeter

ThB1	Imperio A
Deep Learning (DL) 4	
Organizer: Sperduti, Alessandro	University of Padova
Organizer: Angelov, Plamen	Lancaster University
Organizer: Principe, Jose C.	University of Florida
16:00-16:20	ThB1.1
<i>A Clustering-Based Support Vector Classifier for Dynamic Time-Linkage Optimization</i> , pp. 953-958.	
Gao, Meng	Nankai University
Liu, Xiao-Fang	Nankai University
Zhan, Zhi-Hui	South China University of Technology
ZHANG, Jun	Hanyang University
16:20-16:40	ThB1.2
<i>Context-Adaptive Deep Learning for Efficient Image Parsing in Remote Sensing: An Automated Parameter Selection Approach</i> , pp. 959-964.	
Azam, Basim	Griffith University
Verma, Brijesh	Institute for Integrated and Intelligent Systems, Griffith Univer
Zhang, Mengjie	Victoria University of Wellington
16:40-17:00	ThB1.3
<i>Opposition-Based Crossover Operation for Differential Evolution Algorithm</i> , pp. 965-971.	
Ebrahimi, Sevda	Ontario Tech University
Rahnamayan, Shahryar	Brock University
Asilian Bidgoli, Azam	Wilfrid Laurier University

17:00-17:20	ThB1.4
<i>Long Short-Term Memory Network Assisted Evolutionary Algorithm for Computationally Expensive Multiobjective Optimization</i> , pp. 972-978.	
He, Cheng	Huazhong University of Science and Technology
Li, Hongbin	Huazhong University of Science and Technology
Lin, Jianqing	Huazhong University of Science and Technology
Lu, Zhichao	City University of Hong Kong

17:20-17:40	ThB1.5
<i>Interpreting Restricted Boltzmann Machines from Optics Theory Perspectives</i> , pp. 979-984.	
Guo, Ping	Beijing Normal University
17:40-18:00	ThB1.6
<i>Graph Convolutional Network Based Ant Colony Optimization for Robot Task Allocation</i> , pp. 985-991.	
Qiu, Jiang	Fudan University
Liu, Yi	Fudan University
Yu, Yilan	Fudan University
Li, Wei	Fudan University
ThB2	Imperio B
CI in Data Mining (CIDM) 2	
Organizer: Ni, Zhen	Florida Atlantic University
16:00-16:20	ThB2.1
<i>Doubly Robust Estimator for Off-Policy Evaluation with Large Action Spaces</i> , pp. 992-997.	
Shimizu, Tatsuhiro	Waseda University
Forastiere, Laura	Yale University
16:20-16:40	ThB2.2
<i>A Multi-Population Genetic Algorithm for Multiobjective Recommendation System</i> , pp. 998-1003.	
Hong, Jun	South China University of Technology
Shi, Lin	South China University of Technology
Du, Ke-Jing	Victoria University
Chen, Chun-Hua	South China University of Technology
Wang, Hua	Victoria University
ZHANG, Jun	Hanyang University
Zhan, Zhi-Hui	South China University of Technology
16:40-17:00	ThB2.3
<i>Incremental Human Gait Prediction without Catastrophic Forgetting</i> , pp. 1004-1011.	
Jakob, Jonathan	Bielefeld University
Hasenjäger, Martina	Honda Research Institute EU
Hammer, Barbara	Bielefeld University
17:00-17:20	ThB2.4
<i>Advancing Smart Cities through Novel Social Media Text Analysis: A Case Study of Calgary</i> , pp. 1012-1017.	
Mirshafiee, Mitra	University of Calgary
Barcomb, Ann	University of Calgary
Tan, Benjamin	University of Calgary
17:20-17:40	ThB2.5
<i>A Novel Feature Extraction Approach for the Clustering and Classification of Genome Sequences</i> , pp. 1018-1023.	
Dwivedi, Rajesh	Indian Institute of Technology Indore, Indore
Tiwari, Aruna	IIT INDORE
Bharill, Neha	Mahindra University Hyderabad
Ratnaparkhe, Milind	ICAR-Indian Institute of Soybean Research
Tripathi, Abhishek	Indian Institute of Technology Indore, Indore

Jha, Preeti	Indian Institute of Technology Indore, Indore
17:40-18:00	ThB2.6
<i>Predicting Merger and Acquisition Deal Completion and Stock Movement with Stance Detection</i> , pp. 1024-1031.	
Leyden, Connor	St Albans School
Chen, Bruce	St. Albans School
ThB3	Imperio C
CI in Healthcare and E-Health (CICARE) 2	
Organizer: Hussain, Amir	Edinburgh Napier University
Organizer: Sheikh, Aziz	University of Edinburgh
16:00-16:20	ThB3.1
<i>After-Stroke Arm Paresis Detection Using Kinematic Data</i> , pp. 1032-1037.	
Lai, Kenneth	University of Calgary
Almekhlafi, Mohammed	University of Calgary
Yanushkevich, Svetlana	University of Calgary
16:20-16:40	ThB3.2
<i>Bruxism: Teeth Grinding Time-Series Episode Detection through Wearable Sensors</i> , pp. 1038-1042.	
Bensen, Jonah	University of St. Thomas
Min, Cheol-Hong	University of St. Thomas
16:40-17:00	ThB3.3
<i>A Computational Approach to Uncertainty in DNA Sequences</i> , pp. 1043-1048.	
Melaugh, Melissa	Ulster University
Coleman, Sonya	University of Ulster
Kerr, Dermot	University of Ulster
17:00-17:20	ThB3.4
<i>Hand Inertial Parameters Calculation for Any Position through the Kinematic Model</i> , pp. 1049-1053.	
Pescador-Salas, Alejandro	National Technological Institute of Mexico
Rosales-Huie, Juan Pablo	National Technological Institute of Mexico
Martinez-Peon, Dulce	Tecnologico Nacional De Mexico
Olguín-Díaz, Ernesto	Research Center for Advanced Studies (CINVESTAV)
17:20-17:40	ThB3.5
<i>EMG Classification of Hand and Wrist Force Tasks Using Fractal Algorithms</i> , pp. 1054-1059.	
Pérez-Espinoza, Marcos	Tecnologico Nacional De Mexico
Martinez-Peon, Dulce	Tecnologico Nacional De Mexico
Góngora Rivera, J. Fernando	Universidad Autónoma De Nuevo León
Ortiz Jiménez, Xóchitl A.	Universidad Autónoma De Nuevo León
Contró Esparza, Michelle	Tecnologico Nacional De Mexico
Maldonado-Jauregui, Juan	Tecnologico Nacional De Mexico
Tinoco-Ramírez, Isaac	Universidad Autónoma De Nuevo León
Castillo-Herrera, Francisco	Universidad Autónoma De Nuevo León
Estrada-Cortez, Hector	Universidad Autónoma De Nuevo León
17:40-18:00	ThB3.6

Multimodal Gait Analysis Acquisition System: Challenges and Lessons Learned , pp. 1060-1065.

Márquez Ruiz, Karla Michelle	Univerdad Panamericana
Pineda Cervantes, Pilar	Universidad Panamericana
Villa, Carlos	Massachusetts Institute of Technology
Martinez-Villaseñor, Lourdes	Universidad Panamericana
Ponce, Hiram	Universidad Panamericana
Barrera-Animas, Ari Y.	Universidad Panamericana

ThB4	Constitución A
Evolvable Systems (ICES)	
Organizer: Tyrrell, Andy	University of York
Organizer: Trefzer, Martin A.	University of York
16:00-16:20	ThB4.1
<i>Morphological-Novelty in Modular Robot Evolution</i> , pp. 1066-1071.	
Weissl, Oliver	Vrije Universiteit Amsterdam
Eiben, A.E.	Vrije Universiteit Amsterdam
16:20-16:40	ThB4.2
<i>An Approach to Representation Learning in Morphological Robot Evolution</i> , pp. 1072-1077.	
Stuurman, Aart C.	Vrije Universiteit Amsterdam
Yaman, Anil	Vrije Universiteit Amsterdam
Eiben, A.E.	Vrije Universiteit Amsterdam
16:40-17:00	ThB4.3
<i>Investigation of Starting Conditions in Generative Processes for the Design of Engineering Structures</i> , pp. 1078-1083.	
Buchanan, Edgar	University of York
Dubey, Rahul	University of York UK
Hickinbotham, Simon	University of York
Friel, Imelda	Queen's University Belfast
Colligan, Andrew Robert	Queen's University Belfast
Price, Mark	Queen's University Belfast
Tyrrell, Andy	University of York
17:00-17:20	ThB4.4
<i>Theory of Evolutionary Systems Engineering</i> , pp. 1084-1089.	
Hickinbotham, Simon	University of York
Dubey, Rahul	University of York
Buchanan, Edgar	University of York
Friel, Imelda	Queen's University Belfast
Colligan, Andrew Robert	Queen's University Belfast
Price, Mark	Queen's University Belfast
Tyrrell, Andy	University of York
17:20-17:40	ThB4.5
<i>Open-Endedness Induced through a Predator-Prey Scenario Using Modular Robots</i> , pp. 1090-1095.	
Kachler, Dimitri Roman	Vrije Universiteit Amsterdam
Miras, Karine	Vrije Universiteit Amsterdam
17:40-18:00	ThB4.6
<i>Crowding and Mutation Improvements in an EA for Flight Control Correction in a Flapping-Wing Vehicle</i> , pp. 1096-1103.	
Gallagher, John	University of Cincinnati
Oppenheimer, Michael	Autonomous Control Branch, AFRL, Wright-Patterson Air Force Base

Matson, Eric

Purdue University

ThB5	Constitución B
CI in Feature Analysis, Selection and Learning in Image and Pattern Recognition (FASLIP)	
Organizer: Zhang, Mengjie	Victoria University of Wellington
Organizer: XUE, Bing	Victoria University of Wellington
16:00-16:20	ThB5.1
<i>Morphological Image Analysis and Feature Extraction for Reasoning with AI-Based Defect Detection and Classification Models</i> , pp. 1104-1111.	
Zhang, Jiajun	Loughborough University
Cosma, Georgina	Loughborough University
Bugby, Sarah	Loughborough University
Finke, Axel	Loughborough University
Watkins, Jason	Railston & Co. Ltd
16:20-16:40	ThB5.2
<i>Evaluating the Potential and Realized Impact of Data Augmentations</i> , pp. 1112-1119.	
Heise, David	Lincoln University
Bear, Helen L.	YLB Tech, Ltd
16:40-17:00	ThB5.3
<i>Enhancing Content-Based Histopathology Image Retrieval Using QR Code Representation</i> , pp. 1120-1125.	
Rouzegar, Hamidreza	Ontario Tech University
Rahnamayan, Shahryar	Brock University
Asilian Bidgoli, Azam	Wilfrid Laurier University
Makrehchi, Masoud	Ontario Tech University
17:00-17:20	ThB5.4
<i>An Intelligent Email Classification System</i> , pp. 1126-1131.	
Luo, Zili	Queen's University, School of Computing
Zulkernine, Farhana	Queen's University
17:20-17:40	ThB5.5
<i>Semi-Supervised and Incremental Sequence Analysis for Taxonomic Classification</i> , pp. 1132-1138.	
Fasino, Adriana	Rowan University
Ozdogan, Emrehan	Rowan University
Sokhansanj, Bahrad	Drexel University
Rosen, Gail	Drexel University
Polikar, Robi	Rowan University
17:40-18:00	ThB5.6
<i>Image Caption Generation Based on Image-Text Matching Schema in Deep Reinforcement Learning</i> , pp. 1139-1144.	
Rashno, Elyas	Queen's University
Safarzadehvahed, Mahdieh	Queen's University
Zulkernine, Farhana	Queen's University
Givigi, Sidney	Queen's University

ThB6	Constitución C
CI in Cyber Security (CICS) 2	
Organizer: Dasgupta, Dipankar	University of Memphis
16:00-16:20	ThB6.1
<i>A Distributed Multi-User Access Control Middleware for</i>	

Critical Applications , pp. 1145-1150.

Williams, Alexander	University of Memphis
Roy, Arunava	The University of Memphis
Dasgupta, Dipankar	University of Memphis

16:20-16:40 ThB6.2

Optimized Machine Learning-Based Intrusion Detection System for Internet of Vehicles , pp. 1151-1157.

Limouchi, Elnaz	Royal Military College of Canada
Chan, Francois	Royal Military College of Canada

16:40-17:00 ThB6.3

Challenges and Opportunities of Computational Intelligence in Industrial Control System (ICS) , pp. 1158-1163.

Siddique, Sunzida	Daffodil International University
Haque, Mohd Ariful	Clark Atlanta University
Rifat, Rakib Hossain	BRAC University
Das, Laxmi Rani	Noakhali Science and Technology University
Talukder, Sajedul	University of Alabama at Birmingham
Alam, Syed	Missouri University of Science and Technology
Gupta, Kishor Datta	Clark Atlanta University

17:00-17:20 ThB6.4

Vulnerability of Open-Source Face Recognition Systems to Blackbox Attacks: A Case Study with InsightFace , pp. 1164-1169.

Sadman, Nafiz	Queen's University
Hasan, Kazi Amit	Queen's University
Rashno, Elyas	Queen's University
Alaca, Furkan	Queen's University
Tian, Yuan	Queen's University
Zulkernine, Farhana	Queen's University

17:20-17:40 ThB6.5

A Survey on Bias Mitigation in Federated Learning , pp. 1170-1175.

Ude, Bassey	North Carolina Agricultural and Technical State University
Odeyomi, Olusola	North Carolina Agricultural and Technical State University
Roy, Kaushik	North Carolina A&T State University
Yuan, Xiaohong	North Carolina Agricultural and Technical State University

17:40-18:00 ThB6.6

One-Class Classification for Intrusion Detection on Vehicular Networks , pp. 1176-1182.

Guidry, Jake	University of Louisiana at Lafayette
Sohrab, Fahad	Tampere University
Gottumukkala, Raju	University of Louisiana at Lafayette
Katragadda, Satya	University of Louisiana at Lafayette
Gabbouj, Moncef	Tampere University

ThB7 Colonia
Swarm Intelligence Symposium (SIS)

Organizer: Mostaghim, Sanaz	University of Magdeburg
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Organizer: Shi, Yuhui	Southern University of Science and Technology
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16:00-16:20 ThB7.1

XF-OPT/META: A Hyperparameter Optimization Framework Applied to the H-SPPBO Metaheuristic for the Dynamic TSP , pp. 1183-1188.

Werner, Daniel	Leipzig University
Turna, Fatma	Leipzig University
Le, Hoang Thanh	Leipzig University
Middendorf, Martin	Leipzig University

16:20-16:40 ThB7.2

A Cautionary Note on Poli's Stability Condition for Particle Swarm Optimization , pp. 1189-1194.

von Eschwege, Daniel	Stellenbosch University
Heinrich	
Engelbrecht, Andries	Stellenbosch University

16:40-17:00 ThB7.3

Framework of Systems for Creating Intelligent Behaviors of Imaginary Creatures for Humans , pp. 1195-1200.

Ohnishi, Kei	Kyushu Institute of Technology
Kumano, Yusuke	Kyushu Institute of Technology

17:00-17:20 ThB7.4

Swarm Intelligence Numerical Optimization Algorithm Representing Individuals As Dynamic Graphs in the Euclidean Search Space , pp. 1201-1207.

Hayashi, Kaho	Kyushu Institute of Technology
Ohnishi, Kei	Kyushu Institute of Technology

17:20-17:40 ThB7.5

Weight Binary Fish School Search Algorithm for Feature Selection , pp. 1208-1212.

Alexandria, Fabiana	University of Pernambuco
Buarque de Lima Neto, Fernando	University of Pernambuco

17:40-18:00 ThB7.6

Impressionist Hole Detection and Healing Using Swarms of Agents with Quantized Perception , pp. 1213-1220.

Simionato, Giada	University of Pisa
Parola, Marco	University of Pisa
Cimino, Mario G. C. A.	University of Pisa

ThB8 Conquista
Evolutionary Scheduling and Combinatorial Optimisation (ESCO)

Organizer: Mei, Yi	Victoria University of Wellington
Organizer: Qu, Rong	University of Nottingham

16:00-16:20 ThB8.1

A Simulation Hyper-Heuristic Method for Multi-Floor AGV Delivery Services in Hospitals , pp. 1221-1226.

Yuan, Haocheng	University of Nottingham Ningbo China
Chen, Xinan	University of Nottingham Ningbo China
Zhu, Junsong	University of Nottingham Ningbo China
Bai, Ruibin	University of Nottingham Ningbo China

16:20-16:40 ThB8.2

Quantum Representation Based Job Shop Scheduling , pp. 1227-1233.

Ripon, Kazi Shah Nawaz	Oslo Metropolitan University
Singh, Ashay	Høgskolen I Østfold

16:40-17:00	ThB8.3
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Neutrosophic Fuzzy Selected Element Reduction Approach (NF-SERA) : Assessment of E-Scooter Parking Area , pp. 1234-1238.

ÇAKIR, ESRA	GALATASARAY UNIVERSITY
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17:00-17:20	ThB8.4
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Multimodal Multi-Objective Football Game Algorithm for Optimizing Test Task Scheduling Problems , pp. 1239-1244.

Fadakar, Elyas	Beihang University (BUAA)
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17:20-17:40	ThB8.5
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Fixed Set Search Applied to the Maximum Set K-Covering Problem , pp. 1245-1250.

Jovanovic, Raka	Hamad Bin Khalifa University
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17:40-18:00	ThB8.6
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A Novel Robust Kernelized FCM Based Multi-Objective Simultaneous Learning Framework for Clustering and Classification , pp. 1251-1256.

Innani, Saketh	Mahindra University
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Chinnari, Pawan Sai	Mahindra University
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Sinha, Soumen	Mahindra University
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Khan, Mehek	Mahindra University
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Bharill, Neha	Mahindra University Hyderabad
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Patel, Om Prakash	Mahindra University Hyderabad
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Friday December 8, 2023

FrA1	Imperio A
CI in Control and Automation (CICA)	
Organizer: Dong, Daoyi	Australian National University
Organizer: Zeng, Xiaojun	University of Manchester
Organizer: PAN, YU	Zhejiang University
13:30-13:50	FrA1.1
<i>Sliding Mode Observer Based Fuzzy Control for TS Systems</i> , pp. 1257-1262.	
Lazar, Bogdan	Technical University of Cluj-Napoca
Lendek, Zsafia	Technical University of Cluj-Napoca
13:50-14:10	FrA1.2
<i>Designing Heuristic-Based Tuners for PID Controllers in Automatic Voltage Regulator Systems Using an Automated Hyper-Heuristic Approach</i> , pp. 1263-1268.	
Zambrano-Gutierrez, Daniel	Tecnologico De Monterrey
Molina-Porras, Alberto C.	Universidad De Guanajuato
Avina-Cervantes, Juan G.	Universidad De Guanajuato
Correa, Rodrigo	Universidad Industrial De Santander
Cruz-Duarte, Jorge Mario	Tecnologico De Monterrey
14:10-14:30	FrA1.3
<i>Model-Free Optimal Control Based on Reinforcement Learning for Rotary Inverted Pendulum</i> , pp. 1269-1273.	
Yudho, Eduardo	CINVESTAV-IPN
Li, Xiaoou	CINVESTAV-IPN
Ovilla-Martinez, Brisbane	CINVESTAV-IPN
Yu, Wen	CINVESTAV-IPN
14:30-14:50	FrA1.4
<i>On the Feasibility of Using a High-Level Solver within Robotic Mobile Fulfillment Systems</i> , pp. 1274-1279.	
Benavides-Robles, Maria Torcoroma	Tecnologico De Monterrey
Cruz-Duarte, Jorge Mario	Tecnologico De Monterrey
Ortiz-Bayliss, José Carlos	Tecnologico De Monterrey
Amaya, Ivan	Tecnologico De Monterrey
14:50-15:10	FrA1.5
<i>Constrained Neuro-Identifier for Controlling the Unicycle Mobile Robot</i> , pp. 1280-1285.	
Salgado, Ivan	Instituto Politécnico Nacional
Mera, Manuel	ESIME IPN
Ríos, Héctor	Tecnológico Nacional De México/I.T. La Laguna
Ballesteros-Escamilla, Mariana	CIDETEC Instituto Politécnico Nacional
15:10-15:30	FrA1.6
<i>Dynamic Neural Network with Guaranteed Sensitivity to External Influences</i> , pp. 1286-1291.	
Chernozubov, Danil	Lomonosov Moscow State University
Mukhamedov, Arthur	Lomonosov Moscow State University
Bugriy, Grigory	Lomonosov Moscow State University

Chertopolokhov, Viktor	Lomonosov Moscow State University
Chairez, Isaac	Tecnologico De Monterrey
FrA2	Imperio B
CI in Data Mining (CIDM) 3	
Organizer: Ni, Zhen	Florida Atlantic University
13:30-13:50	FrA2.1
<i>Generating Cardiovascular Data to Improve Training of Assistive Heart Devices</i> , pp. 1292-1297.	
Kummert, Johannes	Bielefeld University
Schulz, Alexander	Bielefeld University
Feldhans, Robert	Bielefeld University
Habigt, Moriz	Anaesthesiology Clinic RWTH Aachen University
Stemmler, Maike	Institute of Automatic Control RWTH Aachen University
Kohler, Christina	Institute of Automatic Control RWTH Aachen University
Abel, Dirk	RWTH Aachen University
Rossaint, Rolf	Anaesthesiology Clinic RWTH Aachen University Faculty of Medicine
Hammer, Barbara	Bielefeld University
13:50-14:10	FrA2.2
<i>Automatic Distance-Based Interpolating Unit Detection and Pruning in Self-Organizing Maps</i> , pp. 1298-1303.	
van Heerden, Willem S.	University of Pretoria
14:10-14:30	FrA2.3
<i>Unveiling Precision Medicine with Data Mining: Discovering Patient Subgroups and Patterns</i> , pp. 1304-1309.	
Mosavi, Nasim Sadat	University of Minho, Algoritmi Research Center
Santos, Manuel Filipe	University of Minho
14:30-14:50	FrA2.4
<i>Neural Network for Musical Data Mining for Phrase Boundary Detection</i> , pp. 1310-1315.	
Henel, Daniel	AGH University of Krakow
Mazur, Aleksander	AGH University of Krakow
Retajczyk, Marcin	AGH University of Krakow
Adrian, Weronika Teresa	AGH University of Krakow
Kluza, Krzysztof	AGH University of Krakow
Horzyk, Adrian	AGH University of Krakow
14:50-15:10	FrA2.5
<i>Detection of Real Concept Drift under Noisy Data Stream</i> , pp. 1316-1321.	
Parasteh, Sirvan	University
Sadaoui, Samira	University of Regina
Khosravani, Mohammad Sadegh	University of Regina
15:10-15:30	FrA2.6
<i>Scalable Kernelized Deep Fuzzy Clustering Algorithms for Big Data</i> , pp. 1322-1327.	
Jha, Preeti	Koneru Lakshmaiah Education

	Foundation, Bowrampet, Hyderabad
Tiwari, Aruna	IIT INDORE
Bharill, Neha	Mahindra University Hyderabad
Ratnaparkhe, Milind	ICAR-Indian Institute of Soybean Research
Patel, Om Prakash	Mahindra University Hyderabad
Gupta, Anjali	Indian Institute of Technology, Indore
Sukhija, Deepali	Indian Institute of Technology Indore
SUKHIJA, DEEPIKA	Indian Institute of Technology Indore
Dwivedi, Rajesh	Indian Institute of Technology Indore

FrA3	Imperio C
CI in Healthcare and E-Health (CICARE) 3	

Organizer: Hussain, Amir	Edinburgh Napier University
Organizer: Sheikh, Aziz	University of Edinburgh

13:30-13:50 FrA3.1

A Comparative Analysis of Machine Learning Models for Parkinson's Diagnosis Using MRI and Acoustic Data , pp. 1328-1333.

Shaffi, Noushath	University of Technology and Applied Sciences
Viswan, Vimbi	College of Computing and Information Sciences, University of Tec
Mahmud, Mufti	Nottingham Trent University
Hajamohideen, Faizal	University of Technology and Applied Sciences
Subramanian, Karthikeyan	University of Technology and Applied Sciences

13:50-14:10 FrA3.2

A Comparative Study of Pretrained Deep Neural Networks for Classifying Alzheimer's and Parkinson's Disease , pp. 1334-1339.

Viswan, Vimbi	Univ. of Technology and Applied Sciences
Shaffi, Noushath	Univ. of Technology and Applied Sciences
Mahmud, Mufti	Nottingham Trent University
Subramanian, Karthikeyan	Univ. of Technology and Applied Sciences
Hajamohideen, Faizal	Univ. of Technology and Applied Sciences

14:10-14:30 FrA3.3

Insole Design and Optimization Processes for Gait Analysis , pp. 1340-1345.

Orozco Villanueva, Kevin Alejandro	Universidad Paramericana
Richter, Miguel	Universidad Panamericana
Villa, Carlos	Massachusetts Institute of Technology
Martinez-Villaseñor, Lourdes	Universidad Panamericana
Ponce, Hiram	Universidad Panamericana
Barrera-Animas, Ari. Y.	Universidad Panamericana

14:30-14:50 FrA3.4

Multi-Objective Evolutionary Quantization of Randomization-

Based Neural Networks , pp. 1346-1351.

Del Ser, Javier	TECNALIA/University of the Basque Country (UPV/EHU)
Andres, Alain	TECNALIA
Bilbao, Miren Nekane	University of the Basque Country (UPV/EHU)
Laña, Ibai	TECNALIA
Lobo, Jesus L.	TECNALIA

14:50-15:10 FrA3.5

On the Use of Associative Memory in Hopfield Networks Designed to Solve Propositional Satisfiability Problems , pp. 1352-1358.

Weber, Natalya	Okinawa Institute of Science and Technology Graduate University
Koch, Werner	Independent Scholar
Erdem, Ozan	Independent Scholar
Froese, Tom	Okinawa Institute of Science and Technology Graduate University

15:10-15:30 FrA3.6

An Adaptive Multiform Evolutionary Algorithm for Global Continuous Optimization , pp. 1359-1365.

Ling, Hongtao	South China University of Technology
Zhong, Jinghui	South China University of Technology
Dong, Junlan	South China University of Technology
Wang, Shanxia	Henan Normal University
Wang, Shibin	Henan Normal University
Zhang, Qin	The Communication University of China

FrA4	Constitución A
Foundations of CI (FOCI)	

Organizer: Lopez-Rodríguez, Domingo	Universidad De Málaga
Organizer: Franco, Leonardo	University of Florida

13:30-13:50 FrA4.1

Results on the Empirical Design of a Residual Binary Multilayer Perceptron Architecture , pp. 1366-1371.

Solis Winkler, Agustin	Universidad Autonoma Del Estado De Mexico
López-Chau, Asdrúbal	Universidad Autónoma Del Estado De México
Osnaya Baltierra, Santiago	Universidad Autonoma Del Estado De Mexico

13:50-14:10 FrA4.2

Newton Method-Based Subspace Support Vector Data Description , pp. 1372-1379.

Sohrab, Fahad	Tampere University
Laakom, Firas	Tampere University
Gabbouj, Moncef	Tampere University

14:10-14:30 FrA4.3

Runtime Analysis of (1+1)-EA on a Biobjective Test Function in Unbounded Integer Search Space , pp. 1380-1385.

Rudolph, Günter	TU Dortmund University
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14:30-14:50 FrA4.4

Effects of Optimal Genetic Material in the Initial Population of

Evolutionary Algorithms , pp. 1386-1391.

Benecke, Tobias	Otto Von Guericke University Magdeburg
Mostaghim, Sanaz	University of Magdeburg

14:50-15:10 FrA4.5

What Drives Evolution of Self-Driving Automata? , pp. 1392-1397.

Dube, Michael	University of Guelph
Olenic, Kevin	Brock University
Houghten, Sheridan	Brock University

15:10-15:30 FrA4.6

Initial Populations with a Few Heuristic Solutions Significantly Improve Evolutionary Multi-Objective Combinatorial Optimization , pp. 1398-1405.

Gong, Cheng	Southern University of Science and Technology
Nan, Yang	Southern University of Science and Technology
Pang, Lie Meng	Southern University of Science and Technology
Ishibuchi, Hisao	Southern University of Science and Technology
Zhang, Qingfu	City University of Hong Kong

FrA5	Constitución B
Adaptive Dynamic Programming and Reinforcement Learning (ADPRL)	

Organizer: Ni, Zhen	Florida Atlantic University
Organizer: Si, Jennie	Arizona State University

13:30-13:50 FrA5.1

Reinforcement Learning-Guided Channel Selection across Time for Multivariate Time Series Classification , pp. 1406-1413.

Pantiskas, Leonardos	Vrije Universiteit Amsterdam
Verstoep, Kees	Vrije Universiteit Amsterdam
Hoogendoorn, Mark	Vrije Universiteit Amsterdam
Bal, Henri	Vrije Universiteit Amsterdam

13:50-14:10 FrA5.2

Enhanced Generalization through Prioritization and Diversity in Self-Imitation Reinforcement Learning Over Procedural Environments with Sparse Rewards , pp. 1414-1420.

Andres, Alain	TECNALIA
Zha, Daochen	Rice University
Del Ser, Javier	TECNALIA/University of the Basque Country (UPV/EHU)

14:10-14:30 FrA5.3

Hierarchical Reinforcement Learning for Non-Stationary Environments , pp. 1421-1428.

Haighton, Rachel	Carleton University
Asgharnia, Amirhossein	Carleton University
Schwartz, Howard	Carleton University
Givigi, Sidney	Queen's University

14:30-14:50 FrA5.4

Uncertainty Quantification for Efficient and Risk-Sensitive Reinforcement Learning , pp. 1429-1434.

IBRAHIM, Mohamed-Harith	Mines Saint-Etienne
Lecoeuche, Stéphane	IMT Nord Europe

Boonaert, Jacques	IMT Nord Europe
BATTON-HUBERT, Mireille	Mines Saint-Etienne

14:50-15:10 FrA5.5

MEWA: A Benchmark for Meta-Learning in Collaborative Working Agents , pp. 1435-1442.

Stoican, Radu	The University of Manchester
Cangelosi, Angelo	University of Manchester
Weisswange, Thomas	Honda Research Institute Europe GmbH

15:10-15:30 FrA5.6

SIGNRL: A Population-Based Reinforcement Learning Method for Continuous , pp. 1443-1448.

Zambrano-Gutierrez, Daniel	Tecnologico De Monterrey
Molina-Porras, Alberto C.	Universidad De Guanajuato
Ovalle-Magallanes, Emmanuel	Universidad De Guanajuato
Amaya, Ivan	Tecnologico De Monterrey
Ortiz-Bayliss, Jose Carlos	Tecnologico De Monterrey
Avina-Cervantes, Juan G.	Universidad De Guanajuato
Cruz-Duarte, Jorge Mario	Tecnologico De Monterrey

FrA6	Constitución C
Computational Intelligence and Cognitive Science (CIMEX)	

Organizer: Gonzalez-Mendoza, Miguel	ITE430714KI0
Organizer: Calvo, Hiram	CIC-IPN

13:30-13:50 FrA6.1

Optimizing Strategy Games: Ant Colony Optimization vs. Minimax Algorithm , pp. 1449-1454.

Angeles Garcia, Yoqsan	Instituto Politécnico Nacional
Legaria-Santiago, Valeria Karina	Instituto Politécnico Nacional
Anzueto, Alvaro	Instituto Politécnico Nacional
Calvo, Hiram	Instituto Politécnico Nacional

13:50-14:10 FrA6.2

Search of Highly Selective Cells in Convolutional Layers with Hebbian Learning , pp. 1455-1460.

Aguilar-Canto, Fernando	CIC IPN
Calvo, Hiram	CIC-IPN

14:10-14:30 FrA6.3

Enhancing Document Digitization: Image Denoising with a Cycle Generative Adversarial Network , pp. 1461-1466.

Lugo Torres, Gerardo	Centro De Investigación En Computación, Instituto Politécnico Nac
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Peralta, Diego Antonio	Instituto Politécnico Nacional
Valdez-Rodríguez, José E.	Centro De Investigación En Computación

Calvo, Hiram	CIC-IPN
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14:30-14:50 FrA6.4

Analysis of Emotions in Speech Acts for Chatbots: An Overview and a Model Proposal , pp. 1467-1471.

Castro, Emmanuel	CIC-IPN
Calvo, Hiram	CIC-IPN
Kolesnikova, Olga	CIC-IPN
Castro, Citlali	CECyT 6 - IPN

14:50-15:10 FrA6.5

Convolving Emotions: A Compact CNN for EEG-Based Emotion Recognition , pp. 1472-1476.

Cardoso-Moreno, Marco A.	Cic - Ipn
Macias, Cesar	Centro De Investigación En Computación
Alcantara, Tania	Centro De Investigación En Computación, Instituto Politécnico Na
Soto, Miguel	Centro De Investigación En Computación, Instituto Politécnico Na
Calvo, Hiram	CIC-IPN
Yáñez-Márquez, Cornelio	Instituto Politécnico Nacional

15:10-15:30 FrA6.6

Hypertension and Its Relationship with Socioeconomic Factors in Mexico Using Clustering Techniques , pp. 1477-1478.

OBED SALOMON, CASILLAS	Instituto Politécnico Nacional
BALTAZAR	
Pichardo-Lagunas, Obdulia	Instituto Politécnico Nacional
Martinez-Seis, Bella	IPN (UPIITA)

FrA7 Colonia
Multicriteria Decision-Making (MCDM)

Organizer: Singh, Hemant Kumar	UNSW Canberra
Organizer: Deb, Kalyanmoy	Michigan State University

13:30-13:50 FrA7.1

On the Choice of Unique Identifiers for Predicting Pareto-Optimal Solutions Using Machine Learning , pp. 1479-1484.

Suresh, Anirudh	Michigan State University
Deb, Kalyanmoy	Michigan State University

13:50-14:10 FrA7.2

Multi-Objective Island Model Genetic Programming for Predicting the Stokes Flow Around a Sphere , pp. 1485-1490.

Reuter, Julia	Otto-Von-Guericke-University Magdeburg
Pandey, Pravin	Otto-Von-Guericke-University Magdeburg
Mostaghim, Sanaz	Otto-Von-Guericke-University Magdeburg

14:10-14:30 FrA7.3

Managing Objective Archives for Solution Set Reduction in Many-Objective Optimization , pp. 1491-1496.

Peerlinck, Amy	Western Colorado State University
Sheppard, John	Montana State University

14:30-14:50 FrA7.4

Analyzing Different Protocols of Information Granularity Distribution to Improve Consistency of Fuzzy Preference Relations in Decision-Making , pp. 1497-1502.

González-Quesada, Juan Carlos	University of Granada
Perez, Ignacio Javier	University of Cadiz
Morente-Molinera, Juan Antonio	University of Granada
Alonso, Sergio	University of Granada
Herrera Viedma, Enrique	University of Granada (Spain)
Cabrerizo, Francisco Javier	University of Granada (Q1818002F)

14:50-15:10 FrA7.5

Ensemble R2-Based Hypervolume Contribution Approximation , pp. 1503-1510.

Wu, Guotong	Southern University of Science and Technology
Shu, Tianye	Southern University of Science and Technology
Nan, Yang	Southern University of Science and Technology
Shang, Ke	Southern University of Science and Technology
Ishibuchi, Hisao	Southern University of Science and Technology

15:10-15:30 FrA7.6

A Brief Review of Multi-Concept Multi-Objective Optimization Problems , pp. 1511-1517.

Niloy, Rounak Saha	University of New South Wales
Singh, Hemant Kumar	University of New South Wales
Ray, Tapabrata	University of New South Wales

FrA8 Conquista
Evolving and Autonomous Learning Systems (EALS)

Organizer: Angelov, Plamen	Lancaster University
Organizer: Kasabov, Nikola	Auckland University of Technology

13:30-13:50 FrA8.1

A Comparison of Controller Architectures and Learning Mechanisms for Arbitrary Robot Morphologies , pp. 1518-1525.

Luo, Jie	Vrije Universiteit Amsterdam
Miras, Karine	Vrije Universiteit Amsterdam
Tomczak, Jakub	Eindhoven University of Technology
Eiben, A.E.	Vrije Universiteit Amsterdam

13:50-14:10 FrA8.2

Evolving Behavior Allocations in Robot Swarms , pp. 1526-1531.

Scott, Hallauer	University of Cape Town
Nitschke, Geoffrey	University of Cape Town
Hart, Emma	Edinburgh Napier University

14:10-14:30 FrA8.3

Knowledge Extraction about Beer Classification Using Evolving Fuzzy Neural Networks , pp. 1532-1539.

Campos Souza, Paulo Vitor de	Fondazione Bruno Kessler
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14:30-14:50 FrA8.4

Training Artificial Neural Networks by Coordinate Search Algorithm , pp. 1540-1546.

Rokhsatyazdi, Ehsan	Ontario Tech University
Rahnamayan, Shahryar	Brock University
Zanjani Miyandoab, Sevil	Ontario Tech University
Asilian Bidgoli, Azam	Wilfrid Laurier University
Tizhoosh, Hamid	Mayo Clinic

14:50-15:10 FrA8.5

Improving Metaheuristic Algorithm Design through Inequality and Diversity Analysis: A Novel Multi-Population Differential Evolution , pp. 1547-1552.

Ramos-Michel, Alfonso	Universidad De Guadalajara
Navarro, Mario A.	Universidad De Guadalajara
Oliva, Diego	Universidad De Guadalajara

Morales-Castañeda, Bernardo	Universidad De Guadalajara
Casas-Ordaz, Angel	Universidad De Guadalajara
Valdivia G, Arturo	Universidad De Guadalajara
Rodríguez-Esparza, Erick	University of Deusto
Mousavirad, Seyed Jalaeddin	Mid Sweden University

15:10-15:30 FrA8.6

Training Data Leakage Via Imperceptible Backdoor Attack , pp. 1553-1559.

Yang, Xiangkai	Harbin Institute of Technology, Shenzhen
Luo, Wenjian	Harbin Institute of Technology, Shenzhen
Zhou, Qi	Harbin Institute of Technology, Shenzhen
Chen, zhijian	Harbin Institute of Technology (Shenzhen)

FrB1 Intelligent Biomedical Data Analysis (IBDA)

Organizer: Wang, Alan	University of Auckland
Organizer: Kasabov, Nikola	Auckland University of Technology

16:00-16:20 FrB1.1

Classification Using Deep Transfer Learning on Structured Healthcare Data , pp. 1560-1565.

FARHADI, AYDA	University of Georgia
Chen, David	Mayo Clinic
mccoy, rozalina	Mayo Clinic
scott, christopher	Mayo Clinic
Ma, Ping	UGA
Vachon, Celine	Mayo Clinic
Zhang, Jingyi	Tsinghua University
Ngufor, Che	Mayo Clinic
Miller, John	UGA

16:20-16:40 FrB1.2

Deep Learning and Explainable Artificial Intelligence for Improving Specificity and Detecting Metabolic Patterns in Newborn Screening , pp. 1566-1571.

Zaunseder, Elaine	University Heidelberg
Mütze, Ulrike	Heidelberg University Hospital
Garbade, Sven	Heidelberg University Hospital
Haupt, Saskia	University Heidelberg
Kölker, Stefan	Heidelberg University Hospital
Heuveline, Vincent	University Heidelberg

16:40-17:00 FrB1.3

Image-Based Screening of Oral Cancer Via Deep Ensemble Architecture , pp. 1572-1578.

Parola, Marco	University of Pisa
La Mantia, Gaetano	University of Palermo
Galatolo, Federico Andrea	University of Pisa
Cimino, Mario G. C. A.	University of Pisa
Campisi, Giuseppina	University of Palermo
Di Fede, Olga	University of Palermo

17:00-17:20 FrB1.4

Inference of Genetic Networks from Steady-State and Pseudo Time-Series of Single-Cell Gene Expression Data Using Modified Random Forests , pp. 1579-1586.

Kimura, Shuhei	Tottori University
Kitajima, Hirotaka	Tottori University
Tokuhisa, Masato	Tottori University
Okada, Mariko	Osaka University

17:20-17:40 FrB1.5

Using Contrastive Learning to Inject Domain-Knowledge into Neural Networks for Recognizing Emotions , pp. 1587-1592.

Gagliardi, Guido	University of Pisa
Alfeo, Antonio Luca	University of Pisa
Catrambone, Vincenzo	University of Pisa
Cimino, Mario G. C. A.	University of Pisa
De Vos, Maarten	KU Leuven
Valenza, Gaetano	University of Pisa

17:40-18:00 FrB1.6

Bayesian Optimization for the Inverse Problem in Electrocardiography , pp. 1593-1598.

Lopez-Rincon, Alejandro	Division of Pharmacology, University of Utrecht/Department of Dat
Rojas-Velazquez, David	Division of Pharmacology, University of Utrecht/Department of Dat
Garssen, Johan	Division of Pharmacology, University of Utrecht
van der Laan, Sander W.	UMC Utrecht
Oberski, Daniel	Department of Data Science, Julius Center for Health Sciences An
Tonda, Alberto	UMR 518 MIA-PS, INRAE, Université Paris-Saclay

FrB2 Robotic Intelligence in Informationally Structured Space (RiiSS)

Organizer: Botzheim, Janos	Eötvös Loránd University
Organizer: Chin, Wei Hong	Tokyo Metropolitan University

16:00-16:20 FrB2.1

Deep Active Robotic Perception for Improving Face Recognition under Occlusions , pp. 1599-1602.

Dimaridou, Valia	Aristotle University of Thessaloniki
Passalis, Nikolaos	Aristotle University of Thessaloniki
Tefas, Anastasios	Aristotle University of Thessaloniki

16:20-16:40 FrB2.2

FedLoop: A P2P Personalized Federated Learning Method on Heterogeneous Data , pp. 1603-1606.

LI, FEI	Universiti Malaya
Loo, ChuKiong	University of Malaya
Liew, Wei Shiung	Universiti Malaya
Liu, Xiaofeng	Hohai University

16:40-17:00 FrB2.3

Real-Time Neural Control for Discrete Nonlinear Systems under Unknown Input and State Disturbances , pp. 1607-1612.

Alanis, Alma Y.	Universidad De Guadalajara
Alvarez, Jesus G.	University of Guadalajara
Sanchez, Oscar Didier	Universidad De Guadalajara
Zuñiga, Pavel	Universidad De Guadalajara
Munoz-Gomez, Gustavo	Instituto Tecnológico Nacional De Mexico

17:00-17:20	FrB2.4
<i>Intelligent Backoff Management Scheme Applying Adaptive Neuro-Fuzzy Inference System in Vehicular Ad-Hoc Networks</i> , pp. 1613-1619.	
Limouchi, Elnaz	Royal Military College of Canada
Chan, Francois	Royal Military College of Canada
17:20-17:40	FrB2.5
<i>Conditioning Latent-Space Clusters for Real-World Anomaly Classification</i> , pp. 1620-1625.	
Bogdoll, Daniel	FZI Forschungszentrum Informatik
Pavliitska, Svetlana	FZI Research Center for Information Technology
Klaus, Simon	KIT Karlsruhe Institute of Technology
Zöllner, Marius	Forschungszentrum Informatik
17:40-18:00	FrB2.6
<i>Construction of Domain-Specific Lexicons Based on Term Statistics</i> , pp. 1626-1631.	
Rojas-Hernández, Rafael	Universidad Autónoma Del Estado De México
López-Chau, Asdrúbal	Universidad Autónoma Del Estado De México
Valle-Cruz, David	Universidad Autónoma Del Estado De México
Trujillo-Mora, Valentín	Universidad Autónoma Del Estado De México
González-Jaimes, Elvira Ivone	Universidad Autónoma Del Estado De México
FrB3	Imperio C
CI in Biometrics and Identity Management (CIBIM)	
Organizer: Yanushkevich, Svetlana	University of Calgary
16:00-16:20	FrB3.1
<i>A Transfer Learning Approach to Cross-Domain Author Profiling</i> , pp. 1632-1637.	
Zalzala, Ali	Community Tracks Ltd
Lain, Alexander	UoEO
16:20-16:40	FrB3.2
<i>Intelligent Stress Assessment for E-Coaching</i> , pp. 1638-1643.	
Lai, Kenneth	University of Calgary
Yanushkevich, Svetlana	University of Calgary
Shmerko, Vlad	University of Calgary
16:40-17:00	FrB3.3
<i>Causal Models Applied to the Patterns of Human Migration Due to Climate Change</i> , pp. 1644-1649.	
Lai, Kenneth	University of Calgary
Yanushkevich, Svetlana	University of Calgary
17:00-17:20	FrB3.4
<i>Integration of Structural Equation Models and Bayesian Networks for Cognitive Load Modeling</i> , pp. 1650-1655.	
Shaposhnyk, Olha	University of Calgary
Yanushkevich, Svetlana	University of Calgary
17:20-17:40	FrB3.5
<i>Unraveling Body Vitals As Traumatic Event-Caused Stress Indicators</i> , pp. 1656-1661.	
Zahorska, Daria	National Technical University of

	Ukraine
Babenko, Vitalii	Igor Sikorsky Kyiv Polytechnic Institute
Shaposhnyk, Olha	University of Calgary
Chernykh, Maksym	National Technical University of Ukraine "Igor Sikorsky Kyiv Pol
Yanushkevich, Svetlana	University of Calgary
Nastenka, Ievgen	Igor Sikorsky Kyiv Polytechnic Institute
17:40-18:00	FrB3.6
<i>Computational Intelligence Driven Motor Function Assessment in Post-Stroke Patients</i> , pp. 1662-1667.	
Yankovyi, Illia	University of Calgary
Shaposhnyk, Olha	University of Calgary
Horn, MacKenzie	University of Calgary
Almekhlafi, Mohammed	University of Calgary
Yanushkevich, Svetlana	University of Calgary

FrB4	Constitución A
Multi-Agent System Coordination and Optimization (MASCO)	
Organizer: Cheng, Ran	Southern University of Science and Technology
Organizer: Lozano, Jose A.	University of the Basque Country
16:00-16:20	FrB4.1
<i>Multi-Robot System Architecture Focusing on Plan Recovery for Dynamic Environments</i> , pp. 1668-1673.	
da Silva, Carlos J. T.	University of Brasilia
Ghedini Ralha, Célia	University of Brasilia
16:20-16:40	FrB4.2
<i>Learning Control Policies for Variable Objectives from Offline Data</i> , pp. 1674-1681.	
Weber, Marc	Siemens AG
Swazinna, Phillip	Siemens AG
Hein, Daniel	Siemens AG
Udluft, Steffen	Siemens AG
Sterzing, Volkmar	Siemens AG
16:40-17:00	FrB4.3
<i>Balancing Matching of Two-Sided Agents with Adaptive and Fair Instability</i> , pp. 1682-1689.	
Saha, Peash Ranjan	Queen's University
Choudhury, Salimur	Queen's University
Salomaa, Kai	Queen's University
17:00-17:20	FrB4.4
<i>Using Graph Theory to Produce Emergent Behaviour in Agent-Based Systems</i> , pp. 1690-1695.	
Gower-Winter, Brandon	University of Cape Town
Nitschke, Geoff	University of Cape Town
17:20-17:40	FrB4.5
<i>GLocal: A Hybrid Approach to the Multi-Agent Mission Re-Planning Problem</i> , pp. 1696-1703.	
Fraseri, Mirgita	Aarhus University
Miloradovic, Branko	Malardalen University
Esterle, Lukas	Aarhus University
Papadopoulos, Alessandro	Malardalen University
17:40-18:00	FrB4.6
<i>Large Language and Text-To-3D Models for Engineering</i>	

Design Optimization , pp. 1704-1711.

Rios, Thiago	Honda Research Institute Europe
Menzel, Stefan	Honda Research Institute Europe
Sendhoff, Bernhard	Honda Research Institute Europe

FrB5	Constitución B
Computational Intelligence for Fault Detection and Isolation (CIFDI)	

Organizer: Alanis, Alma Y.	Universidad De Guadalajara
Organizer: Anzurez-Marin, Juan	Universidad Michoacana De San Nicolas De Hidalgo

16:00-16:20	FrB5.1
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Online Neural-Detection of False Data Injection Attacks on Financial Time Series , pp. 1712-1717.

Alanis, Alma Y.	Universidad De Guadalajara
Sanchez, Oscar Didier	Universidad De Guadalajara
Ibarra, Alejandra	University of Guadalajara
Mendez, Eduardo	University of Guadalajara
Sanchez, Jorge D.	University of Guadalajara
Galvez, Jorge	University of Guadalajara

16:20-16:40	FrB5.2
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Anomaly Behavior Analysis for Sensors Fault Detection , pp. 1718-1723.

Perez, Guillermo	Universidad De Sonora
Pérez, Guillermo	Universidad De Sonora
Benitez Baltazar, Victor Hugo	Universidad De Sonora

16:40-17:00	FrB5.3
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Fault Identification of Discrete-Time Unknown Non-Linear Systems: A Two-Dimensional Convolutional Neural Network Approach , pp. 1724-1729.

Rangel-Carrillo, Eduardo	COPSIJAL
Alanis, Alma Y.	Universidad De Guadalajara

17:00-17:20	FrB5.4
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Computational Intelligence-Based Fault Detection in Refrigeration Systems: A Study on Enhancing System Reliability , pp. 1730-1734.

Cardoso Fernández, Víctor	Universidad Autónoma De Yucatán
Ricalde, Luis	Universidad Autonoma De Yucatan

Ali, Bassam	University Autonomous of Yucatán
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17:20-17:40	FrB5.5
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Low-Cost Automated Visual Screw Inspection System , pp. 1735-1740.

Li, Yiran	University of Nottingham Ningbo China
Li, Jiayi	University of Nottingham, Ningbo China
YANG, Xiaoying	University of Nottingham
LI, Cheng'ao	University of Nottingham Ningbo China
Xiong, Xihan	Imperial College London
Fang, Yutong	Ningbo Open University
Ding, Shusheng	Ningbo University
Cui, Tianxiang	University of Nottingham Ningbo China

FrB6	Constitución C
Computing Intelligence in Scheduling and Optimization of Complex Systems (CISO)	

Organizer: He, Lijun	Wuhan University of Technology
Organizer: Li, Wenfeng	Wuhan University of Technology

16:00-16:20	FrB6.1
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The Integraeted Scheduling for the Multi-Stage Transshipment System Considering AGVs and ETs , pp. 1741-1746.

Zhong, Lingchong	Wuhan University of Technology Wuhan, Hubei 430063, P.R. China
Li, Wenfeng	Wuhan University of Technology Wuhan, Hubei 430063, P.R. China
Zhou, Zecheng	Wuhan University of Technology Wuhan, Hubei 430063, P.R. China
Li, Yongcui	Qingdao New Qianwan Container Terminal Co., Ltd. Qingdao, Shandon
Chen, Qiang	Qingdao New Qianwan Container Terminal Co., Ltd. Qingdao, Shandon
Liu, Yaohui	Qingdao New Qianwan Container Terminal Co., Ltd. Qingdao, Shandon

16:20-16:40	FrB6.2
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A Hybrid Approach Optimizing Both Terminal Resource Configuration and External Truck Waiting Time under Truck Appointment System , pp. 1747-1752.

Diao, Cuijie	Dalian Maritime University
Yang, Huiyun	Dalian Maritime University
Wang, Wenmin	Dalian Maritime University
Gan, Yuxin	Dalian Maritime University
JIN, Zhihong	Dalian Maritime University

16:40-17:00	FrB6.3
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A Proactive-Reactive Approach for Dynamic Hybrid Berth Allocation Problem Considering Vessels Arrival Delay , pp. 1753-1758.

Yang, Pengfei	Wuhan University of Technology
CAI, LEI	Wuhan University of Technology
Guo, Wenjing	Wuhan University of Technology
Li, Wenfeng	Wuhan University of Technology

17:00-17:20	FrB6.4
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Mixed-Integer Programming with Enterprise Risk Analysis for Vehicle Electrification at Maritime Container Ports , pp. 1759-1766.

Baker, Robert	University of Virginia
Marcellin, Megan C.	University of Virginia
Riggs, Robert	University of Virginia
Hendrickson, Daniel C.	University of Virginia
Polmateer, Thomas L.	University of Virginia
Chen, T. Donna	University of Virginia
Iqbal, Tariq	University of Virginia
Slutzky, David L.	University of Virginia and Fermata Energy LLC
Lambert, James H.	University of Virginia

17:20-17:40	FrB6.5
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Designing Large-Scale Intelligent Collaborative Platform for Freight Forwarders , pp. 1767-1772.

Tan, Pang Jin	Singapore Management University
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Cheng, Shih-Fen	Singapore Management University
Chen, Richard	N.A
17:40-18:00	FrB6.6
<i>An Ensemble Method for Applying Particle Swarm Optimization Algorithms to Systems Engineering Problems</i> , pp. 1773-1774.	
Hampshire, Ken	George Washington University
Mazzuchi, Thomas	George Washington University
Sarkani, Shahram	George Washington University
FrB7	Colonia
Ethical, Social and Legal Implications of Artificial Intelligence (ETHAI)	
Organizer: Crocket, Keeley	Manchester Metropolitan University
Organizer: Garratt, Matthew	University of New South Wales
16:00-16:20	FrB7.1
<i>Harmony Unleashed: Exploring the Ethical and Philosophical Aspects of Machine Learning in Human-Robot Collaboration for Industry 5.0</i> , pp. 1775-1780.	
Zafar, Muhammad Hamza	University of Agder, Grimstad, Norway
Sanfilippo, Filippo	University of Agder (UiA)
Blazauskas, Tomas	Kaunas University of Technology
16:20-16:40	FrB7.2
<i>The GM AI Foundry: A Model for Upskilling SME's in Responsible AI</i> , pp. 1781-1787.	
Lawton, Roxana	IN4 Group
Boswell, Sara	University of Salford
Crockett, Keeley	Manchester Metropolitan University
16:40-17:00	FrB7.3
<i>Harnessing Digital Twins for Human-Robot Teaming in Industry 5.0: Exploring the Ethical and Philosophical Implications</i> , pp. 1788-1793.	
Langås, Even Falkenberg	University of Agder
Zafar, Muhammad Hamza	University of Agder, Grimstad, Norway
Sanfilippo, Filippo	University of Agder (UiA)
17:00-17:20	FrB7.4
<i>From Rigid to Hybrid/Soft Robots: Exploration of Ethical and Philosophical Aspects in Shifting from Caged Robots to Human-Robot Teaming</i> , pp. 1794-1799.	
Hua, Minh Tuan	University of Agder
Langås, Even Falkenberg	University of Agder
Zafar, Muhammad Hamza	University of Agder, Grimstad, Norway
Sanfilippo, Filippo	University of Agder (UiA)
17:20-17:40	FrB7.5
<i>Systems Analysis of Bias and Risk in AI-Enabled Medical Diagnosis</i> , pp. 1800-1807.	
Moghadas, Negin	University of Virginia
Piran, Misagh	HDZ-NRW
Baek, Stephen	University of Virginia
Valdez, Rupa S.	University of Virginia

Porter, Michael D	University of Virginia
Johnson, DeAndre	University of Virginia
Lambert, James H.	University of Virginia

FrB8	Conquista
Evolutionary Neural Architecture Search and Applications (ENASA)	
Organizer: Sun, Yanan	Sichuan University
16:00-16:20	FrB8.1
<i>Interpretation of Neural Network Players for a Generalized Divide the Dollar Game Using SHAP Values</i> , pp. 1808-1813.	
Greenwood, Garrison	Portland State University
Abbass, Hussein	University of New South Wales
Hussein, Aya	University of New South Wales-Canberra
16:20-16:40	FrB8.2
<i>A Two-Stage Hybrid GA-Cellular Encoding Approach to Neural Architecture Search</i> , pp. 1814-1820.	
Londt, Trevor	Victoria University of Wellington
Gao, Xiaoying	Victoria University of Wellington
Andreae, Peter	Victoria University of Wellington
16:40-17:00	FrB8.3
<i>Examination of the Multimodal Nature of Multi-Objective Neural Architecture Search</i> , pp. 1821-1828.	
Gong, Cheng	Southern University of Science and Technology
Nan, Yang	Southern University of Science and Technology
Pang, Lie Meng	Southern University of Science and Technology
Ishibuchi, Hisao	Southern University of Science and Technology
Zhang, Qingfu	City University of Hong Kong
17:00-17:20	FrB8.4
<i>Connectivity Schemas in NeuroEvolution: What Neural Architectures Does GEPNN Evolve?</i> , pp. 1829-1836.	
Mwaura, Jonathan	Northeastern University
Heminway, Ryan	Northeastern University
17:40-18:00	FrB8.6
<i>Efficient Neuroevolution Using Island Repopulation and Simplex Hyperparameter Optimization</i> , pp. 1837-1842.	
Thakur, Aditya Shankar	Rochester Institute of Technology
Awari, Akshar Bajrang	Rochester Institute of Technology
Lyu, Zimeng	Rochester Institute of Technology
Desell, Travis	Rochester Institute of Technology

SSCI 2023 Keyword Index

A		
Advanced Optimization	FrA1.2, FrA1.4, FrA3.5, FrA3.6, FrA4.2, FrA4.3, FrA4.4, FrA4.6, FrA7.1, FrA7.5, FrA7.6, FrB4.3, FrB4.6, FrB6.4, FrB8.3, ThA4.3, ThA4.5, ThA8.5, ThB1.3, ThB1.4, ThB7.4, ThB8.1, ThC1.1, WeA3.4, WeA5.1, WeA5.3, WeB2.3, WeB3.1, WeB4.4, WeB4.5, WeB4.6, WeB7.6	FrB1.4, FrB2.6, FrB6.2, ThA1.4, ThA2.1, ThA2.2, ThA2.3, ThA2.4, ThA2.5, ThA2.6, ThA7.4, ThA8.5, ThB2.1, ThB2.2, ThB2.4, ThB2.5, ThB2.6, ThB3.6, ThB5.4, ThB5.5, ThC8.1, ThC8.2, ThC8.3, WeA3.6, WeA5.4, WeA5.5, WeA5.6, WeA8.1, WeB1.4, WeB8.3, WeB8.6
Agent-Based Modeling	FrA5.2, FrA5.6, FrB4.4, FrB8.1, ThA3.4, ThA5.2, ThA5.6, WeA3.1, WeB5.2	Decision Making
Ambient Intelligence Automated Algorithm	ThA8.6, ThB2.6, WeB7.4	FrA1.4, FrA2.3, FrA3.5, FrA5.4, FrA6.1, FrA7.1, FrA7.2, FrA7.3, FrA7.4, FrA7.6, FrA8.5, FrB1.1, FrB2.4, FrB3.1, FrB3.3, FrB3.4, FrB3.5, FrB6.4, FrB6.5, FrB7.5, ThA1.4, ThA3.4, ThA7.4, ThA7.5, ThA8.6, ThB1.1, ThB1.4, ThB2.1, ThB5.5, ThC1.1, ThC4.2, ThC7.1, ThC7.2, ThC7.3, ThC8.2, ThC8.3, WeA1.5, WeA3.4, WeA3.5, WeA3.6, WeA4.5, WeA4.6, WeA5.3, WeB2.3, WeB3.1, WeB3.6, WeB6.4, WeB7.2
Autonomous Systems	FrA1.2, FrA2.4, FrA8.5, FrB3.1, FrB8.6, ThB2.3, ThB8.1, ThC5.2, ThC6.1, ThC6.2, ThC6.3, WeB2.1, WeB2.2, WeB2.4, WeB2.5, WeB2.6, WeB5.5	Deep Learning
	FrA5.3, FrB2.1, FrB2.5, FrB3.2, FrB3.3, FrB4.5, FrB5.5, ThA7.5, ThB4.6, ThB5.4, ThB6.3, ThB7.6, WeA1.1, WeA4.1, WeA6.4, WeA6.5, WeA7.3, WeB5.6, WeB7.3, WeB8.5	FrA2.1, FrA2.6, FrA3.2, FrA4.1, FrA5.1, FrA6.2, FrA6.3, FrA6.5, FrA8.4, FrA8.6, FrB1.1, FrB1.2, FrB1.5, FrB2.1, FrB2.2, FrB2.5, FrB2.6, FrB3.2, FrB3.3, FrB3.6, FrB4.6, FrB5.1, FrB5.3, FrB5.4, FrB8.2, FrB8.4, FrB8.6, ThA1.1, ThA1.2, ThA1.3, ThA1.4, ThA1.5, ThA1.6, ThA2.4, ThA3.2, ThA3.5, ThA5.4, ThA5.5, ThA6.1, ThA6.4, ThA6.6, ThA7.3, ThB1.2, ThB1.5, ThB2.4, ThB3.1, ThB4.2, ThB5.4, ThB5.6, ThC2.2, ThC3.1, ThC3.2, ThC3.3, ThC4.2, ThC5.1, ThC5.2, ThC5.3, ThC6.1, ThC7.2, WeA1.1, WeA1.2, WeA1.3, WeA1.4, WeA1.5, WeA1.6, WeA2.3, WeA2.4, WeA2.6, WeA3.3, WeA4.3, WeA4.6, WeA5.1, WeA5.2, WeA5.4, WeA6.2, WeA6.4, WeA6.5, WeA6.6, WeA7.2, WeA7.6, WeA8.1, WeA8.3, WeB1.1, WeB1.2, WeB1.3, WeB1.4, WeB1.5, WeB1.6, WeB2.5,
B		
Big Data	FrA2.5, FrA2.6, ThB2.3, ThB2.6, ThB5.2, ThC5.1, WeA2.3, WeB1.4, WeB1.6, WeB8.5, WeB8.6	
Bio-inspired	FrA1.6, FrA3.4, FrA3.5, FrA3.6, FrA4.3, FrA4.4, FrA4.5, FrA6.1, FrA6.2, FrA8.5, FrB2.3, ThA2.6, ThA8.1, ThB1.1, ThB1.6, ThB3.6, ThB4.3, ThB4.4, ThB4.5, ThB7.2, ThB7.5, ThB8.2, ThB8.4, ThC6.1, WeA8.4, WeA8.5, WeA8.6, WeB2.2, WeB2.4	
Biometric Systems	FrA3.3, FrB3.4, ThB3.4, WeA2.2, WeA2.4	
C		
Cybersecurity	ThA5.3, ThA5.4, ThA6.1, ThA6.2, ThA6.3, ThA6.4, ThA6.5, ThA6.6, ThB6.1, ThB6.2, ThB6.3, ThB6.4, ThB6.5, ThB6.6, ThC6.3, WeA7.3, WeB7.3	
D		
Data Mining	FrA2.1, FrA2.2, FrA2.3, FrA2.4, FrA2.5, FrA3.3, FrA3.4, FrA5.1, FrA8.4,	

	WeB3.2, WeB3.3, WeB3.4, WeB4.2, WeB4.3, WeB5.4, WeB5.6, WeB6.1, WeB7.5, WeB8.1, WeB8.3, WeB8.5
Defense and Security	FrA8.6, FrB3.2, ThA5.1, ThA5.2, ThA6.3, ThA6.5, ThB6.1, ThB6.3, ThB6.4, WeB1.2
Dimension Reduction	FrA2.6, ThA1.2, ThA6.2, ThB3.3, ThB5.3, ThB6.6, ThB7.5, ThC4.1, WeA5.5, WeB2.1, WeB2.6, WeB3.6
E	
E-health	FrA3.1, FrA3.3, FrB1.1, FrB1.2, FrB1.3, FrB1.5, FrB1.6, FrB3.5, FrB7.5, ThA1.1, ThA3.1, ThA3.2, ThA3.3, ThA3.5, ThA3.6, ThB3.2, ThB3.3, ThB3.6, ThC2.2, ThC4.1, WeB6.1
Electric Vehicle	FrB6.4, ThA4.1, ThB6.6
Ensemble Learning	FrA3.1, FrB1.3, FrB1.4, ThA1.3, ThB3.1, ThB3.5, ThC4.1, WeA2.1, WeA5.5, WeA5.6, WeB4.1, WeB4.2, WeB4.3
Ethical AI	FrB4.3, FrB7.1, FrB7.2, FrB7.3, FrB7.4, FrB7.5, ThB6.5, ThC6.3, ThC7.3
Evolvable Systems	FrA2.5, FrA8.2, FrA8.3, FrB8.4, ThA4.5, ThB4.1, ThB4.2, ThB4.3, ThB4.4, ThB4.5, ThB4.6, ThC6.2, WeA3.2, WeA5.1
Evolving Learning	FrA4.6, FrA8.1, FrA8.3, FrA8.4, FrB1.6, FrB8.3, FrB8.4, FrB8.6, ThA8.3, ThB6.2, WeA3.2, WeB1.1, WeB4.4, WeB4.5, WeB4.6, WeB5.3
Explainability	FrA3.2, FrA4.4, FrA6.2, FrA7.2, FrA8.3, FrB1.2, FrB1.5, FrB8.1, ThA1.6, ThA3.4, ThA4.2, ThA6.1, ThA6.5, ThB1.5, ThB2.4, ThB5.1, ThB7.4, ThC1.3, ThC3.3, ThC6.2, ThC7.3, WeA1.3, WeA3.5, WeA3.6, WeA4.2, WeB6.5
F	
Fault Detection	FrA4.2, FrB2.5, FrB5.1, FrB5.2, FrB5.3, FrB5.4, FrB5.5, ThA5.1, ThB6.4, ThC5.3, ThC8.1, WeA1.4, WeB4.1, WeB7.1
Federated Learning	FrB2.2, FrB3.1, ThA5.3, ThB6.5, WeB7.3
Financial Engineering	FrB5.1, ThC4.2, ThC7.2, WeA1.5, WeA3.1, WeA3.3, WeA3.4, WeA3.5, WeA4.6, WeB3.1, WeB3.2, WeB3.3, WeB3.4,

Fuzzy Systems	WeB3.5, WeB3.6 FrA1.1, FrA5.3, FrA7.4, FrB2.4, ThB6.1, ThB8.3, ThC7.1, WeA4.5, WeA5.2, WeB1.2, WeB5.1, WeB6.2
G	
Graph Neural Networks	ThB1.6, ThC3.3, ThC5.1, WeA1.2, WeA2.1, WeA6.6
H	
Human-Computer Interactions	FrA6.4, FrA6.5, FrB4.2, FrB7.1, FrB7.3, FrB7.4, ThA3.3, ThB3.5, ThB7.3, WeA2.2, WeA2.4
Human-Like Intelligence	FrA2.4, FrA3.6, FrA6.4, ThA7.4, ThB5.1, ThB7.3, WeA4.1, WeA4.2, WeA4.3, WeA4.4, WeA4.5, WeB6.4
I	
Image Processing	FrA6.3, FrB1.3, FrB3.6, FrB5.5, ThA1.1, ThA1.2, ThA1.5, ThA5.4, ThB5.3, ThB5.6, ThC2.1, ThC2.2, ThC3.1, WeA4.3, WeA6.2, WeA6.4, WeA7.6, WeA8.2, WeA8.3, WeA8.4, WeB1.5, WeB4.3, WeB5.2, WeB6.5, WeB7.4, WeB7.5, WeB8.1, WeB8.2, WeB8.4
Intelligent Control	FrA1.1, FrA1.2, FrA1.3, FrA1.5, FrA1.6, FrA5.4, FrB2.3, FrB4.2, ThA4.4, WeA5.2, WeA7.1, WeA7.4, WeB6.2, WeB6.4, WeB6.6
Internet of Things	FrB5.2, FrB5.3, ThA6.2, ThB6.2, WeB7.1, WeB7.2, WeB7.4, WeB7.5, WeB7.6
M	
Model-Based	FrB1.4, FrB1.6, FrB5.4, FrB6.1, ThA8.1, ThA8.4, ThA8.5, ThB1.4, ThB4.1, ThB7.1, ThC1.3, WeA5.4, WeA7.4, WeA8.6, WeB1.6, WeB5.4, WeB5.5, WeB5.6, WeB6.3
Multi-Agent System	FrA8.2, FrB4.1, FrB4.3, FrB4.4, FrB4.5, ThA5.2, ThA5.6, ThB4.4, ThB7.6, WeA3.1, WeA7.1, WeB3.2
O	
Operations Research	FrB6.1, FrB6.2, FrB6.3, FrB6.5, ThA4.5, ThA7.5, ThB8.3, ThB8.4, ThC1.2, ThC7.1, WeB5.1, WeB5.5, WeB7.6
P	
Particle Swarm Optimization	FrA5.6, ThA4.1, ThA4.4, ThA7.2, ThA8.1, ThA8.3, ThB1.1, ThB1.2, ThB7.1, ThB7.2, ThB8.6, ThC1.3,

	WeA7.2, WeA7.6, WeB2.6, WeB4.1, WeB8.2	WeB6.6, WeB8.6
Pattern Recognition	FrA3.1, FrA4.2, FrA6.3, FrA7.1, FrB2.6, FrB3.4, FrB3.5, FrB3.6, ThA3.1, ThA3.2, ThA3.3, ThB3.1, ThB3.2, ThB3.3, ThB5.1, ThB5.3, ThB5.5, ThC2.3, ThC3.1, ThC5.2, ThC8.1, WeA8.1, WeA8.2, WeA8.5, WeA8.6, WeB6.5, WeB8.1, WeB8.4	
R		
Randomized Algorithms	FrA3.4, FrA4.3, FrA4.6, FrA7.5, FrB8.3, ThA4.2, ThA4.3, ThA8.4, ThB1.5, ThB8.5, ThC2.3, WeB2.4, WeB4.4, WeB4.5, WeB4.6, WeB5.3	
Reinforcement Learning	FrA1.3, FrA5.1, FrA5.2, FrA5.3, FrA5.4, FrA5.5, FrA5.6, FrA8.1, FrB4.2, FrB4.4, ThA1.6, ThA7.1, ThB5.6, ThC4.3, WeA1.2, WeA1.3, WeB2.5, WeB3.3, WeB6.1, WeB6.6, WeB7.2	
Remote Sensing Robotics	ThA3.5, ThB1.2, WeB8.3 FrA1.3, FrA1.4, FrA1.5, FrA5.2, FrA5.5, FrA6.4, FrA8.1, FrB2.1, FrB4.1, FrB7.1, FrB7.3, FrB7.4, ThA7.1, ThA7.2, ThA7.3, ThB4.1, ThB4.2, ThB4.5, ThB4.6, WeA1.1, WeB1.3, WeB1.5	
S		
Signal Processing	FrA1.6, FrA6.5, FrB5.2, ThA1.3, ThA3.1, ThA3.6, ThA5.5, ThB3.2, ThB3.5, ThC8.3, WeA2.1, WeA2.3, WeA2.5, WeA8.2, WeA8.5, WeB4.2, WeB8.4	
Smart Grid	ThA4.1, ThA4.2, ThA4.3, ThA4.4, ThA6.6, ThC4.3, WeA1.6, WeA7.1, WeA7.2, WeA7.3, WeA7.4, WeA7.5	
Swarm Intelligence	FrA6.1, FrA8.2, ThA8.2, ThA8.3, ThB1.6, ThB2.2, ThB7.1, ThB7.2, ThB7.3, ThB7.4, ThB7.5, ThB7.6, ThB8.4, ThB8.5, ThB8.6, ThC1.1, ThC1.2, WeA8.4, WeB2.3, WeB5.3, WeB8.2	
T		
Transportation and Vehicle Systems	FrA1.5, FrB2.4, FrB6.1, FrB6.2, FrB6.3, ThB8.1, ThC1.2, WeA2.2, WeA6.1, WeA6.2, WeA6.3, WeA6.5, WeA6.6, WeB5.2, WeB5.4, WeB6.3,	

SSCI 2023 Author Index

A					
Abbass, Hussein.....	FrB8.1	1808	Aslam, Hamna.....	WeA4.4	135
Abdou, Bouthaina Soulef.....	WeB1.4	318	Aslan, Bilal.....	WeA5.1	152
Abel, Dirk.....	ThA5.5	836	Asolkar, Ritwik Prasad.....	WeA6.5	215
.....	FrA2.1	1292	Atay, Mustafa.....	ThA5.4	829
Abid, Noor.....	ThC7.3	657	Avan, Amin.....	WeB7.2	539
Abielmona, Rami.....	ThA5	O	Avina-Cervantes, Juan G.	FrA1.2	1263
Acosta Bermejo, Raúl.....	ThC6.3	649	.....	FrA5.6	1443
Adegboye, Adesola.....	ThC4.2	633	Avramelou, Loukia.....	WeB3.2	381
Adrian, Weronika Teresa.....	FrA2.4	1310	Awari, Akshar Bajrang.....	FrB8.6	1837
Aguiar, Marilton.....	ThA5.6	842	Azam, Basim.....	ThC3.3	627
Aguilar-Canto, Fernando.....	ThC3.2	625	.....	ThB1.2	959
.....	FrA6.2	1455	Azim, Akramul.....	WeB7.2	539
Aguirre Anaya, Eleazar.....	ThC6.3	649	B		
AKBARI, BEHZAD.....	ThA7.5	908	Babadi, Narges.....	ThA6.6	879
Akcora, Cunezt Gurcan.....	WeB3.4	395	Babenko, Vitalii.....	FrB3.5	1656
Al-Sahaf, Harith.....	WeA8	O	Badawi, Abeer.....	ThA3.1	741
.....	WeB8	O	Badawi, Abeer.....	ThA3.1	741
Alaca, Furkan.....	ThB6.4	1164	Baek, Stephen.....	FrB7.5	1800
Alam, Syed.....	ThB6.3	1158	Bai, Ruibin.....	ThB8.1	1221
Alanis, Alma Y.	FrB2.3	1607	Bai, Wenlei.....	ThA4.4	795
.....	FrB5	O	Baker, Robert.....	FrB6.4	1759
.....	FrB5.1	1712	Bakhtiarnia, Arian.....	WeB7.5	559
.....	FrB5.3	1724	Bal, Henri.....	FrA5.1	1406
Alcantara, Tania.....	ThC5.2	641	Ballesteros-Escamilla, Mariana	FrA1.5	1280
.....	FrA6.5	1472	Barcomb, Ann.....	ThB2.4	1012
Alexandria, Fabiana.....	ThB7.5	1208	Barrera-Animas, Ari Y.....	ThB3.6	1060
Alexandrova Kabadjova, Biliana.....	WeA3	O	Barrera-Animas, Ari. Y.....	FrA3.3	1340
.....	WeB3	O	Barros, Roberto Souto Maior de	ThA2.2	711
Alfeo, Antonio Luca.....	FrB1.5	1587	.....	ThA2.3	717
Ali, Bassam.....	FrB5.4	1730	.....	ThA2.5	730
Alibrahim, Hussain.....	WeB8.2	579	Basterretxea, Koldo.....	WeA6.4	207
Allmendinger, Richard.....	ThA4.4	795	Basturk, Nalan.....	WeB3.5	401
Almeida, José.....	ThA4.2	783	BATTON-HUBERT, Mireille.....	FrA5.4	1429
.....	ThA4.3	789	Bear, Helen L.....	ThB5.2	1112
Almeida, Rui Jorge.....	WeB3.5	401	Beer, Michael.....	WeB6.3	506
Almekhlafi, Mohammed.....	ThB3.1	1032	Behrendorf, Jasper.....	WeB6.3	506
.....	FrB3.6	1662	Benavides-Robles, Maria Torcoroma	FrA1.4	1274
Almohammadi, Abdullah.....	WeA2.1	41	Benecke, Tobias.....	FrA4.4	1386
Alonso, Sergio.....	FrA7.4	1497	Benitez Baltazar, Victor Hugo.....	FrB5.2	1718
Altamirano-Robles, Leopoldo.....	WeA8.4	282	Bensen, Jonah.....	ThB3.2	1038
Alvarez, Jesus G.....	FrB2.3	1607	Berekovic, Mladen.....	WeB5.2	463
Amaya, Ivan.....	FrA1.4	1274	Bernardino, Heder.....	WeA2.4	58
.....	FrA5.6	1443	Bharill, Neha.....	ThB2.5	1018
Andreae, Peter.....	FrB8.2	1814	.....	ThB8.6	1251
Andres, Alain.....	FrA3.4	1346	.....	FrA2.6	1322
.....	FrA5.2	1414	Bi, Ying.....	WeA8	O
Angeles Garcia, Yoqsan.....	FrA6.1	1449	.....	WeB8	O
Angelov, Plamen.....	WeA1	O	Bian, Zikuo.....	WeB5.5	482
.....	WeB1	O	Bilbao, Miren Nekane.....	FrA3.4	1346
.....	WeB1.2	306	Blazauskas, Tomas.....	FrB7.1	1775
.....	ThA1	O	Bogdoll, Daniel.....	WeB5.6	488
.....	ThB1	O	.....	FrB2.5	1620
.....	FrA8	O	Bolia, Robert.....	ThA5	O
Anguita, Davide.....	WeA1.6	33	Boonaert, Jacques.....	FrA5.4	1429
Anzueto, Alvaro.....	FrA6.1	1449	Bosch, Lukas.....	WeB5.6	488
Anzures-Marin, Juan.....	FrB5	O	Bossek, Jakob.....	WeB2.5	361
Arellano, Osmar David.....	ThC8.2	661	Boswell, Sara.....	FrB7.2	1781
Artelt, André.....	ThA2.1	703	Botzheim, János.....	WeB8.3	587
Asgharnia, Amirhossein.....	FrA5.3	1421	Botzheim, Janos.....	FrB2	O
Asilian Bidgoli, Azam.....	ThB1.3	965	Bowala Mudiyansele, Sulalitha	WeA3.4	97
.....	ThB5.3	1120	.....	WeA4.6	146
.....	FrA8.4	1540	.....	WeB3.1	375
			Bremer, Jörg.....	WeA7.1	228

Brewster, Stephen	.....WeA2.2	47	Cheng, Shih-Fen	.....FrB6.5	1767
Broggi, Matteo	.....WeB6.3	506	Cheng, Yan	.....ThC2.1	615
Buarque de Lima Neto, Fernando	.....ThC1.3	613	Chernozubov, Danil	.....FrA1.6	1286
.....	.....ThB7.5	1208	Chernykh, Maksym	.....FrB3.5	1656
Buchanan, Edgar	.....ThB4.3	1078	Chertopolokhov, Viktor	.....FrA1.6	1286
.....	.....ThB4.4	1084	Chin, Wei Hong	.....FrB2	O
Bugby, Sarah	.....WeB6.5	519	Chinnari, Pawan Sai	.....ThB8.6	1251
.....	.....ThB5.1	1104	Choudhury, Salimur	.....WeB2.3	347
Bugriy, Grigory	.....FrA1.6	1286	Choudhury, Salimur	.....FrB4.3	1682
Burton, Henry	.....ThC6.2	647	Choudhury, Samira	.....ThA3.1	741
C			Christlein, Vincent	.....WeB7.4	553
Cabral, Danilo Rafael de Lima	.....ThA2.3	717	Christodoulaki, Evangelia Paraskevi	.....WeA3.2	83
Cabrerizo, Francisco Javier	.....FrA7.4	1497	Cimino, Mario G. C. A.	.....ThB7.6	1213
CAI, LEI	.....FrB6.3	1753	.....	.....FrB1.3	1572
ÇAKIR, ESRA	.....ThB8.3	1234	.....	.....FrB1.5	1587
Callewaert, Benjamin	.....WeA3.5	103	Ciunkiewicz, Philip	.....ThA3.4	759
Calvo, Hiram	.....ThC2.2	617	Coleman, Sonya	.....WeA8.5	288
.....	.....ThC3.2	625	.....	.....WeA8.6	294
.....	.....ThC5.2	641	.....	.....ThB3.3	1043
.....	.....ThC6.3	649	Colligan, Andrew Robert	.....ThB4.3	1078
.....	.....FrA6	O	.....	.....ThB4.4	1084
.....	.....FrA6.1	1449	Contró Esparza, Michelle	.....ThB3.5	1054
.....	.....FrA6.2	1455	Coppens, Bart	.....WeA3.5	103
.....	.....FrA6.3	1461	Coraddu, Andrea	.....WeA1.6	33
.....	.....FrA6.4	1467	Corbett, Helen	.....WeB4.1	413
.....	.....FrA6.5	1472	Correa, Rodrigo	.....FrA1.2	1263
Cambria, Erik	.....WeA3.6	109	Cosma, Georgina	.....WeA8.1	264
Campisi, Giuseppina	.....FrB1.3	1572	.....	.....WeB6.5	519
Campos Souza, Paulo Vitor de	.....FrA8.3	1532	.....	.....ThB5.1	1104
Cangelosi, Angelo	.....FrA5.5	1435	Coyac-Torres, Jorge E.	.....ThC6.3	649
Canizes, Bruno	.....ThA4.3	789	Crocket, Keeley	.....FrB7	O
Cannon, Richard	.....WeA6.3	200	Crockett, Keeley	.....FrB7.2	1781
Cardoso Fernández, Victor	.....FrB5.4	1730	Cruz-Duarte, Jorge Mario	.....FrA1.2	1263
Cardoso-Moreno, Marco A.	.....ThC3.2	625	.....	.....FrA1.4	1274
.....	.....ThC5.2	641	.....	.....FrA5.6	1443
.....	.....FrA6.5	1472	Csiszár, Gábor	.....WeB6.2	501
Casas-Ordaz, Angel	.....FrA8.5	1547	Csiszar, Orsolya	.....WeB6.2	501
Castillo-Herrera, Francisco	.....ThB3.5	1054	Cui, Tianxiang	.....WeB8.6	603
Castro, Citlali	.....FrA6.4	1467	.....	.....FrB5.5	1735
Castro, Emmanuel	.....FrA6.4	1467	Cui, Yongcheng	.....ThA7.2	891
Catrambone, Vincenzo	.....FrB1.5	1587	D		
Ceberio, Martine	.....WeB6.1	496	da Silva, Carlos J. T.	.....FrB4.1	1668
.....	.....WeB6.2	501	Dahal, Laxman	.....ThC6.2	647
Cenikj, Gjorgjina	.....WeB2.2	341	Dai, Yang-Tao	.....ThA8.1	914
.....	.....ThC6.1	645	Daneshmand, Mahmoud	.....WeB7	O
Ceretta Nunes, Raul	.....ThA5.2	814	Dang, Truong	.....WeB4.1	413
Chai, Tianyou	.....WeA1.4	19	Das, Laxmi Rani	.....ThA6.4	867
Chairez, Isaac	.....FrA1.6	1286	.....	.....ThB6.3	1158
Chan, Francois	.....ThB6.2	1151	Dasgupta, Dipankar	.....ThA6	O
.....	.....FrB2.4	1613	.....	.....ThB6	O
Chang, Yu-Cheng	.....WeA2.3	53	.....	.....ThB6.1	1145
Chatten, Martha Jane	.....ThA3.2	747	Dawood, Ahmed	.....WeB5.2	463
Chauhan, Vikas	.....WeB8.1	573	De Jesus, Sara	.....ThC6.3	649
Chen, Bruce	.....ThB2.6	1024	de Lima, Gustavo	.....ThA5.6	842
Chen, Chun-Hua	.....ThA8.2	920	de Lima Silva, Luis Alvaro	.....ThA5.2	814
.....	.....ThB2.2	998	de Souza, Gabriel Henrique	.....WeA2.4	58
Chen, David	.....FrB1.1	1560	De Vos, Maarten	.....FrB1.5	1587
Chen, Jiawei	.....ThA8.3	926	de Vries, Luciënne	.....ThC4.1	631
Chen, Jun	.....WeA6.3	200	Deb, Kalyanmoy	.....FrA7	O
Chen, Qiang	.....FrB6.1	1741	.....	.....FrA7.1	1479
Chen, Qingda	.....WeB5.3	470	Decleyre, Nicholas	.....WeA3.5	103
Chen, Richard	.....FrB6.5	1767	Deen Muhammad, Sumaiya	.....WeB4.3	427
Chen, T. Donna	.....FrB6.4	1759	Del Ser, Javier	.....FrA3.4	1346
Chen, Xinan	.....ThB8.1	1221	.....	.....FrA5.2	1414
Chen, Yingwu	.....ThA8.3	926	Delgado, David Joaquín	.....ThC8.2	661
Chen, zhijian	.....FrA8.6	1553	Deligianni, Fani	.....WeA2	O
Cheng, Jinsai	.....ThA3.3	753	.....	.....WeA2.6	69
Cheng, Ran	.....FrB4	O	Dénes-Fazakas, Lehel	.....WeB6.1	496

Desell, Travis.....	FrB8.6	1837
Di Fede, Olga.....	FrB1.3	1572
Diao, Cuijie.....	FrB6.2	1747
Dimaridou, Valia.....	FrB2.1	1599
Ding, Jinliang.....	WeA5	O
.....	WeB5	O
.....	WeB5.3	470
Ding, Shusheng.....	WeB8.6	603
.....	FrB5.5	1735
Dip Das, Joy.....	WeA3.4	97
.....	WeB3.1	375
Dobos, Daniel.....	WeB4.1	413
Dong, Daoyi.....	FrA1	O
Dong, Junlan.....	FrA3.6	1359
Dong, Liangjie.....	WeA8.3	276
Dong, Ximing.....	WeB1.1	300
dos Santos, Davi Esteves.....	WeA2.4	58
Du, Ke-Jing.....	ThB2.2	998
Du, Kelvin.....	WeA3.6	109
Du, Shaoyi.....	WeA8.2	270
Dube, Michael.....	FrA4.5	1392
Dubey, Rahul.....	ThB4.3	1078
.....	ThB4.4	1084
Duerrbaum, Axel.....	WeA5.6	180
Dwivedi, Rajesh.....	ThB2.5	1018
.....	FrA2.6	1322

E

Ebrahimi, Sevda.....	ThB1.3	965
Echanobe, Javier.....	WeA6.4	207
Eftimov, Tome.....	WeB2.1	335
.....	ThC6.1	645
Eiben, A.E.....	ThB4.1	1066
.....	ThB4.2	1072
.....	FrA8.1	1518
Eigner, Gyorgy.....	WeB6.1	496
ElSheikh, Mostafa.....	WeB5.2	463
Emu, Mahzabeen.....	WeB2.3	347
Engelbrecht, Andries.....	ThB7.2	1189
Erdem, Ozan.....	FrA3.5	1352
Esterle, Lukas.....	FrB4.5	1696
Estrada-Cortez, Hector.....	ThB3.5	1054
Evora, Saul.....	ThA5.4	829

F

Fadakar, Elyas.....	ThB8.4	1239
Fadlullah, Zubair Md.....	WeB2.3	347
Faleiros, Thiago de Paulo.....	WeA1.3	13
Fang, Yutong.....	WeB8.6	603
.....	FrB5.5	1735
FARHADI, AYDA.....	FrB1.1	1560
Farkaš, Igor.....	WeA4.3	129
Farooq, Muhammad Tallal.....	WeB7.4	553
Fasino, Adriana.....	ThB5.5	1132
Feldhans, Robert.....	ThA5.5	836
.....	FrA2.1	1292
Ferro, Giulio.....	WeA1.6	33
Fieldsend, Jonathan Edward.....	ThA8.6	947
Finke, Axel.....	WeA8.1	264
.....	ThB5.1	1104
Forastiere, Laura.....	ThB2.1	992
Francisco, Vega.....	WeA5.2	158
Franco, Leonardo.....	FrA4	O
Francois-Lavet, Vincent.....	ThA1.6	695
Fraser, Benjamin.....	WeA1.1	1
Frasheri, Mirgita.....	FrB4.5	1696
Friel, Imelda.....	ThB4.3	1078
.....	ThB4.4	1084
Froese, Tom.....	FrA3.5	1352
Frost, Emilie.....	WeA7.1	228

Fu, Qiujia.....	ThA4.1	778
Fukuyama, Yoshikazu.....	WeB7.1	533
.....	WeB7.6	565
.....	ThC1.1	609

G

Gabbouj, Moncef.....	WeA1.5	25
.....	WeB3.6	407
.....	ThC5.3	643
.....	ThB6.6	1176
.....	FrA4.2	1372
Gagliardi, Guido.....	FrB1.5	1587
Galatolo, Federico Andrea.....	FrB1.3	1572
Gallagher, John.....	ThB4.6	1096
Galvez, Jorge.....	FrB5.1	1712
Gan, Yuxin.....	FrB6.2	1747
Gandomi, Amir H.....	WeB7	O
Gao, Meng.....	ThB1.1	953
Gao, Xiaoying.....	FrB8.2	1814
Garbade, Sven.....	FrB1.2	1566
Garratt, Matthew.....	FrB7	O
Garssen, Johan.....	ThC4.1	631
.....	FrB1.6	1593
George, Deborah.....	WeA7.5	252
George, Roy.....	ThA6.5	873
Gharavian, Vida.....	ThA5.1	807
Ghedini Ralha, Célia.....	WeA1.2	7
.....	WeA1.3	13
.....	FrB4.1	1668
Ginargiros, Stefanos.....	ThA7.3	897
Givigi, Sidney.....	ThB5.6	1139
.....	FrA5.3	1421
Gong, Cheng.....	FrA4.6	1398
.....	FrB8.3	1821
Gong, Yan.....	WeA8.1	264
Góngora Rivera, J. Fernando.....	ThB3.5	1054
González-Jaimes, Elvira Ivone.....	FrB2.6	1626
Gonzalez-Mendoza, Miguel.....	FrA6	O
González-Quesada, Juan Carlos.....	FrA7.4	1497
Goodfellow, Marc.....	ThA8.6	947
Gorelik, Kirill.....	WeB6.6	525
Gottumukkala, Raju.....	ThB6.6	1176
Gower-Winter, Brandon.....	FrB4.4	1690
Greenwood, Garrison.....	FrB8.1	1808
Gremmelmaier, Helen.....	WeB5.6	488
Grolig, Hannes.....	ThA1.2	671
Gu, Huijie.....	ThA4.1	778
Gu, Yu.....	ThA7.2	891
Guidry, Jake.....	ThB6.6	1176
Guillermo, Puriel.....	ThA7.1	885
Guo, Ping.....	ThB1.5	979
Guo, Weisi.....	WeA1.1	1
Guo, Wenjing.....	FrB6.3	1753
Guo, Yuanjun.....	WeA5.3	164
Gupta, Anjali.....	FrA2.6	1322
Gupta, Kishor Datta.....	ThA6.5	873
.....	ThB6.3	1158
Gutiérrez-Zaballa, Jon.....	WeA6.4	207
Guzmán, Angélica.....	ThC8.2	661
Gyöngyössy, Natabara Máté.....	WeB8.3	587

H

Habbab, Fatim Zahra.....	ThC7.2	653
Habigt, Moriz.....	ThA5.5	836
.....	FrA2.1	1292
Haighton, Rachel.....	FrA5.3	1421
Hajamohideen, Faizal.....	FrA3.1	1328
.....	FrA3.2	1334
Hamann, Heiko.....	WeB5.2	463
Hammer, Barbara.....	ThA2.1	703

.....	ThA5.5	836
.....	ThB2.3	1004
.....	FrA2.1	1292
Hampshire, Ken.....	FrB6.6	1773
Haque, Mohd Ariful.....	ThA6.4	867
.....	ThA6.5	873
.....	ThB6.3	1158
Harrigan, Shane Patrick.....	WeA8.5	288
.....	WeA8.6	294
Hart, Emma.....	FrA8.2	1526
Hasan, Kazi Amit.....	ThB6.4	1164
Hasenjäger, Martina.....	ThB2.3	1004
Hashimoto, Yasuhiro.....	WeA6.1	188
Hassan, Md Yeakub.....	WeB2.3	347
Hata, Keisuke.....	WeA6.1	188
Haupt, Saskia.....	FrB1.2	1566
Hayashi, Kaho.....	ThB7.4	1201
He, Cheng.....	ThB1.4	972
He, Lei.....	ThA8.3	926
He, Lijun.....	FrB6	0
He, Linjun.....	ThA8.4	933
He, Xi.....	ThC7.1	651
He, Yubin.....	ThA4.1	778
Hees, Jörn.....	WeB1.4	318
Hein, Daniel.....	FrB4.2	1674
Heins, Jonathan.....	WeB2.5	361
Heise, David.....	ThB5.2	1112
Hellwich, Olaf.....	WeA6.2	194
Heminway, Ryan.....	FrB8.4	1829
Henderson, Benn.....	WeA8.5	288
Hendrickson, Daniel C.....	FrB6.4	1759
Henel, Daniel.....	FrA2.4	1310
Henrique Nogalha de Lima, Rafael.....	WeA1.2	7
.....	WeA1.3	13
Herashchenko, Dmytro.....	WeA4.3	129
Herrera Viedma, Enrique.....	FrA7.4	1497
Heuveline, Vincent.....	ThA6.1	850
.....	FrB1.2	1566
Hickinbotham, Simon.....	ThB4.3	1078
.....	ThB4.4	1084
Ho, Sengbeng.....	WeA4.2	121
Hoecker, Maximilian.....	ThA6.1	850
Hoffmann, Patrick.....	WeB6.6	525
Hong, Jun.....	ThB2.2	998
Hoogendoorn, Mark.....	ThA1.6	695
.....	FrA5.1	1406
Hoque, Md Erfanul.....	WeA4.6	146
Horn, MacKenzie.....	FrB3.6	1662
Horzyk, Adrian.....	FrA2.4	1310
Hou, Zeng-Guang.....	ThA7	0
Houghten, Sheridan.....	FrA4.5	1392
Hsiung, Li-Syun.....	ThC5.1	639
Hsu, Gee-Sern.....	ThC5.1	639
Hua, Minh Tuan.....	FrB7.4	1794
Huang, Olive.....	WeB1.1	300
Huang, Shuangxi.....	ThC7.1	651
Hussain, Amir.....	ThA3	0
.....	ThB3	0
.....	FrA3	0
Hussein, Aya.....	FrB8.1	1808
I		
Ibarra, Alejandra.....	FrB5.1	1712
IBRAHIM, Mohamed-Harith.....	FrA5.4	1429
Igarashi, Masato.....	WeB7.1	533
Iizaka, Tatsuya.....	WeB7.1	533
.....	ThC1.1	609
Innani, Saketh.....	ThB8.6	1251
Inza, Iñaki.....	ThA4.5	801

Iosifidis, Alexandros.....	WeA1.5	25
.....	WeB1.5	323
.....	WeB7.5	559
.....	ThC5.3	643
Iqbal, Tariq.....	FrB6.4	1759
Ishibuchi, Hisao.....	WeB4.4	433
.....	WeB4.5	441
.....	WeB4.6	449
.....	ThA8.4	933
.....	FrA4.6	1398
.....	FrA7.5	1503
.....	FrB8.3	1821
Islam, Anik.....	WeB7.3	547
.....	ThA6.6	879
Islam, SM Mazharul.....	WeA4.1	115
Ivanov, Valentin.....	WeB6.6	525

J

Jakob, Jonathan.....	ThB2.3	1004
Jarosch, Moritz.....	WeA6.6	221
Jha, Preeti.....	ThB2.5	1018
.....	FrA2.6	1322
Ji, Ran.....	WeB8.6	603
Jian, Tang.....	WeA5.4	170
.....	WeA5.5	174
Jiang, Zhengsong.....	ThA7.2	891
Jiménez López, Diana Laura.....	ThC3.2	625
JIN, Zhihong.....	FrB6.2	1747
Johnson, DeAndre.....	FrB7.5	1800
Joseph, Tim.....	WeB5.6	488
Jovanovic, Raka.....	ThB8.5	1245
Jungme, Park.....	WeA6.5	215

K

Kachler, Dimitri Roman.....	ThB4.5	1090
Kampouridis, Michael.....	WeA3.2	83
.....	WeB3.3	387
.....	ThC4.2	633
.....	ThC7.2	653
Kanniainen, Juho.....	WeA1.5	25
.....	WeB3.6	407
Kapela, Ksawery.....	ThA3.6	772
Karatas, Melike Dila.....	ThA8.6	947
Karimipour, Hadis.....	WeB7.3	547
.....	ThA6.6	879
Kasabov, Nikola.....	FrA8	0
.....	FrB1	0
Katada, Yoshiaki.....	ThC1.2	611
Katagiri, Ryusei.....	WeB7.6	565
Katragadda, Satya.....	ThB6.6	1176
Kawaguchi, Shuhei.....	WeB7.6	565
Kedalo, Alexander.....	WeA4.4	135
Kerr, Dermot.....	WeA8.5	288
.....	WeA8.6	294
.....	ThB3.3	1043
Khan, Mehek.....	ThB8.6	1251
Kheiri, Farnaz.....	WeB7.2	539
Khosravani, Mohammad Sadegh.....	FrA2.5	1316
Khosrowshahli, Rasa.....	ThA5.1	807
Kidwai, Sarah.....	ThC4.1	631
Kimura, Shuhei.....	FrB1.4	1579
Kitajima, Hirotaka.....	FrB1.4	1579
Klaus, Simon.....	FrB2.5	1620
Kluza, Krzysztof.....	FrA2.4	1310
Kobayashi, Yuto.....	ThC1.1	609
Kobti, Ziad.....	WeB4.3	427
Koch, Werner.....	FrA3.5	1352
Kohler, Christina.....	ThA5.5	836
.....	FrA2.1	1292
Kolesnikova, Olga.....	FrA6.4	1467

Kölker, Stefan	FrB1.2	1566	Li, Yongcui	FrB6.1	1741
Kooi, Jacob Eeuwe	ThA1.6	695	Li, Yuzhe	WeA1.4	19
Köring, Adrian	ThA1.5	689	Li, Zhi	WeA1.4	19
Korna, John	WeA6.3	200	liang, shouyu	ThA4.1	778
Korošec, Peter	WeB2.1	335	Liew, Wei Shiung	FrB2.2	1603
Kosheleva, Olga	WeB6.1	496	Limouchi, Elnaz	ThB6.2	1151
	WeB6.2	501		FrB2.4	1613
Kougiatsos, Nikos	WeB6.4	512	Lin, Chin-Teng	WeA2.3	53
Kreinovich, Vladik	WeB6.1	496	Lin, Jianqing	ThB1.4	972
	WeB6.2	501	Lindoefer, Daniel	ThA3.2	747
Kroll, Andreas	WeA5.6	180	Lindsay, Leeanne	WeA8.5	288
Krupa, Marek	ThA3.6	772		WeA8.6	294
Kühne, Joana	WeA6.2	194	Ling, Hongtao	FrA3.6	1359
Kumano, Yusuke	ThB7.3	1195	Liu, Chengbao	ThA2.4	723
Kummert, Johannes	ThA5.5	836	Liu, Jing	ThA8	O
	FrA2.1	1292	Liu, Qiang	WeB5.4	476
Kunku, Kavitha	ThA6.3	862	Liu, Qiang	ThC2.3	619
Kuttichira, Deepthi	ThC3.3	627	Liu, Shixin	WeB5.1	457
L				WeB5.5	482
La Mantia, Gaetano	FrB1.3	1572	Liu, Shuo	WeA8.6	294
Laakom, Firas	ThC5.3	643	Liu, Tiantian	ThA7.2	891
	FrA4.2	1372	Liu, Xiao-Fang	ThA8.1	914
Lai, Kenneth	ThB3.1	1032		ThB1.1	953
	FrB3.2	1638	Liu, Xiaofeng	FrB2.2	1603
	FrB3.3	1644	Liu, Yaohui	FrB6.1	1741
Lain, Alexander	FrB3.1	1632	Liu, Yi	ThB1.6	985
Lambert, James H.	FrB6.4	1759	Lobo, Jesus L.	FrA3.4	1346
	FrB7.5	1800	Londt, Trevor	FrB8.2	1814
Laña, Ibai	FrA3.4	1346	Loo, ChuKiong	FrB2.2	1603
Langás, Even Falkenberg	FrB7.3	1788	López-Chau, Asdrúbal	FrA4.1	1366
	FrB7.4	1794		FrB2.6	1626
Lawton, Roxana	FrB7.2	1781	Lopez-Rincon, Alejandro	ThC4.1	631
Lazar, Bogdan	FrA1.1	1257		FrB1.6	1593
Le, Hoang Thanh	ThB7.1	1183	Lopez-Rodríguez, Domingo	FrA4	O
Lecoeuche, Stéphane	FrA5.4	1429	Lozano, Jose A.	FrB4	O
Lee, Kwang	ThA4.4	795	Lu, Zhichao	ThB1.4	972
Legaria-Santiago, Valeria Karina	FrA6.1	1449	Ludwig, Simone	WeB8.2	579
Lehnhoff, Sebastian	WeA7.1	228	Lugo Torres, Gerardo	ThC2.2	617
Leipert, Martin	WeB7.4	553		FrA6.3	1461
Lendek, Zsofia	FrA1.1	1257	Lung, Rodica Ioana	ThA2.6	736
Leung, Carson	WeB3.4	395	Luo, Hao	WeA8.2	270
Leyden, Connor	ThB2.6	1024		WeA8.3	276
Lezama, Fernando	ThA4	O	Luo, Jie	FrA8.1	1518
	ThA4.2	783	Luo, Liu-Yue	ThA8.2	920
	ThA4.3	789	Luo, Wenjian	FrA8.6	1553
Li, Cheng'ao	WeB8.6	603	Luo, Xiong	WeA7.3	240
	FrB5.5	1735		ThA3.3	753
Li, FEI	FrB2.2	1603	Luo, Zili	ThB5.4	1126
Li, Gang	WeA2.2	47	Luviano-Cruz, David	ThC4.3	637
Li, Hongbin	ThB1.4	972		ThC8.1	659
Li, Jiarui	WeB8.6	603	Lyu, Zimeng	FrB8.6	1837
Li, Jiayi	WeB8.6	603	M		
	FrB5.5	1735	M. Burhan, Amer	ThA3.1	741
Li, Mingyang	WeB1.3	312	Ma, Ping	FrB1.1	1560
Li, Shuo	ThA2.4	723	Ma, Qing	ThA7.4	902
Li, Wei	ThB1.6	985	Ma, Yue	WeB1.3	312
Li, Wenfeng	FrB6	O	Mańdziuk, Jacek	WeA4	O
	FrB6.1	1741	Machmeier, Stefan	ThA6.1	850
	FrB6.3	1753	Macias, Cesar	FrA6.5	1472
Li, Xiaoou	WeA5.2	158	Madden, Kyle	WeA8.5	288
	ThC8.3	663		WeA8.6	294
	ThA7.1	885	Mahanti, Aniket	WeB1.1	300
	FrA1.3	1269	Mahmoud, Qusay	WeB7.2	539
Li, Yi	WeB1.2	306		ThA5.1	807
Li, Yichun	ThA1.1	665	Mahmud, Mufti	FrA3.1	1328
Li, Yingchen	ThA4.1	778		FrA3.2	1334
Li, Yiran	WeB8.6	603	Maier, Andreas	WeB7.4	553
	FrB5.5	1735	Makrehchi, Masoud	WeB7.2	539

.....	ThA5.1	807
.....	ThB5.3	1120
Malawski, Filip	ThA3.6	772
Maldonado-Jauregui, Juan	ThB3.5	1054
Malek-Podjaski, Matthew	WeA2.6	69
Malialis, Kleanthis	ThA2.1	703
Mandal, Ranju	WeA7.6	258
Mandumula, Sai Rithvick	WeA6.5	215
Mao, Rui	WeA3.6	109
Marcellin, Megan C.	FrB6.4	1759
Margapuri, Venkata Siva Kumar	ThC3.1	621
Márquez Ruiz, Karla Michelle	ThB3.6	1060
Marshallowitz, Sofia Tzvika	WeA4.5	140
Martínez, M. Victoria	WeA6.4	207
Martínez-Corral, Unai	WeA6.4	207
Martínez-Díaz, Saúl	WeB8.4	593
Martínez-Peon, Dulce	ThB3.4	1049
.....	ThB3.5	1054
Martínez-Seis, Bella	FrA6.6	1477
Martínez-Villaseñor, Lourdes	ThB3.6	1060
.....	FrA3.3	1340
Matson, Eric	ThB4.6	1096
Matsui, Tetsuro	WeB7.1	533
.....	ThC1.1	609
Matthes, Elmar	WeA6.2	194
Mazumder, Arul	WeA7.2	234
Mazur, Aleksander	FrA2.4	1310
Mazzara, Manuel	WeA4.4	135
Mazzuchi, Thomas	FrB6.6	1773
McCall, John	WeB4.1	413
mccoy, rozalina	FrB1.1	1560
McGill, Mark	WeA2.2	47
Mei, Yi	ThB8	O
Melaugh, Melissa	ThB3.3	1043
Mendez, Eduardo	FrB5.1	1712
Meng, Fanlin	ThA4.4	795
Menzel, Stefan	FrB4.6	1704
Mera, Manuel	FrA1.5	1280
Mesejo, Pablo	WeA8	O
.....	WeB8	O
Meyer, Bruno Henrique	ThA5.3	822
Middendorf, Martin	ThB7.1	1183
Miller, John	FrB1.1	1560
Miloradovic, Branko	FrB4.5	1696
Min, Cheol-Hong	ThB3.2	1038
Minasyan, Georgiy	ThA3.2	747
Miras, Karine	ThB4.5	1090
.....	FrA8.1	1518
Mirshafiee, Mitra	ThB2.4	1012
Misir, Mustafa	WeB2.6	369
Mizuta, Takanobu	WeA3.1	75
Moghadasi, Negin	FrB7.5	1800
Molina-Porras, Alberto C.	FrA1.2	1263
.....	FrA5.6	1443
Mondol, Md Ashaduzzaman Rubel	WeA4.1	115
Montag, Carsten	WeA7.1	228
Morales-Castañeda, Bernardo	FrA8.5	1547
Morente-Molinera, Juan Antonio	FrA7.4	1497
Mosavi, Nasim Sadat	FrA2.3	1304
Mostaghim, Sanaz	ThB7	O
.....	FrA4.4	1386
.....	FrA7.2	1485
Motta, Luciana Paixão	WeA2.4	58
Mousavirad, Seyed Jalaleddin	FrA8.5	1547
Mpampis, Emmanouil	WeB8.5	598
Mukhamedov, Arthur	FrA1.6	1286
Munoz-Gomez, Gustavo	FrB2.3	1607
Murakami, Kenya	WeB7.1	533

Mütze, Ulrike	FrB1.2	1566
Mwaura, Jonathan	FrB8.4	1829
N		
Nair, Rajesh	ThA1.1	665
Nan, Yang	WeB4.4	433
.....	WeB4.5	441
.....	ThA8.4	933
.....	FrA4.6	1398
.....	FrA7.5	1503
.....	FrB8.3	1821
Naqvi, Syed Mohsen	ThA1.1	665
Nastenko, Ievgen	FrB3.5	1656
Navarro, Mario A.	FrA8.5	1547
Neilsen, Mitchell	ThC3.1	621
Ngufor, Che	FrB1.1	1560
Nguyen, Quoc Minh	WeA1.5	25
Nguyen, Tien Thanh	WeB4.1	413
Ni, Zhen	ThA2	O
.....	ThB2	O
.....	FrA2	O
.....	FrA5	O
Niloy, Rounak Saha	FrA7.6	1511
Nitschke, Geoff	FrB4.4	1690
NITSCHKE, GEOFFREY	WeA5.1	152
Nitschke, Geoffrey	FrA8.2	1526
Nogueira, Michele	ThA5.3	822
Nousi, Paraskevi	WeB1.5	323
Nuno, Comenda	WeA3.5	103
O		
OBED SALOMON, CASILLAS BALTAZAR	FrA6.6	1477
Oberski, Daniel	FrB1.6	1593
Odeyomi, Olusola	ThB6.5	1170
Oest, Frauke	WeA7.1	228
Ohkura, Kazuhiro	ThC1.2	611
Ohnishi, Kei	ThB7.3	1195
.....	ThB7.4	1201
Okada, Mariko	FrB1.4	1579
Oleksienko, Illia	WeB1.5	323
Olenic, Kevin	FrA4.5	1392
Olguín-Díaz, Ernesto	ThB3.4	1049
Oliva, Diego	WeA8.4	282
.....	FrA8.5	1547
Omar, Garcia-Vazquez	ThC5.2	641
Oneto, Luca	WeA1.6	33
Oppenheimer, Michael	ThB4.6	1096
Orozco Villanueva, Kevin Alejandro	FrA3.3	1340
Ortiz Jiménez, Xóchitl A.	ThB3.5	1054
Ortiz-Bayliss, José Carlos	FrA1.4	1274
Ortiz-Bayliss, Jose Carlos	FrA5.6	1443
Ortiz-Munoz, Diana	ThC4.3	637
Osada , Yuto	WeB7.1	533
Osnaya Baltierra, Santiago	FrA4.1	1366
Ovalle-Magallanes, Emmanuel	FrA5.6	1443
Ovilla-Martinez, Brisbane	WeA5.2	158
.....	ThC8.3	663
.....	ThA7.1	885
.....	FrA1.3	1269
Ozdogan, Emrekan	ThB5.5	1132
Ozeki, Jin	WeB1.6	329
P		
Pan, Ya-Jun	ThA7.5	908
PAN, YU	FrA1	O
Panagiotakopoulos, Dimitrios	WeA1.1	1
Panayiotou, Christos	ThA2.1	703
Pandey, Pravin	FrA7.2	1485
Pang, Lie Meng	WeB4.4	433
.....	FrA4.6	1398
.....	FrB8.3	1821

Pantiskas, Leonardos	FrA5.1	1406
Papadopoulos, Alessandro	FrB4.5	1696
Parasteh, Sirvan	FrA2.5	1316
Park, Deokgun	WeA4.1	115
Parodi, Guido	WeA1.6	33
Parola, Marco	ThB7.6	1213
	FrB1.3	1572
Parra Perea, Francisco Ruben	WeA6.3	200
Paseka, Alex	WeA4.6	146
Passalis, Nikolaos	WeB1.5	323
	WeB3.2	381
	WeB8.5	598
	ThA7.3	897
	FrB2.1	1599
Patel, Om Prakash	ThB8.6	1251
	FrA2.6	1322
Pavlitka, Svetlana	ThA1.2	671
	FrB2.5	1620
Peerlinck, Amy	FrA7.3	1491
Peralta, Diego Antonio	ThC2.2	617
	FrA6.3	1461
Pérez, Guillermo	FrB5.2	1718
Perez, Guillermo	FrB5.2	1718
Perez, Ignacio Javier	FrA7.4	1497
Pérez, José Luis Martínez	ThA2.5	730
Perez-Dominguez, Luis	ThC4.3	637
	ThC8.1	659
Perez-Enriquez, Laritza	WeA8.4	282
Pérez-Espinoza, Marcos	ThB3.5	1054
Perotti Souza, Luigi	ThA5.2	814
Perrusquia, Adolfo	WeA1.1	1
Pescador-Salas, Alejandro	ThB3.4	1049
Petelin, Gašper	WeB2.2	341
	ThC6.1	645
Petzold, Julian	WeB5.2	463
Picallo-Perez, Ana	ThA4.5	801
Pichardo-Lagunas, Obdulia	FrA6.6	1477
Pielka, Maren	WeB1.4	318
Pierce, Sean	WeB4.2	421
PIGNATON DE FREITAS, EDISON	WeA4.5	140
	ThA5.2	814
Pillay, Nelishia	WeB2	O
Pineda Cervantes, Pilar	ThB3.6	1060
Piran, Misagh	FrB7.5	1800
Pöhlmann, Katharina	WeA2.2	47
Polikar, Robi	ThB5.5	1132
Pollick, Frank	WeA2.2	47
Polmateer, Thomas L	FrB6.4	1759
Polycarpou, Marios	ThA2.1	703
Ponce, Hiram	ThB3.6	1060
	FrA3.3	1340
Porter, Michael D	FrB7.5	1800
Pothula, Aishwarya	WeA4.1	115
Poudyel, Megh	ThA5.4	829
Pozo, Aurora	ThA5.3	822
Preuß, Oliver Ludger	WeB2.5	361
Price, Mark	ThB4.3	1078
	ThB4.4	1084
Principe, Jose C	WeA1	O
	WeB1	O
	ThA1	O
	ThB1	O
Prol-Godoy, Irati	ThA4.5	801
Pruyn, Jeroen	WeB6.4	512
Q		
Qi, Quan	WeA7.3	240
Qiu, Jiang	ThB1.6	985
Qiu, Qinru	WeB1.3	312

Qu, Rong	WeB2	O
	ThB8	O
Quinn, Justin	WeA8.5	288
	WeA8.6	294

R		
Radtke, Malin	WeA7.1	228
Rahman, Shammil	WeA8.5	288
Rahnamayan, Shahryar	WeB7.2	539
	ThA5.1	807
	ThB1.3	965
	ThB5.3	1120
	FrA8.4	1540
Raitoharju, Jenni Karoliina	ThC5.3	643
Ramos-Michel, Alfonso	FrA8.5	1547
Ranathungage, Thimani Dananjana	WeB3.1	375
Rangel-Carrillo, Eduardo	FrB5.3	1724
Rashno, Elyas	ThB5.6	1139
	ThB6.4	1164
Ratnaparkhe, Milind	ThB2.5	1018
	FrA2.6	1322
Ray, Tapabrata	FrA7.6	1511
Rayment, George	WeB3.3	387
	ThC4.2	633
Reppa, Vasso	WeB6.4	512
Retajczyk, Marcin	FrA2.4	1310
Reuter, Julia	FrA7.2	1485
Rezazadeh P., Farzad	WeA5.6	180
Ribeiro Costa, Aurélio	WeA1.2	7
	WeA1.3	13
Ricalde, Luis	FrB5.4	1730
Richter, Miguel	FrA3.3	1340
Rifat, Rakib Hossain	ThA6.4	867
	ThB6.3	1158
Riggs, Robert	FrB6.4	1759
Ríos, Héctor	FrA1.5	1280
Rios, Thiago	FrB4.6	1704
Ripon, Kazi Shah Nawaz	ThB8.2	1227
Robba, Michela	WeA1.6	33
Rodrigues, Paulo	WeB3.5	401
Rodríguez-Esparza, Erick	FrA8.5	1547
Rodríguez-Ramirez, Alma	ThC4.3	637
Rojas-Hernández, Rafael	FrB2.6	1626
Rojas-Velazquez, David	ThC4.1	631
	FrB1.6	1593
Rokhsatyazdi, Ehsan	FrA8.4	1540
Rook, Jeroen	WeB2.5	361
Rosales-Huie, Juan Pablo	ThB3.4	1049
Rosen, Gail	ThB5.5	1132
Rossaint, Rolf	ThA5.5	836
	FrA2.1	1292
Rouzegar, Hamidreza	ThB5.3	1120
Roy, Arunava	ThB6.1	1145
Roy, Kaushik	ThA6.2	856
	ThA6.3	862
	ThB6.5	1170
Rudolph, Günter	FrA4.3	1380
Runyu, Zhang	WeA5.4	170
	WeA5.5	174

S		
Saad Al Deen, Mohammad Majd	WeB1.4	318
Sababipour ASL, GOLNAZ	WeA3.3	90
	WeB3.4	395
Sadaoui, Samira	FrA2.5	1316
Sadman, Nafiz	ThB6.4	1164
Safarzadehvahed, Mahdieh	ThB5.6	1139
Saha, Peash Ranjan	FrB4.3	1682
Saini, Krishanu	WeB8.1	573
Sakurai, Yoshitaka	WeB1.6	329

Salgado, Ivan.....	FrA1.5	1280	.....	FrA7.6	1511
Salomaa, Kai.....	FrB4.3	1682	Singh, Rituraj.....	WeB8.1	573
Sanchez, Jorge D.....	FrB5.1	1712	Singh, Sanjay.....	WeB8.1	573
Sanchez, Oscar Didier.....	FrB2.3	1607	Sinha, Soumen.....	ThB8.6	1251
.....	FrB5.1	1712	Slutzky, David L.....	FrB6.4	1759
Sancho, Juan Manuel.....	ThA3.5	765	Soares, Joao.....	ThA4.2	783
Sandhu, Hanni.....	WeA6.2	194	.....	ThA4.3	789
Sanfilippo, Filippo.....	FrB7.1	1775	Soares Correa da Silva, Flavio.....	WeA5.1	152
.....	FrB7.3	1788	Sohrab, Fahad.....	WeB3.6	407
.....	FrB7.4	1794	.....	ThC5.3	643
Santana, Adamo.....	WeB7.1	533	.....	ThB6.6	1176
Santana, Roberto.....	ThA4.5	801	.....	FrA4.2	1372
Santos, Manuel Filipe.....	FrA2.3	1304	Sokhansanj, Bahrad.....	ThB5.5	1132
Santos, Silas Garrido Teixeira de Carvalho.....	ThA2.2	711	Solis Winkler, Agustin.....	FrA4.1	1366
.....	ThA2.3	717	Somashekar, Karthik.....	WeA6.5	215
.....	ThA2.5	730	Soto, Miguel.....	FrA6.5	1472
Santos da Silva Júnior, Adelson.....	ThC1.3	613	Sperduti, Alessandro.....	WeA1	O
Sarkani, Shahram.....	FrB6.6	1773	.....	WeB1	O
Sato, Takaomi.....	WeB7.6	565	.....	ThA1	O
Saurav, Sumeet.....	WeB8.1	573	.....	ThB1	O
Sawade, Oliver.....	WeA6.2	194	Srinivasan, Dipti.....	WeA7	O
Schulz, Alexander.....	ThA5.5	836	Stellmacher, Martin.....	WeA6.2	194
.....	FrA2.1	1292	Stemmler, Maike.....	ThA5.5	836
Schuman, Adam.....	ThA3.2	747	.....	FrA2.1	1292
Schwartz, Howard.....	FrA5.3	1421	Sterzing, Volkmar.....	FrB4.2	1674
scott, christopher.....	FrB1.1	1560	Steup, Christoph.....	ThA1.5	689
Scott, Hallauer.....	FrA8.2	1526	Stockton, Phil.....	WeB4.1	413
Seiler, Moritz Vinzent.....	WeB2.5	361	Stoican, Radu.....	FrA5.5	1435
Sen, Anuvab.....	WeA7.2	234	Stucke, Christoph.....	WeA7.1	228
Sen, Udayon.....	WeA7.2	234	Stuurman, Aart C.....	ThB4.2	1072
Sendhoff, Bernhard.....	FrB4.6	1704	Subramanian, Karthikeyan.....	FrA3.1	1328
Sethi, Anikeit.....	WeB8.1	573	.....	FrA3.2	1334
Shaffi, Noushath.....	FrA3.1	1328	Suciu, Mihai Alexandru.....	ThA2.6	736
.....	FrA3.2	1334	Suganthan, Ponnuthurai Nagaratnam.....	WeB4	O
Shamsi, Kiarash.....	WeB3.4	395	Sukegawa, Takuya.....	WeA6.1	188
Shang, Ke.....	WeB4.4	433	Sukhija, Deepali.....	FrA2.6	1322
.....	WeB4.5	441	SUKHIJA, DEEPIKA.....	FrA2.6	1322
.....	WeB4.6	449	Sun, Yanan.....	FrB8	O
.....	FrA7.5	1503	Suresh, Anirudh.....	FrA7.1	1479
Shaposhnyk, Olha.....	FrB3.4	1650	Suri, Neeraj.....	WeB1.2	306
.....	FrB3.5	1656	Swazinna, Phillip.....	FrB4.2	1674
.....	FrB3.6	1662	Szekeres, Béla János.....	WeB8.3	587
Sheikh, Aziz.....	ThA3	O	Szilágyi, László.....	WeB6.1	496
.....	ThB3	O			
.....	FrA3	O			
Sheppard, John.....	FrA7.3	1491	Takahashi, Kenjiro.....	WeB7.6	565
Shi, Lin.....	ThB2.2	998	Talukder, Sajedul.....	ThB6.3	1158
Shi, Yuhui.....	ThB7	O	Tan, Benjamin.....	ThB2.4	1012
Shimasaki, Yuichi.....	WeB7.1	533	Tan, Faith.....	ThA1.3	677
Shimizu, Tatsuhiko.....	ThA1.4	683	Tan, Pang Jin.....	FrB6.5	1767
.....	ThB2.1	992	Tao, Shen.....	ThA3.3	753
Shmerko, Vlad.....	FrB3.2	1638	Tauritz, Daniel R.....	WeB2.4	355
Shu, Tianye.....	WeB4.4	433	Tefas, Anastasios.....	WeB1.5	323
.....	WeB4.5	441	.....	WeB3.2	381
.....	WeB4.6	449	.....	WeB8.5	598
.....	FrA7.5	1503	.....	ThA7.3	897
Shujaee, Khalil.....	ThA6.5	873	.....	FrB2.1	1599
Si, Jennie.....	FrA5	O	Terada, Yuna.....	WeB1.6	329
Sia, Justin.....	WeA2.3	53	Thakur, Aditya Shankar.....	FrB8.6	1837
Siddique, Sunzida.....	ThA6.4	867	Thapaliya, Prapti.....	ThC3.1	621
.....	ThA6.5	873	Thavaneswaran, Aerambamoorthy.....	WeA4.6	146
.....	ThB6.3	1158	.....	WeB3.1	375
Sifa, Rafet.....	WeB1.4	318	Thavaneswarn, Aerambamoorthy.....	WeA3.3	90
Silva, José Júnior de Oliveira.....	ThA2.2	711	.....	WeA3.4	97
Simionato, Giada.....	ThB7.6	1213	Thulasiram, Ruppa.....	WeA3	O
Singh, Arihant.....	ThA6.2	856	.....	WeA3.3	90
Singh, Ashay.....	ThB8.2	1227	.....	WeA3.4	97
Singh, Hemant Kumar.....	FrA7	O	.....	WeA4.6	146
			.....	WeB3	O

.....	WeB3.1	375
.....	WeB3.4	395
Thulasiraman, Parimala.....	WeB1.1	300
Tian, Guohui.....	ThA7.2	891
.....	ThA7.4	902
Tian, Yuan.....	ThB6.4	1164
Tian, Zhiqiang.....	WeA8.2	270
.....	WeA8.3	276
Tinoco-Ramírez, Isaac.....	ThB3.5	1054
Tisdale, Braden N.....	WeB2.4	355
Tiwari, Aruna.....	WeB8.1	573
.....	ThB2.5	1018
.....	FrA2.6	1322
Tizhoosh, Hamid.....	FrA8.4	1540
Tokuhisa, Masato.....	FrB1.4	1579
Tomczak, Jakub.....	FrA8.1	1518
Tonda, Alberto.....	ThC4.1	631
.....	FrB1.6	1593
Tran, Dat Thanh.....	WeA1.5	25
Trauernicht, Malte.....	WeA7.1	228
Trautmann, Heike.....	WeB2.5	361
Trefzer, Martin A.....	ThB4	O
Tripathi, Abhishek.....	ThB2.5	1018
Trujillo-Mora, Valentín.....	FrB2.6	1626
Tsang, Herbert H.....	WeB4.2	421
.....	ThA1.3	677
Tsoumakas, Grigorios.....	WeB3.2	381
Turna, Fatma.....	ThB7.1	1183
Tyczka, Dale.....	ThA3.2	747
Tyrrell, Andy.....	ThB4	O
.....	ThB4.3	1078
.....	ThB4.4	1084
Tyska Carvalho, Jonata.....	ThA3.5	765
U		
Ude, Bassey.....	ThB6.5	1170
Udluft, Steffen.....	FrB4.2	1674
V		
Vachon, Celine.....	FrB1.1	1560
Valdez, Rupa S.....	FrB7.5	1800
Valdez-Rodríguez, José E.....	ThC2.2	617
.....	FrA6.3	1461
Valdivia G, Arturo.....	FrA8.5	1547
Valdovinos, Rosa María.....	ThC8.2	661
Vale, Zita.....	ThA4.2	783
.....	ThA4.3	789
Valenza, Gaetano.....	FrB1.5	1587
Valle-Cruz, David.....	FrB2.6	1626
van der Laan, Sander W.....	FrB1.6	1593
van Heerden, Willem S.....	FrA2.2	1298
Vandeveld, Simon.....	WeA3.5	103
Venayagamoorthy, Ganesh.....	WeA7	O
.....	WeA7.4	246
.....	WeA7.5	252
.....	ThA4	O
Vennekens, Joost.....	WeA3.5	103
Verma, Brijesh.....	WeA7.6	258
.....	ThC3.3	627
.....	ThB1.2	959
Verstoep, Kees.....	FrA5.1	1406
Vieira, Alex Borges.....	WeA2.4	58
Vilar Dias, João Luiz.....	ThC1.3	613
Villa, Carlos.....	ThB3.6	1060
.....	FrA3.3	1340
Villagran-Vizcarra, Dafnis Cain.....	ThC8.1	659
Viswan, Vimbi.....	FrA3.1	1328
.....	FrA3.2	1334
von Eschwege, Daniel Heinrich.....	ThB7.2	1189
W		

Wahby, Mostafa.....	WeB5.2	463
Walters, Michael.....	WeA7.4	246
Wan, Lucas.....	ThA7.5	908
Wananabe, Takuya.....	ThC1.1	609
Wang, Alan.....	FrB1	O
Wang, Chenglong.....	WeB5.5	482
Wang, Handing.....	ThA8.5	941
Wang, Hongfeng.....	WeB5.3	470
Wang, Hua.....	ThA8.2	920
.....	ThB2.2	998
Wang, Qin.....	ThC2.3	619
Wang, Shanxia.....	FrA3.6	1359
Wang, Shibin.....	FrA3.6	1359
Wang, Wenmin.....	FrB6.2	1747
Wang, Xizhao.....	ThC2.3	619
Wang, Xuelei.....	ThA2.4	723
Wang, Yifei.....	ThA7.2	891
Wang, Yu-Kai.....	WeA2	O
.....	WeA2.1	41
.....	WeA2.2	47
.....	WeA2.3	53
Watanabe, Shinya.....	ThC1.2	611
Watkins, Jason.....	WeB6.5	519
.....	ThB5.1	1104
Weber, Marc.....	FrB4.2	1674
Weber, Natalya.....	FrA3.5	1352
Wei, Chun-Shu.....	WeA2.5	64
wei, xian.....	WeA6	O
Weissl, Oliver.....	ThB4.1	1066
Weisswange, Thomas.....	FrA5.5	1435
Weisz, Michal.....	WeA6.3	200
Wen, Yu.....	ThA7.1	885
Werner, Daniel.....	ThB7.1	1183
Williams, Alexander.....	ThB6.1	1145
Wilson, Alan.....	WeB4.1	413
Woo, Gideon.....	ThA1.3	677
Wu, Chengke.....	WeA5.3	164
Wu, Guotong.....	WeB4.4	433
.....	WeB4.6	449
.....	FrA7.5	1503
Wu, Hao.....	ThA7.4	902
Wu, Kai.....	ThA8	O
X		
Xia, Heng.....	WeA5.4	170
.....	WeA5.5	174
Xiao, Qinge.....	WeA5.3	164
Xing, Frank.....	WeA3.6	109
Xiong, Xihan.....	WeB8.6	603
.....	FrB5.5	1735
Xu, Baowen.....	ThA2.4	723
Xu, Danya.....	WeA1.4	19
Xu, Kexuan.....	WeB5.4	476
Xu, Xin-Xin.....	ThA8.2	920
Xu, Yiteng.....	ThA8.5	941
XUE, Bing.....	ThB5	O
Y		
Yagi, Isao.....	WeA3.1	75
Yaman, Anil.....	ThB4.2	1072
Yáñez-Márquez, Cornelio.....	FrA6.5	1472
Yang, Huiyun.....	FrB6.2	1747
Yang, Pengfei.....	FrB6.3	1753
Yang, Qi-Te.....	ThA8.2	920
Yang, RUIJun.....	ThC2.1	615
Yang, Tao.....	WeA1.4	19
Yang, Xiangkai.....	FrA8.6	1553
YANG, Xiaoying.....	WeB8.6	603
.....	FrB5.5	1735
Yang, Yitian.....	WeB5.6	488

Yang, Zhile	WeA5.3	164	.....	WeB5.5	482
Yankovyi, Illia.....	FrB3.6	1662	Zhong, Jinghui.....	ThA8.1	914
Yanushkevich, Svetlana.....	ThC7.3	657	Zhong, Jinghui.....	FrA3.6	1359
.....	ThA3.4	759	Zhong, Kuanshi	ThC6.2	647
.....	ThB3.1	1032	Zhong, Lingchong.....	FrB6.1	1741
.....	FrB3	O	Zhou, Huafeng	ThA4.1	778
.....	FrB3.2	1638	Zhou, Jiong	WeA7.3	240
.....	FrB3.3	1644	Zhou, Qi	FrA8.6	1553
.....	FrB3.4	1650	Zhou, Zecheng	FrB6.1	1741
.....	FrB3.5	1656	Zhu, Haibin.....	ThA7.5	908
.....	FrB3.6	1662	Zhu, Haiyue.....	WeB5.3	470
Yi Lu, Murphey	WeA6	O	Zhu, Junsong	ThB8.1	1221
yingqin, zhu	ThC8.3	663	Ziad, Youssef	WeB5.2	463
Yonce, John.....	WeA7.4	246	Zimmermann, Gregor	WeA5.6	180
Yu, Wen.....	WeA5	O	Zipfl, Maximilian	WeA6.6	221
.....	WeA5.2	158	Zola, Wagner M. Nunan	ThA5.3	822
.....	WeB5	O	Zöllner, Marius	WeA6.6	221
.....	ThA7	O	.....	WeB5.6	488
.....	FrA1.3	1269	.....	ThA1.2	671
Yu, Yilan	ThB1.6	985	.....	FrB2.5	1620
Yuan, Haocheng.....	ThB8.1	1221	Zou, Kun	WeB5.5	482
Yuan, Xiaohong	ThB6.5	1170	Zulkernine, Farhana	ThB5.4	1126
Yudho, Eduardo.....	FrA1.3	1269	.....	ThB5.6	1139
Z					
Zafar, Muhammad Hamza	FrB7.1	1775	.....	ThB6.4	1164
.....	FrB7.3	1788	Zuñiga, Pavel	FrB2.3	1607
.....	FrB7.4	1794	Zwaginga, Jesper	WeB6.4	512
Zaffar, Zaffar.....	WeB3.6	407	Zykov, Andrey	WeA4.4	135
Zahorska, Daria	FrB3.5	1656	S		
Zalzala, Ali	FrB3.1	1632	Skvorc, Urban	WeB2.1	335
Zaman, ANK	ThA6.3	862			
Zambrano-Gutierrez, Daniel.....	FrA1.2	1263			
.....	FrA5.6	1443			
Zampini, Stefano.....	WeA1.6	33			
Zanjani Miyandoab, Sevil	FrA8.4	1540			
Zapotecas-Martinez, Saul	WeA8.4	282			
Zaunseder, Elaine.....	FrB1.2	1566			
Zeng, Xiaojun	FrA1	O			
Zha, Daochen	FrA5.2	1414			
Zhan, Zhi-Hui.....	ThA8.1	914			
.....	ThA8.2	920			
.....	ThB1.1	953			
.....	ThB2.2	998			
Zhang, Chu.....	ThC2.1	615			
Zhang, Jiajun	WeB6.5	519			
.....	ThB5.1	1104			
Zhang, Jie-Ying	ThC5.1	639			
Zhang, Jingyi	FrB1.1	1560			
Zhang, Jinyuan	ThA8.4	933			
ZHANG, Jun	ThA8.1	914			
.....	ThA8.2	920			
.....	ThB1.1	953			
.....	ThB2.2	998			
Zhang, Mengjie.....	ThB1.2	959			
.....	ThB5	O			
Zhang, Qi.....	WeB7.5	559			
Zhang, Qin	FrA3.6	1359			
Zhang, Qingfu.....	FrA4.6	1398			
.....	FrB8.3	1821			
Zhang, Wen.....	ThA4.4	795			
Zhang, Xingyi.....	WeB5.3	470			
Zhang, xuwei	WeB5.1	457			
Zhang, Zhiyu.....	WeA8.3	276			
Zhao, Huashi	ThA4.1	778			
Zhao, Wenbing	WeA7.3	240			
.....	ThA3.3	753			
Zhao, Zhixian.....	ThA7.4	902			
Zhao, Ziyang.....	WeB5.1	457			

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**IEEE World Congress on
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June 30 – July 5, 2024



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15 November 2023

Special Session & Workshop
Proposals Deadline

15 December 2023

Competition & Tutorial
Proposals Deadline

15 January 2024

Paper Submission Deadline

15 March 2024

Paper Acceptance
Notification

1 May 2024

Final Paper Submission &
Early Registration Deadline

30 June – 5 July 2024

IEEE WCCI 2024
Yokohama, Japan

IEEE WCCI is the world's largest technical event on computational intelligence, featuring the three flagship conferences of the IEEE Computational Intelligence Society (CIS) under one roof: The International Joint Conference on Neural Networks (IJCNN), the IEEE International Conference on Fuzzy Systems (FUZZ-IEEE) and the IEEE Congress on Evolutionary Computation (IEEE CEC).

IEEE WCCI 2024 will be held in Yokohama, Japan. Yokohama is a city that inspires academic fusion and multidisciplinary & industrial association. The Yokohama area boasts a number of universities, institutes and companies of advanced information technology, electronics, robotics, mobility, medicine and foods. IEEE WCCI 2024 held in this area will strongly inspire the attendees to imagine next-generation science and technology as the fusion of AI, physiology and psychology as well as a cooperation with intelligence-related industries.

IJCNN 2024 The International Joint Conference on Neural Networks (IJCNN) covers a wide range of topics in the field of neural networks, from biological neural networks to artificial neural computation.

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