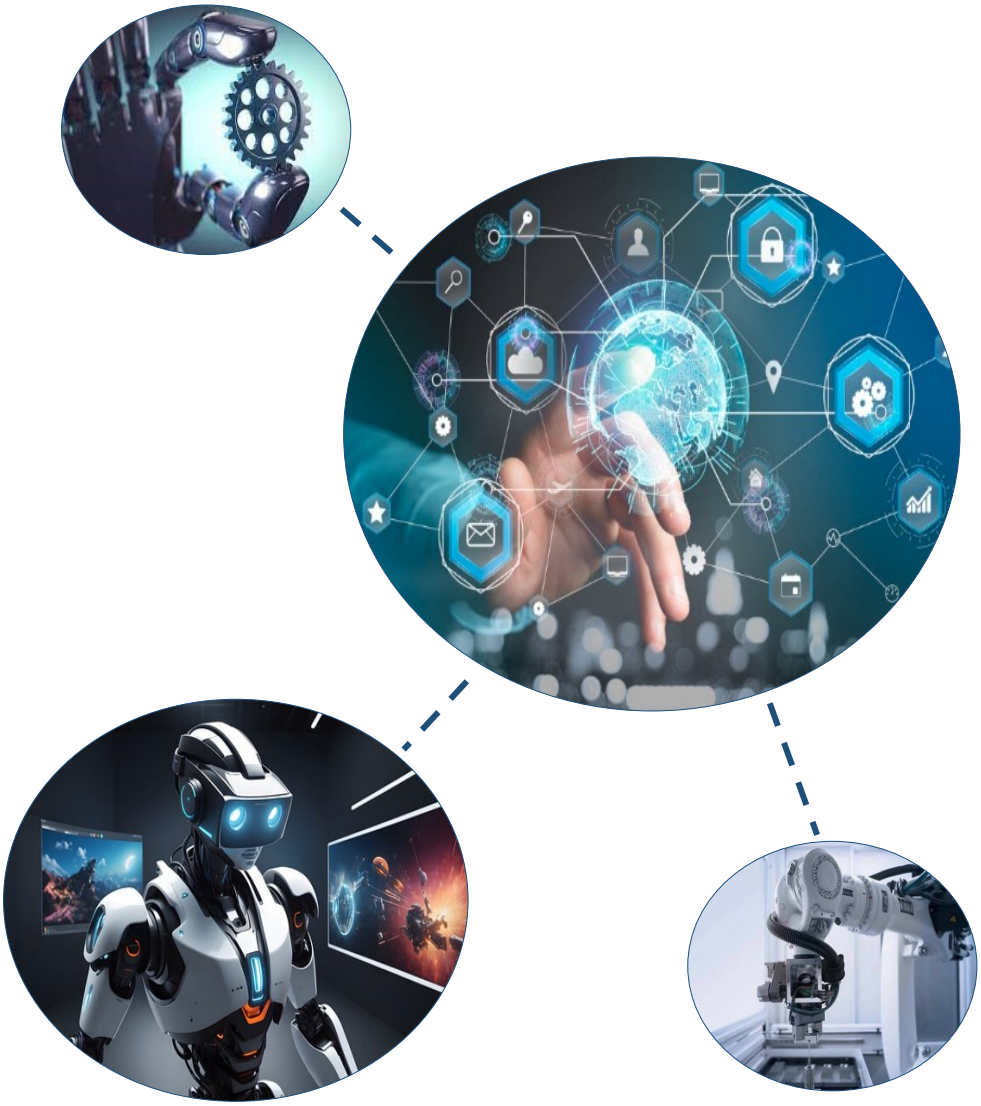
Conference Program



ICCAE 2024

2024 16th International Conference on Computer and Automation Engineering

ICVARS 2024

2024 8th International Conference on Virtual and Augmented Reality Simulations

March 14-16, 2024 | Melbourne, Australia

Co-Sponsored by

IEEE

IEEE Robotics & Automation Society

MACQUARIE University SYDNEY·AUSTRALIA

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CONTENTS

WELCOME

Dear distinguished delegates,

We are pleased to welcome you to 2024 16th International Conference on Computer and Automation Engineering (ICCAE 2024) and its workshop 2024 8th International Conference on Virtual and Augmented Reality Simulations (ICVARS 2024) to be held in Melbourne, Australia during March 14-16, 2024. We appreciate your generous support.

This conference provides opportunities for delegates to exchange new ideas and research findings. The evaluation of all the papers was performed based on the reports from anonymous reviewers qualified in their field.

During conference period, we have 3 keynote speeches, 1 invited speech, 10 onsite parallel sessions, 4 online parallel sessions and 2 poster sessions with various topics such as: Machine Learning and Data Computing; Intelligent Application Program Design and Development; Computer Models and Application Technologies; Computer Vision and Image Processing, etc.

We would like to express our sincere gratitude to everyone who has contributed to this conference as its success could have only been achieved through a team effort. A word of special welcome is given to our speakers who are pleased to contribute to our conference and share their new research ideas with us. They are
Prof. Subhas Mukhopadhyay, Macquarie University, Australia
Prof. Rajkumar Buyya, The University of Melbourne, Australia
Prof. Saman Halgamuge, University of Melbourne, Australia
Prof. Amir H. Gandomi, University of Technology Sydney, Australia

Additionally, our special thanks go to all committee members for their excellent work in reviewing the papers and their other academic support efforts.

We believe that through this conference, you can get more opportunities for further communication with researchers and practitioners with common interests in this field. With the strong support from all of you, ICCAE conference is more distinctive. We wish that all guests can gain benefits from this conference and improve their academic performance. Thank each of you for your efforts to make this conference successful.

We wish all of you will have an unforgettable experience in the conference.

Yours sincerely,
Conference Organizing Committee
ICCAE 2024 & ICVARS 2024

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VENUE

Conference Venue:
Jasper Hotel

Detailed Address:
489 Elizabeth Street, Melbourne, VIC, 3000

Transportation:

Several trams reach the city from various north and northwestern suburbs including routes 19, 57, 59 that travel along Elizabeth Street stopping outside Jasper Hotel. Trams on Elizabeth Street connect with most other services from Melbourne's outer suburbs. Jasper hotel is also reachable using the Free Tram Zone.

Catch any service into the city centre via the City Loop. Depart at Melbourne Central Station and take the Elizabeth Street exit to the corner of Latrobe and Elizabeth Streets. Walk 200 metres north along Elizabeth Street to Jasper Hotel, located on the left hand side over Franklin Street just before Therry Street.

Notice:

The accommodation is not included in the registration fee.
The conference hotel or conference secretary will not contact any participant for reservation, please be careful when anyone asks you to provide your credit card information to book rooms for you.

Accommodation Booking:

Jasper Hotel provides a 15% discount for participants.
Web link: https://bookings.travelclick.com/107190?RatePlanId=6396156#/guestsandrooms

ONSITE GUIDELINE

☞ Oral Presentation

- Regular oral presentation: 15 minutes (including Q&A).
- Get your presentation PPT or PDF files prepared. Presentations MUST be uploaded at the session room at least 15 minutes before the session starts.
- Laptop (with MS-Office & Adobe Reader), projector & screen, laser pointer will be provided in all oral session rooms.

☞ Poster Presentation

- Please print poster (A1 size, English), content must be on 1 page. Please set the poster as vertical format, and give it to conference staff when collecting conference kit.
- The content must include: paper title, author names and paper ID, the key framework knowledge of the article and other necessary basic information.
- Template format is not fixed, no template restrictions.
- Please prepare around 5 minutes presentation of the framework for on-site communication.

☞ Important Notes

- Please enter the meeting room at least 15 minutes before your session. Your punctual arrival and active involvement will be highly appreciated.
- Please wear your name tag for all the conference activities. Lending it to others is not allowed. If you have any companying person, please do inform our staff in advance.
- Please keep all your belongings (laptop and camera etc.) at any time. The conference organizer does not assume any responsibility for the loss of personal belongings.
- Please show name tag and meal coupons when dining.

ONLINE GUIDELINE

☞ Time Zone

The whole program is based on **Melbourne** Local Time (**UTC+11 AEDT**), please check on the program for your own test time and formal presentation time, and then convert it to the local time in your country.

☞ Platform: Zoom Meeting

Download Link: https://zoom.us/download

☞ Meeting Rooms

ZOOM A: 864 8544 4721 Link: https://us02web.zoom.us/j/86485444721
ZOOM B: 873 2513 3488 Link: https://us02web.zoom.us/j/87325133488

☞ Equipment needed

- A computer with internet connection and camera
- Headphones
- Stable internet connection
- A quiet place and Proper background

☞ Test Your Presentation

Date: **March 14, 2024**
Prior to the formal meeting, online presenters shall join the test room to ensure everything is on the right track. Please check your test time on this program.

☞ Presentation Tips

- Get your presentation PPT/Video files prepared. To effectively control the time and avoid some unexpected situations, we suggest you send us the recorded video in advance as a backup.
- Regular oral presentation: 15 minutes (including Q&A). The presentation should be about 12 minutes, 3 minutes for Q&A.
- Your punctual arrival and active involvement in each session will be highly appreciated. Please join in the room at least 15 minutes before your session.
- Stay online during Keynote & Invited speeches and your own session.
- English only during the conference.
- Certificates will be emailed to you after the conference
- Please rename as:
  Author: Paper ID + Name
  Listener: Listener + Name
  Keynote Speaker: KN + Name
  Committee: Position + Name

DETAILED AGENDA

All schedules will be scheduled in **Melbourne Local Time (UTC+11 AEDT)**

Day 1 Mar. 14 – Thursday

Materials Collecting for Onsite Participants

10:00-17:00	Jasper Hotel Foyer

- Tell the staff your Paper ID. If you are the Delegate, please tell the staff your name.
- Sign your name in the attendance list and confirm meal information.
- Collect the conference kit.

ZOOM Test for Online Participants

Melbourne Local Time	ZOOM	Presenter
13:30-14:30	ZOOM ID 864 8544 4721	Online Session 1 - AE018, AE039, AE148, AE030, AE191, AE238, AE324, AE076, AE082, AE115, AE051
13:30-14:30	ZOOM ID 873 2513 3488	Online Session 2 - AE060, AE058, AE103, AE122, AE035, AE172, AE182, AE032, AE179, AE167, AE174, AE212
16:30-17:30	ZOOM ID 864 8544 4721	Online Session 3 - AE143, AE067, AE100, AE203, AE198, AE135, AE164, AE077, AE133, AE043, AE072, AE159
16:30-17:30	ZOOM ID 873 2513 3488	Online Session 4 - AE330, AE332, A327-A, AE003, AE042, AE319, AE311, AE320, AE323, AE227, AE188, AE331

Day 2 Mar. 15 – Friday

Opening & Keynote / Invited Speeches & Onsite Author Parallel Sessions

Opening & Keynote / Invited Speeches

Zoom ID: 864 8544 4721
ZOOM Link: https://us02web.zoom.us/j/86485444721
Onsite Meeting Room: 【1F】ROOM 3&4
Chaired by: Prof. Manolya Kavakli, Macquarie University, Australia

Melbourne Local Time	Presenter
9:00-9:05 Opening Remarks	**Prof. Manolya Kavakli**, Macquarie University, Australia

9:05-9:50 Keynote Speech I	**Prof. Subhas Mukhopadhyay**, Macquarie University, Australia IEEE Fellow, IET Fellow, IETE Fellow *Speech Title: Recent Advances in Sensing and Machine Vision for Mechatronics*
9:50-10:35 Keynote Speech II	**Prof. Rajkumar Buyya**, The University of Melbourne, Australia IEEE Fellow, FIEAust Fellow *Speech Title: Recent Advances in Cloud and Quantum Computing*
10:35-11:00	Coffee Break & Group Photo @【1F】Pre-Function Area
11:00-11:45 Keynote Speech III	**Prof. Saman Halgamuge**, University of Melbourne, Australia IEEE Fellow, IET Fellow, AAIA Fellow *Speech Title: Explainable AI: From Mathematical to Textual Explanations*
11:45-12:10 Invited Speech	**Prof. Amir H. Gandomi**, University of Technology Sydney, Australia *Speech Title: Navigating the Impact of AI in Engineering: A Deep Dive into EI for Automated Computing*
12:10-13:20	Lunch @【1F】Pre-Function Area

Onsite Author Parallel Sessions

Time	Meeting Room	Presenter
13:20-15:35	【1F】ROOM 1&2	Onsite Session 1 - Image Classification and Algorithms AE106, AE078, AE149-A, AE200, AE045, AE195, AE079, AE128, AE131
13:20-15:50	【1F】ROOM 3	Onsite Session 2 - Advanced Electronics and Control Systems AE225, AE145, AE087, AE134, AE230, AE092, AE085, AE012, AE318, AE243
13:20-16:05	【1F】ROOM 4	Onsite Session 3 - Image Detection, Recognition, and Virtualization Technology AE107, AE109-A, AE304, AE235, AE333, AE161, AE034, AE207, AE095, AE209, AE086

13:20-16:20	【1F】ROOM 5	Onsite Session 4 - Machine Learning and Data Computing AE075-A, AE004, AE189, AE193, AE071, AE020, AE055, AE192-A, AE031, AE236, AE229, AE305-A
14:00-15:00	【1F】Hallways of ROOM 1&2	Poster Session 1 -Intelligent Application Program Design and Control System AE022, AE111, AE181, AE053, AE019, AE057, AE113, AE117
16:10-16:30	Coffee Break @【1F】Pre-Function Area	
16:30-17:30	【1F】Hallways of ROOM 1&2	Poster Session 2 - Intelligent Image Analysis and Virtual Technology AE196, AE151, AE312-A, AE046, AE313-A, AE150, AE157
16:30-19:00	【1F】ROOM 1&2	Onsite Session 5 - Computer Models and Application Technologies AE316, AE026, AE033, AE232, AE205, AE047, AE217, AE307-A, AE204, AE302
16:30-18:45	【1F】ROOM 3	Onsite Session 6 - Data Centric Information Systems and Management AE021, AE228-A, AE027, AE093, AE139, AE130, AE186-A, AE090, AE1002
16:30-18:30	【1F】ROOM 4	Onsite Session 7 - Computer Vision and Image Processing AE114, AE080, AE050, AE112, AE126, AE118, AE211, AE334
16:30-19:00	【1F】ROOM 5	Onsite Session 8 - Future Communication Technology and Development AE054, AE132-A, AE110, AE202, AE154, AE052, AE091, AE007, AE314, AE170
19:00-20:30	Dinner @【Ground Floor】Jasper Kitchen	

Day 3 Mar. 16 – Saturday

Keynote Speech & Online / Onsite Author Parallel Sessions

Keynote Speech @【1F】ROOM 3		
8:30-9:10 Keynote Speech IV	Prof. Rini Akmeliawati, The University of Adelaide, Australia *Speech Title: Learning from Nature-Bio-Inspired Robots' Applications in Harsh Environments*	
9:10-9:20	Coffee Break @【1F】Pre-Function Area	
Onsite Author Parallel Sessions		
9:20-11:20	【1F】ROOM 3	Onsite Session 9 - Modern Control Theory and Systems AE104, AE171, AE197, AE144-A, AE199, AE101, AE213, AE231
9:20-11:20	【1F】ROOM 4	Onsite Session 10 - Intelligent Application Program Design and Development AE088, AE121, AE074, AE328, AE240, AE215, AE102, AE124
Online Author Parallel Sessions		
Melbourne Local Time	**ZOOM**	**Presenter**
13:30-16:15	ZOOM ID 864 8544 4721	Online Session 1 – Digital Image Processing and Methods AE018, AE039, AE148, AE030, AE191, AE238, AE324, AE076, AE082, AE115, AE051
13:30-16:30	ZOOM ID 873 2513 3488	Online Session 2 – Modern Information Theory and Computer Applications AE060, AE058, AE103, AE122, AE035, AE172, AE182, AE032, AE179, AE167, AE174, AE212
16:15-16:30	Break	
16:30-19:30	ZOOM ID 864 8544 4721	Online Session 3 – Visual Based intelligent Autonomous System and Application Development AE143, AE067, AE100, AE203, AE198, AE135, AE164, AE077, AE133, AE043, AE072, AE159
16:45-19:45	ZOOM ID 873 2513 3488	Online Session 4 – Virtual Reality and Augmented Reality AE330, AE332, A327-A, AE003, AE042, AE319, AE311, AE320, AE323, AE227, AE188, AE331

KEYNOTE SPEAKERS

Prof. Subhas Mukhopadhyay

Macquarie University, Australia
IEEE Fellow, IET Fellow, IETE Fellow

Mar. 15, 2024

9:05-9:50

Onsite Meeting Room:
【1F】ROOM 3&4
ZOOM ID: 864 8544 4721

Biography: Subhas holds a B.E.E. (gold medallist), M.E.E., Ph.D. (India) and Doctor of Engineering (Japan). He has over 34 years of teaching, industrial and research experience. Currently he is working as a Professor of Mechanical/Electronics Engineering, Macquarie University, Australia and is the Discipline Leader of the Mechatronics Engineering Degree Programme. His fields of interest include Smart Sensors and sensing technology, instrumentation techniques, wireless sensors and network (WSN), Internet of Things (IoT), Mechatronics etc. He has supervised over 55 postgraduate students and over 150 Honours students. He has examined over 75 postgraduate theses. He has been co-inventor of 12 patents and published over 450 papers in different international journals and conference proceedings, written ten books and fifty-two book chapters and edited eighteen conference proceedings. He has also edited forty books with Springer-Verlag and thirty-five journal special issues. He has organized over 20 international conferences as either General Chairs/co-chairs or Technical Programme Chair. He has delivered 440 presentations including keynote, invited, tutorial and special lectures. As per Scholargoogle, his total citation is 22156 and h-index is 74.

He is a Fellow of IEEE (USA), a Fellow of IET (UK), a Fellow of IETE (India). He is a Topical Editor of IEEE Sensors journal. He is also an associate editor of IEEE Transactions on Instrumentation and Measurements and IEEE Reviews in Biomedical Engineering (RBME). He was a Distinguished Lecturer of the IEEE Sensors Council from 2017 to 2022. He chairs the IEEE Instrumentation and Measurement Society NSW chapter.

Recent Advances in Sensing and Machine Vision for Mechatronics

Abstract: The advancement of sensing technologies, embedded systems, wireless communication technologies, nano-materials, miniaturization, vision sensing and processing speed makes it possible to develop smart mechatronics and machine systems. This seminar will discuss recent research and developmental activities on different sensors and sensing system along with machine visions at Macquarie University as applicable to Mechatronics, robotics and drones for home, health and environmental monitoring.

Prof. Rajkumar Buyya

The University of Melbourne, Australia
IEEE Fellow, FIEAust Fellow

Mar. 15, 2024

9:50-10:35

Onsite Meeting Room:
【1F】ROOM 3&4
ZOOM ID: 864 8544 4721

Biography: Dr. Rajkumar Buyya is a Redmond Barry Distinguished Professor and Director of the Cloud Computing and Distributed Systems (CLOUDS) Laboratory at the University of Melbourne, Australia. He is also serving as the founding CEO of Manjrasoft, a spin-off company of the University, commercializing its innovations in Cloud Computing. He has authored over 850 publications and seven textbooks including "Mastering Cloud Computing" published by McGraw Hill, China Machine Press, and Morgan Kaufmann for Indian, Chinese and international markets respectively. Dr. Buyya is one of the highly cited authors in computer science and software engineering worldwide (h-index=166 g-index=365, and 145,500+ citations). He has been recognised as a "Web of Science Highly Cited Researcher" for seven times since 2016, "Best of the World" twice for research fields (in Computing Systems in 2019 and Software Systems in 2021/2022/2023) as well as "Lifetime Achiever" and "Superstar of Research" in "Engineering and Computer Science" discipline twice (2019 and 2021) by the Australian Research Review.
Software technologies for Grid, Cloud, and Fog computing developed under Dr.Buyya's leadership have gained rapid acceptance and are in use at several academic institutions and commercial enterprises in 50+ countries around the world. Manjrasoft's Aneka Cloud technology developed under his leadership has received "Frost New Product Innovation Award". He served as founding Editor-in-Chief of the IEEE Transactions on Cloud Computing. He is currently serving as Editor-in-Chief of Software: Practice and Experience, a long-standing journal in the field established 50+ years ago. He has presented over 700 invited talks (keynotes, tutorials, and seminars) on his vision on IT Futures, Advanced Computing technologies, and Spiritual Science at international conferences and institutions in Asia, Australia, Europe, North America, and South America. He has recently been recognized as a Fellow of the Academy of Europe.

Recent Advances in Cloud and Quantum Computing

Abstract: Computing is being transformed to a model consisting of services that are delivered in a manner similar to utilities such as water, electricity, gas, and telephony. In such a model, users access services based on their requirements without regard to where the services are hosted or how they are delivered. Cloud computing paradigm has turned this vision of "computing utilities" into a reality. It offers infrastructure, platform, and software as services, which are made available to consumers as subscription-oriented services. Cloud application platforms need to offer (1) APIs and tools for rapid creation of elastic applications and (2) a runtime system for deployment of applications on geographically distributed Data Centre

infrastructures (with Quantum computing nodes) in a seamless manner.
The Internet of Things (IoT) paradigm enables seamless integration of cyber-and-physical worlds and opening opportunities for creating new class of applications for domains such as smart cities, smart robotics, and smart healthcare. The emerging Fog/Edge computing paradigms support latency sensitive/real-time IoT applications with a seamless integration of network-wide resources all the way from edge to the Cloud.
This keynote presentation will cover (a) 21st century vision of computing and identifies various IT paradigms promising to deliver the vision of computing utilities; (b) innovative architecture for creating elastic Clouds integrating edge resources and managed Clouds, (c) Aneka 5G, a Cloud Application Platform, for rapid development of Cloud/Big Data/AI applications and their deployment on private/public Clouds with resource provisioning driven by SLAs, (d) a novel FogBus software framework with Blockchain-based data-integrity management for facilitating end-to-end IoT-Fog/Edge-Cloud integration for execution of sensitive IoT applications, (e) experimental results on deploying Cloud and Big Data/ IoT applications in engineering, and health care (e.g., COVID-19), deep learning/Artificial intelligence (AI), satellite image processing, and natural language processing (mining COVID-19 research for new insights) on elastic Clouds, (f) QFaaS: A Serverless Function-as-a-Service Framework for Quantum Computing, and (g) directions for delivering our 21st century vision along with new directions for future research in Cloud, Edge, and Quantum computing.

Prof. Saman Halgamuge

University of Melbourne, Australia
IEEE Fellow, IET Fellow, AAIA Fellow

Mar. 15, 2024

11:00-11:45

Onsite Meeting Room:
【1F】ROOM 3&4
ZOOM ID: 864 8544 4721

Biography: Prof Saman Halgamuge is a Fellow of IEEE, a Professor in the Department of Mechanical Engineering of School of Electrical, Mechanical and Infrastructure Engineering. He is also one of the IEEE Distinguished Speakers appointed for the theme Computational Intelligence. He has previously served as Director/Head, Research School of Engineering of the Australian National University (2016-18) and as a member of Australian Research Council (ARC) College of Experts for Engineering, Information and Computing Sciences (2016-18). He was the founding Director of the PhD training centre Melbourne India Postgraduate Program (MIPP) of University of Melbourne and contributed as Associate Dean (2013-15) and Assistant Dean (2008-13) in International Engagement in the Melbourne School of Engineering. He is also a member of various International advisory committees including the Visiting Committee of Chinese University of Hong Kong (2018) and Research Advisory Council of University of Technology PETRONAS (2015-18). He is an honorary Professor of Australian National University and an honorary member of ANU Energy Change Institute. His research interests are in AI and Data Engineering including Inclusive Learning algorithms and Active data gathering sensor systems, Unsupervised Deep Learning, Big Data Analytics focusing on applications in Mechanical Engineering, Energy and Bioengineering. These applications vary from Sensor Networks in Irrigation, Smart Grids, and Sustainable Energy generation to Bioinformatics and Neuro-Engineering. He supervised 50 PhD students as the primary supervisor. He has also been a keynote speaker for 40 research conferences. His citations and h-factor can be extracted from is https://scholar.google.com.au/citations?hl=en&user=9cafqywAAAAJ&view_op=list_works

Explainable AI: From Mathematical to Textual Explanations

Abstract: In this keynote, I discuss explainable AI (XAI) also known as “white-box” models. I elaborate on model design of XAI enabling their optimisation for greater accuracy and transparency. I also describe the recent works in our group on XAI.

Prof. Rini Akmeliawati

The University of Adelaide, Australia

Mar. 16, 2024

8:30-9:10

Onsite Meeting Room:
【1F】ROOM 3

Biography: Rini completed her PhD from the University of Melbourne, and is currently an associate professor at the School of Electrical and Mechanical Engineering, the University of Adelaide (UoA). She is a Fellow in Engineers Australia (FIEAust). She is the Coordinator of Robotics and Automation Research Group at UoA. She has been a Keynote speaker in various International and National Conferences/Symposiums/Colloquiums/Seminars. She has published more than
200 research papers in journals, conference proceedings and book chapters. She has successfully supervised 13 PhD students. Her research interests are on Control Systems Design, Robotics, Precision Agriculture, Modelling and Identification, and Mechatronics Systems.

Learning from Nature-Bio-Inspired Robots' Applications in Harsh Environments

Abstract: Bio-inspired robots have gained significant attention due to their remarkable capabilities and adaptability to navigate and operate in various harsh and challenging environments, such as space, underwater and in the human body. Drawing inspiration from the intricate designs and functionalities observed in diverse biological organisms, this type of robot exhibits innovative locomotion, sensing, and manipulation strategies, enabling them to excel in environments characterised by extreme temperatures, complex terrains, limited accessibility, and other adversities.

This presentation explores case studies of bio-inspired robots and automation, such as hopping robots for efficient exploration, spider- and snake-like robots for search and rescue in disaster-stricken areas as well as efficient exploration of rugged and complex terrains, and other autonomous systems, which are potentially designed for space applications. The integration of biologically-inspired designs with advanced control systems and sensing technologies redefines the boundaries of traditional robotics, empowering these robots to navigate, collect data, and perform tasks that were once deemed unfeasible for traditional machines.

Furthermore, the field of bio-inspired robotics fosters interdisciplinary collaboration between biologists, engineers, material scientists, and computer scientists. This convergence of expertise has led to breakthroughs in robotics that not only advance technological capabilities but also deepen our understanding of biological systems.

With continued advancements in biomimetic research, the transformative potential of bio-inspired robots is set to revolutionise various fields, including disaster response, environmental monitoring, space exploration, and industrial inspection in harsh environments.

INVITED SPEAKER

Prof. Amir H. Gandomi

University of Technology Sydney, Australia

Mar. 15, 2024

11:45-12:10

Onsite Meeting Room:
【1F】ROOM 3&4
ZOOM ID: 864 8544 4721

Biography: Amir H. Gandomi is a Professor of Data Science and an ARC DECRA Fellow at the Faculty of Engineering & Information Technology, University of Technology Sydney. He is also affiliated with Obuda University, Budapest, as a Distinguished Professor. Prior to joining UTS, Prof. Gandomi was an Assistant Professor at Stevens Institute of Technology and a distinguished research fellow at BEACON center, Michigan State University. Prof. Gandomi has published over three hundred journal papers and 12 books which collectively have been cited 44,000+ times (H-index = 94). He has been named as one of the most influential scientific minds and received the Highly Cited Researcher award (top 1% publications and 0.1% researchers) from Web of Science for six consecutive years, from 2017 to 2022. In the recent most impactful researcher list, done by Stanford University and released by Elsevier, Prof Amir H Gandomi is ranked among the top 1,000 researchers (top 0.01%) and top 50 researchers in AI and Image Processing subfield in 2021! He has received multiple prestigious awards for his research excellence and impact, such as the 2023 Achenbach Medal and the 2022 Walter L. Huber Prize, the highest-level mid-career research award in all areas of civil engineering. He has served as associate editor, editor, and guest editor in several prestigious journals, such as AE of IEEE Networks and IEEE IoTJ. Prof Gandomi is active in delivering keynotes and invited talks. His research interests are global optimisation and (big) data analytics using machine learning and evolutionary computations in particular.

Navigating the Impact of AI in Engineering: A Deep Dive into EI for Automated Computing

Abstract: Artificial Intelligence has been widely used during the last two decades and has remained a highly-researched topic, especially for complex real-world problems. Evolutionary Intelligence (EI) techniques are a subset of artificial intelligence, but they are slightly different from the classical methods in the sense that the intelligence of EI comes from biological systems or nature in general. The efficiency of EI is due to their significant ability to imitate the best features of nature which have evolved by natural selection over millions of years. The central theme of this presentation is about EI techniques and their application to complex real-world problems. On this basis, first I will talk about an automated learning approach called genetic programming. Applied evolutionary learning will be presented, and then their new advances will be mentioned. Here, some of my studies on big

data analytics and modelling using EI and genetic programming, in particular, will be presented. Second, EI will be presented including key applications in the optimization of complex and nonlinear systems. It will also be explained how such algorithms have been adopted to engineering problems and how their advantages over the classical optimization problems are used in action. Optimization results of large-scale towers and many-objective problems will be presented which show the applicability of EI. Finally, heuristics will be explained which are adaptable with EI and they can significantly improve the optimization results.

ONSITE SESSIONS

Onsite Session 1 - Image Classification and Algorithms Session Chair: Prof. Arnold Paglinawan, Mapua University, Philippines March 15, 2024 | 13:20-15:35 Meeting Room: ROOM 1&2	
AE106 13:20-13:35	Non-Invasive Diabetes Classification and Blood Glucose Level Monitoring System Using Electronic Nose Authors: Gwen Evangelista, Arnold Paglinawan and Charmaine Paglinawan Presenter: Arnold Paglinawan, Mapua University, Philippines
AE078 13:35-13:50	Coffee Bean Detection Using Mask R-CNN Authors: Analyn Yumang, Regina Liza Diloy and Ma. Chloe Sta. Juan Presenter: Analyn Yumang, Mapua University, Philippines
AE149-A 13:50-14:05	Hybrid Machine Learning and Seismic Attribute Methodology for Precise Fluvial Facies Classification in the Malay Basin, Malaysia Authors: Ala Abobakr Al-Dubai, Haetham G. Mohammed Presenter: Ala Abobakr Al-Dubai, Universiti Teknologi Malaysia, Malaysia
AE200 14:05-14:20	Classification of Hand Motions Using Spatial Information in HDEMG Signals with HOG Features Authors: D.S.V. Bandara, He Chongzaijiao and Jumpei Arata Presenter: D.S.V. Bandara, Kyushu University, Japan
AE045 14:20-14:35	Magnolia Jackfruit Maturity Classification System Using Color Space Analysis Authors: Analyn Yumang, Gene Lorenzo Bacalla and Emanuel Nasbien Corate Presenter: Analyn Yumang, Mapua University, Philippines
AE195 14:35-14:50	Classification of Citrus Crops using Satellite Multispectral Imagery and Deep Neural Network Authors: Alvaro Camara-Guerra, Cloe Artyounian-Vieyra, Eder Gonzalez-Cuellar, Adriana Trevino-Escamilla, Adan Salazar-Garibay and Andres Hernandez-Gutierrez Presenter: Andres Hernandez-Gutierrez, Universidad de Monterrey, Mexico
AE079 14:50-15:05	Fire Alert System using Shape and Color Analysis through Image Processing via Mobile Application Authors: Analyn Yumang, Divina Chua, Carla Louie Leandicho, Leo Angelo C. Magtibay, Jerome Ortiz and Omar Mukhtar Julkipli Presenter: Analyn Yumang, Mapua University, Philippines
AE128 15:05-15:20	Integrating Visual SLAM and Smooth Speed Control for realizing Real-Time Autonomous System Authors: Mao-Jen Ko, Yu-Chen Lin, Chih-Hung Cheng and Thanh-Tan Nguyen Presenter: Mao-Jen Ko, Feng Chia University, Taiwan

AE131 15:20-15:35	Combination of Activation Functions within LeNet-5 Framework for Autism Screening Authors: Kaviya Elakkiya M and Dejey D Presenters: Kaviya Elakkiya M, Vellore Institute of Technology Chennai, India & Dejey D, Anna University Chennai, India

Onsite Session 2 - Advanced Electronics and Control Systems Session Chair: Prof. Masahiro Nohmi, Shizuoka University, Japan March 15, 2024 | 13:20-15:50 Meeting Room: ROOM 3	
AE225 13:20-13:35	Adaptive Maximum Power Point Tracking Algorithm in Photovoltaic Systems for Smart Grid Application Authors: Catherine S. Salvador, Cesar G. Manalo, Rick Daniel C. Reyes, Bienvenido B.C. To Presenter: Catherine S. Salvador, Malayan Colleges Laguna MITL, Philippines
AE145 13:35-13:50	Waterway Design and Temperature Field Analysis of Axial Flux Permanent Magnet Mo Authors: Xu He, Junci Cao, Boyu Zhou, Dong Li and Qiusheng Li Presenter: Xu He, Beijing Jiaotong University, China
AE087 13:50-14:05	Resonant Inductive Coupling Wireless Power Transfer of Multiple Devices Authors: Bjorn Christopher Delos Santos, Dale Janry Serrano and Charmaine Paglinawan Presenter: Charmaine Paglinawan, Mapua University, Philippines
AE134 14:05-14:20	Fake Obstacle Generation-based Pallet Alignment for Forklifts Authors: Akhilesh Bhat, Natsuki Kai, Takayuki Suzuki, Takahiro Shiroshima and Hiroshi Yoshida Presenter: Akhilesh Bhat, NEC Corporation, Japan
AE230 14:20-14:35	Impact of Heavy Load Backpack in Thoracic Spine for Posture Monitoring Using Wearable Inertial Sensor on Elementary Students Authors: Maria Carmela Capul, Irish Niamh Buela, Ciara Mae Candolita and Patrick Garcia Presenter: Maria Carmela Capul, Mapua Malayan Colleges Laguna, Philippines
AE092 14:35-14:50	A Method for UAV Collision-Free Path Planning in Forest Fire Rescue Missions over an Uneven Terrain Authors: Jingwen Wei, Zixuan Fang, Siyuan Li Presenter: Jingwen Wei, University of New South Wales, Australia
AE085 14:50-15:05	Path Planning for Autonomous Vehicle Turning at Intersections with Signal Temporal Logic Specifications Authors: Yujin Wang, Zhaoyan Huang, Shiying Dong, Hongqing Chu, Xiang Yin and Bingzhao Gao Presenter: Yujin Wang, Tongji University, China

AE012 15:05-15:20	Optimal Observer Maneuver Recommendation for Range Calculation Using Bearing Only Measurement Authors: Amit Mathur and Simarjeet Singh Presenter: Amit Mathur, Bharat Electronics Limited, India
AE318 15:20-15:35	Transformation of spatial perception in gate passage by using a wearable interface with changeable vertical viewpoint Authors: Jun Aoki, Modar Hassan, Kenji Suzuki Presenter: Jun Aoki, University of Tsukuba, Japan
AE243 15:35-15:50	Stabilizing and Monitoring the Quadcopter Trajectory using Optimization Sliding Mode Control with Backstepping Controller Authors: Lillie Dewan Presenter: Lillie Dewan, National Institute of Technology Kurukshetra Haryana India, India

Onsite Session 3 - Image Detection, Recognition, and Virtualization Technology **Session Chair: Prof. Wan Khairunizam Wan Ahmad, Universiti Malaysia Perlis, Malaysia** **March 15, 2024 | 13:20-16:05** **Meeting Room: ROOM 4**	
AE107 13:20-13:35	Road Damage Dataset Evaluation Using YOLOv8 for Road Inspection System Authors: Agus Mulyanto, Riri Fitri Sari and Abdul Muis Presenter: Agus Mulyanto, Universitas Indonesia, Indonesia
AE109-A 13:35-13:50	Machine Learning-Based Detection and Characterization of Carbonate Karst Features in Field X: A Promising Approach for Geological Exploration Authors: Abd Al-Salam Al-Masgari, Haetham G. Mohammed and Munawar Shahruddin Presenter: Abd Al-Salam Al-Masgari, Universiti Teknologi MARA (UiTM), Malaysia
AE304 13:50-14:05	Developing a BIM- and VR-based system to Enhance Layout Modification and Cost Estimation Authors: Jung-Hsing Tai, Kun-Chi Wang, Hsiang-En Hsien, Guan-Yu Chen Presenter: Hsiang-En Hsien, Chaoyang University of Technology, Taiwan
AE235 14:05-14:20	Counterfeit Over-The-Counter Medication Detection Utilizing One-Stage Object Detection and Data Augmentation Authors: Jonalyn Ebron, Jordan Heath, Nathalie Grace Bataga, Gio Staniell Belolo and Jose Alberto Aguirre Presenter: Jonalyn Ebron, Mapua Malayan Colleges Laguna, Philippines
AE333 14:20-14:35	A Research on a Feedback Device to Represent Gun Recoil in a Virtual Reality Game Authors: Shoon Komori, Tomokazu Ishikawa, Presenter: Shoon Komori, Toyo University, Japan

AE161 14:35-14:50	Quantitative Analysis for Emotion Recognition by using EEG Signals Authors: Wan Khairunizam Wan Ahmad and Choong W.Y Presenter: Wan Khairunizam Wan Ahmad, Universiti Malaysia Perlis, Malaysia
AE034 14:50-15:05	Improving the Recognition Rate of Facial Expressions and Behavior through Frontalization and Data Augmentation Authors: Kazuo OHZEKI, Aki Saito SHIOJIRI, Koichi KAMIJO, Masami SUZUKI Presenter: Kazuo OHZEKI, International Professional University of Technology in Tokyo, Japan
AE207 15:05-15:20	MRI Information-based Correction and Restoration of Photoacoustic Tomography: Review Authors: Vaibhav Nagrale, Laxmi Kumre, Vijayshri Chaurasia and Madhu Shandilya Presenter: Laxmi Kumre, Maulana Azad National Institute of Technology, Bhopal, India
AE095 15:20-15:35	A Cross-domain Vision Transformer Based Framework for Baggage Threat Classification Authors: Ammara Nasim, Zawar Khan, Taimur Hassan, Soyiba Jawed, Muhammad Usman Akram and Jahan Zeb Presenter: Ammara Nasim, National University of Sciences and Technology, Pakistan
AE209 15:35-15:50	Nucleion Segmentation for Breast Cancer Classification Authors: Vijayshri Chaurasia, Mamta Patankar, Madhu Shandilya, Vivek Patel, Ebtsam Ahmad Siddiqui and Laxmi Kumre Presenter: Vijayshri Chaurasia, Maulana Azad National Institute of Technology, Bhopal, India
AE086 15:50-16:05	A Search Operation Unmanned Aerial Vehicle using YOLO v5 with Real-time Human Detection and Counting Authors: Charmaine Paglinawan, Alden Evangelista and Jewel Kate Lagman Presenter: Charmaine Paglinawan, Mapua University, Philippines

Onsite Session 4 - Machine Learning and Data Computing **Session Chair: Prof. Kiran Khatter, BML Munjal University, India** **March 15, 2024 | 13:20-16:20** **Meeting Room: ROOM 5**	
AE075-A 13:20-13:35	Fake News Detection Based on the Integration of Deep Learning and Linguistic Probabilistic Models Authors: Chihli Hung, Min-Qi Lin Presenter: Chihli Hung, Chung Yuan Christian University, Taiwan
AE004 13:35-13:50	Reputation-Based Federated Learning Defense to Mitigate Threats in EEG Signal Classification Authors: Zhibo Zhang, Pengfei Li, Ahmed Y. Al Hammadi, Fusen Guo,

	Ernesto Damiani, Chan Yeob Yeun Presenter: Pengfei Li, Khalifa University, United Arab Emirates
AE189 13:50-14:05	A Comparative Study of Gaussian Process Machine Learning and Time Series Analysis Techniques: An Application to Prediction of Unemployment Rate Authors: Muhammad Naeim Mohd Aris, Shalini Nagaratnam, Nurul Nnadiah Zakaria, Muhammad Fadhirul Anuar Mohd Azami, Muhammad Afiq Ikram Samsudin and Ernee Sazlinayati Othman Presenter: Shalini Nagaratnam, Monash University Malaysia, Malaysia
AE193 14:05-14:20	Job-Profile Matching with CTN and MADRL with GEABB: A Recommender System Authors: Jyotheesh Gaddam, Jan Carlo Barca, Thanh Thi Nguyen and Maia Angelova Presenter: Jyotheesh Gaddam, Deakin University, Australia
AE071 14:20-14:35	Investigating the Predictive Performance of Gaussian Process Machine Learning in Time Series Demographic Data Handling Authors: Shalini Nagaratnam, Muhammad Naeim Mohd Aris and Nuralea Natasya Amir Hamdan Presenter: Shalini Nagaratnam, Monash University, Malaysia
AE020 14:35-14:50	Early Detection of Depression Using Machine Learning and Social Well-being Survey Data Authors: Alex Wang, Binh Nguyen, Tom Elliott, James Mbinta, Andrew Sporle and Colin Simpson Presenter: Alex Wang, Victoria University of Wellington, New Zealand
AE055 14:50-15:05	Normal Contact Force Estimation Using Deep Learning Authors: Marc Favier, Xinxin Liao, Paolo Germano, Yves Perriard Presenter: Marc Favier, EPFL, Switzerland
AE192-A 15:05-15:20	Sustainability and Latency Reduction Through Federated Learning-Powered Digital Twins in IoT Devices Authors: Qazwan Abdullah, Nor Shahida Mohd Shah, Adeb Salh, Mubarak Ahmed Abdulwali Ahmed, Ömer Aydoğdu, Ghasan Ali Hussain Presenter: Qazwan Abdullah, Universiti Tun Hussein Onn Malaysia, Johor, Malaysia
AE031 15:20-15:35	A Reinforcement Adversarial Framework Targeting Endogenous Functional Safety in ICS: Applied to Tennessee Eastman Process Authors: Xinyi Wu, Yulong Ding and Shuang-Hua Yang Presenter: Xinyi Wu, Southern University of Science and Technology, China
AE236 15:35-15:50	Federated Learning Based VI Trajectory Generalization Across Smart Meter Edge Clients Authors: Weiwei Zhou, Renyou Xie, Chaojie Li and Zhaoyang Dong Presenter: Weiwei Zhou, The University of New South Wales, Australia
AE229 15:50-16:05	Application of Improved HSV Color Model for Early Gingivitis Detection using Image Processing and Machine Learning Authors: Jonalyn Ebron, John Rieven Adante, Elijah Raphael Garcia, Miguel

	Christian Marasigan and Paticia Ysobelle Tiongco Presenter: Jonalyn Ebron, Mapua Malayan Colleges Laguna, Philippines
AE305-A 16:05-16:20	AR System for Assisting Occupational Safety Management at Construction Sites Authors: Kun-Chi Wang, Hsiang-Hao Yu, Wei-Hsiang Hung Presenter: Hsiang-Hao Yu, Chaoyang University of Technology, Taiwan

Onsite Session 5 - Computer Models and Application Technologies **Session Chair: Dr. Ivan Kuric, University of Žilina, Slovakia** **March 15, 2024 | 16:30-19:00** **Meeting Room: ROOM 1&2**	
AE316 16:30-16:45	Gesture Recognition applied to Extended Reality: A Case Study of Online Meeting Authors: Yi-Jing Chen,Huai-Sheng Huang Presenter: Huai-Sheng Huang, Graduate Institute of Information Management, National Taipei University, Taiwan
AE026 16:45-17:00	Efficient Path Planning for Complex Post-Disaster Environments with Terrain Variations and Obstacles Authors: Yao Xue, Tan Chee Keong, Wai Peng Wong Presenter: Yao Xue, Monash University Malaysia, Malaysia
AE033 17:00-17:15	Ethical Judgment using Large Language Model Authors: Tomomi Hashimoto Presenter: Tomomi Hashimoto, Saitama Institute of Technology, Japan
AE232 17:15-17:30	Generating Interaction Behavior During a Dyadic Conversation Using a Diffusion Model Authors: Yuya Okadome and Yutaka Nakamura Presenter: Yuya Okadome, Tokyo University of Science, Japan
AE205 17:30-17:45	Modeling Life Insurance Business Growth in Thailand using SARIMAX and Multilayer Perceptron Authors: Wikanda Phaphan, Anuchit Jitpattanakul, Supika Huadsri, Kamon Budsaba, Wiyada Phapan, and Sakorn Mekruksavanich Presenter: Wikanda Phaphan, King Mongkut's University of Technology North Bangkok, Thailand
AE047 17:45-18:00	Representation Extraction Using Hyperbolic Knowledge Distilled Framework -An Industrial Application on High Risk Environment Authors: Vijeth Kumar, Malathi Murugesan and Giacomo Veneri Presenter: Malathi Murugesan, BakerHughes, India
AE217 18:00-18:15	Survey on the Integration and Optimization of Large Language Models in Edge Computing Environments Authors: Sarthak Bhardwaj, Pardeep Singh and Mohammad Khalid Pandit Presenter: Pardeep Singh, National Institute of Technology, India

AE307-A 18:15-18:30	BIM and VR-based Fire Evacuation and Management System Authors: Hsiang-En Hsien, Kun-Chi Wang, Wei-Hsiang Hung, Ren-Jie Gao Presenter: Wei-Hsiang Hung, Chaoyang University of Technology, Taiwan
AE204 18:30-18:45	Bird-Repelling Device for Agricultural Application Using Motion Detection Authors: Maribelle Pabiania, Chris Julian Alcedo, Henry Morales and Juan Miguel Binamira Presenter: Maribelle Pabiania, Mapua Malayan Colleges Laguna, Philippines
AE302 18:45-19:00	Using the Computer Simulation in the Analysis of Flow Velocity and Temperature Profile during Thermal Sterilizations Authors: Ghani Albaali, Yasmeen Taha Yaseen Presenter: Ghani Albaali, Al-Rasheed University College, Iraq

Onsite Session 6 - Data Centric Information Systems and Management **Session Chair: Lect. Shalini Nagaratnam, Monash University, Malaysia** **March 15, 2024 | 16:30-18:45** **Meeting Room: ROOM 3**	
AE021 16:30-16:45	Enhancing Data Governance through Data-Centric AI: Case Study in New Zealand Government Sector Authors: Alex Wang, Colin Simpson and Binh Nguyen Presenter: Alex Wang, Victoria University of Wellington, New Zealand
AE228-A 16:45-17:00	Modeling Driver Steering Intentions in Driver–Vehicle Shared Control Systems Using Data-Driven Methods Authors: Zheng Wang, Feixiang Xu and Edric Nacpil Presenter: Zheng Wang, The University of Tokyo, Japan
AE027 17:00-17:15	A Decision Support System for Customer Behavior Analysis through Social Media Data Mining Authors: Zahra Sarmast Hasan Kiadeh, Ethan Nikookar, Sajjad Shokouhyar and Kayvan Aminbeidokhti Presenter: Sajjad Shokouhyar, Australian Institute of Business, Department of Supply Chain and Operations Management, Australia
AE093 17:15-17:30	Implementation of a Single Cycle Datapath for the Design of a Low-process Control using XCS3500E Authors: Jose Lazaro, Maribelle Pabiania, Cedric Lawrenze Bayonito and Adrian Kuk Chong Park Presenter: Jose Lazaro, Mapua Institute of Technology at Laguna, Philippines
AE139 17:30-17:45	A Review on Adaptive Hierarchical Data Dissemination Method in Mobile Wireless Sensor Network Authors: Rakhi Rakhi and Teek Parval Sharma Presenter: Teek Parval Sharma, National Institute of Technology Hamirpur, HP, India

AE130 17:45-18:00	Design and Implementation of a 32-bit Datapath for a Reduced Instruction Set Computers (RISC) using the DE0-nano FPGA Authors: Jose Lazaro, Maribelle Pabiania, Lewmorc James Bitangcor and John Carlo De Torres Presenter: Jose Lazaro, Mapua Institute of Technology at Laguna, Philippines
AE186-A 18:00-18:15	Unveiling Patterns in Financial Data through Time-Series Forecasting and Portfolio Optimization Authors: Harshita Nauhwar, Twisha Khurana, Aishwarya Perukari, Devanjali Relan and Kiran Khatter Presenters: Kiran Khatter & Harshita Nauhwar & Twisha Khurana & Aishwarya Perukari, BML Munjal University, India
AE090 18:15-18:30	Integration of Lithium Based Catalyst in Carbon Monoxide to Breathable Air Converter with Data Monitoring and Notification System for Automobile Authors: Analyn Yumang, Mark Anthony Cabatac, John Kevin Pitao, John Victor Valin and Charmaine Paglinawan Presenter: Charmaine Paglinawan, Mapua University, Philippines
AE1002 18:30-18:45	Estimating and Forecasting the Carbon Content in the Products Carburised in a Gas Carburising Furnace Using a Self-Exploratory Hybrid Deep Learning Framework Authors: Atish Bagchi, Siva Chandrasekaran Presenter: Atish Bagchi, Swinburne University of Technology, Hawthorn Campus, Australia

Onsite Session 7 - Computer Vision and Image Processing **Session Chair: Sr. Lect. Andres Hernandez-Gutierrez, Universidad de Monterrey, Mexico** **March 15, 2024 | 16:30-18:30** **Meeting Room: ROOM 4**	
AE114 16:30-16:45	An Universal Framework for Pavement Crack Detection Authors: Senyun Kuang, Peilin Guo and Yintao Wei Presenter: Senyun Kuang, Tsinghua University, China
AE080 16:45-17:00	Invasive Assessment of Mangifera indica L. Fruit Sweetness Using Computer Vision Authors: Analyn Yumang, Luvelin Anne Francia and Ryan Jowell Romero Presenter: Analyn Yumang, Mapua University, Philippines
AE050 17:00-17:15	Satellite Composite Image based Approach for Flood Forecasting Using a Conditional Latent Model Authors: Amina Habiboullah and Mohamed El Ghassem Presenter: Amina Habiboullah, InsightEx, Mauritania
AE112 17:15-17:30	Numba-based Non-local Means Filter for SAR Image Denoising Authors: G Devendhar, Pratibha Singh and Rakesh Sharma Presenter: Rakesh Sharma, National Institute of Technology, India

AE126 17:30-17:45	Dual-Attention Mechanism for Monocular Depth Estimation Authors: Chui-Hong Chiu, Yu-Chen Lin and Ming-Ku Hung Presenter: Chui-Hong Chiu, Feng Chia University, Taiwan
AE118 17:45-18:00	ChatSTL: A Framework of Translation from Natural Language to Signal Temporal Logic Specifications for Autonomous Vehicle Navigation out of Blocked Scenarios Authors: Yujin Wang, Zhaoyan Huang, Shiying Dong, Hongqing Chu, Xiang Yin and Bingzhao Gao Presenter: Yujin Wang, Tongji University, China
AE211 18:00-18:15	Improvement of Tracking Accuracy using Travel Pattern for Agent-based Human Tracking Authors: Kozo Tangiawa, Masaru Shiozuka and Kenichi Takahashi Presenter: Kozo Tanigawa, Mitsubishi Electric Software Corporation, Japan
AE334 18:15-18:30	An attempt to Create a Pet Model by Combining 3D Reconstruction and Fur Estimation Authors: Daiki Fukushima, Tomokazu Ishikawa Presenter: Taiyo Taguchi, Toyo university, Japan

Onsite Session 8 - Future Communication Technology and Development **Session Chair: Prof. Mehmet Karaata, Kuwait University, Kuwait** **March 15, 2024 | 16:30-19:00** **Meeting Room: ROOM 5**	
AE054 16:30-16:45	An optimal UAV and UGV Cooperative Network Navigation Algorithm for Bushfire Surveillance and Disaster Relief* Authors: Jingwen Wei and Zixuan Fang Presenter: Jingwen Wei, University of New South Wales, Australia
AE132-A 16:45-17:00	Experiment for Space Mechanical Control System by Micro/Nano Satellites Authors: Masahiro Nohmi Presenter: Masahiro Nohmi, Shizuoka University, Japan
AE110 17:00-17:15	Sub-carrier-User Allocation of Down-link MC-NOMA System with Three Users Authors: Pawan Gupta and Ashok Kumar Presenter: Ashok Kumar, National Institute of Technology Hamirpur H.P., India
AE202 17:15-17:30	A Combined Leading Ensemble Decision Classifier Module (CLEDCM) for Intrusion Detection in IoT Authors: Pankaj Savita, Sanjay Agrawal Presenter: Sanjay Agrawal, NITTTR Bhopal, India
AE154 17:30-17:45	Safety Requirements of Distributed Broadcast (Extended Abstract) Authors: Aisha Dabees and Mehmet Karaata Presenter: Mehmet Karaata, Kuwait University, Kuwait

AE052 17:45-18:00	Optimized Coverage Deployment Strategy for a Network of UAVs Monitoring a Disaster Area on an Uneven Terrain Authors: Zixuan Fang Presenter: Zixuan Fang, University of New South Wales, Australia
AE091 18:00-18:15	Performance Evaluation of ED based Spectrum Sensing over $\alpha - \eta - F$ Fading Channel Authors: Rahul Kumar and Surender Kumar Soni Presenter: Surender Kumar Soni, National Institute of Technology Hamirpur, India
AE007 18:15-18:30	Energy-Aware 3D Navigation of a Solar-powered UAV in an Urban Environment Authors: Siyuan Li, Jingwen Wei Presenter: Siyuan Li, University of New South Wales, Australia
AE314 18:30-18:45	Impact of CG visual presentation using XR on taste Authors: Taiyo Taguchi, Tomokazu Ishikawa Presenter: Taiyo Taguchi, Toyo University Daiki Fukushima, Jpan
AE170 18:45-19:00	Referring Expression Comprehension with Multi-Cross Decoder Authors: Zhou Ziyi Presenter: Zhou Ziyi, University of Electronic Science and Technology of China, China

Onsite Session 9 - Modern Control Theory and Systems **Session Chair: Dr. Cui Wei, Nanjing Tech University, China** **March 16, 2024 | 9:20-11:20** **Meeting Room: ROOM 3**	
AE104 9:20-9:35	A Systematic Literature Review of Trust-Aware Shared Control for Human-Robot Collaboration in Construction Authors: Hao Chen, Isabelle Y.S. Chan Presenter: Hao Chen, University of Hong Kong, Hong Kong
AE171 9:35-9:50	Hierarchical Tracking Control for a Composite Mobile Robot Considering System Uncertainties Authors: Yiming Yan, Fusen Guo, Huadong Mo and Xueting Huang Presenter: Yiming Yan, Southeast University, China
AE197 9:50-10:05	Vehicle Formation Control Based on Generalized Udwadia-Kalaba Equation Authors: Zhengyi Li, Cui Wei, Hongli Fan and Ye-Hwa Chen Presenter: Cui Wei, Nanjing Tech University, China
AE144-A 10:05-10:20	Integrating Evolutionary Algorithms and Optimal Control Theory to Improve Spot Control in Electro-Magnetic Resistance Sintering Authors: Haetham Ghanim Abdulgalill Mohammed, Abd Al-Salam Al-Masgari and Hk Al-Jothery Presenter: Haetham Ghanim Abdulgalill Mohammed, Universiti Teknologi PETRONAS, Malaysia

AE199 10:20-10:35	Adaptive Robust Control of Fleet System Under External Disturbances Authors: Hongli Fan, Cui Wei, Zhengyi Li and Ye-Hwa Chen Presenter: Cui Wei, Nanjing Tech University, China
AE101 10:35-10:50	Utilizing Multiple UAVs for Covert Aerial Monitoring of a Mobile Target through Decentralized Priority-Based Trajectory Planning Author: Talal Almuzaini Presenter: Talal Almuzaini, The University of New South Wales (UNSW Sydney), Australia
AE213 10:50-11:05	Trajectory Tracking for Tracked Mobile Robot via Zero-Bias Fuzzy Neural Network Authors: Gan Chen and Yuki Yoshida Presenter: Gan Chen, Nanzan University, Japan
AE231 11:05-11:20	Workspace-Based Mobile Robot Localization by Landmark Configuration Using Robot Operating System and Choreonoid Authors: Ravindu Sankha Wijayawardhana Ranepura Hewage and Keitaro Naruse Presenter: Ravindu Sankha Wijayawardhana Ranepura Hewage, University of Aizu, Japan

Onsite Session 10 - Intelligent Application Program Design and Development **Session Chair: Assoc. Prof. Ryuya Uda, Tokyo University of Technology, Japan** **March 16, 2024 | 9:20-11:20** **Meeting Room: ROOM 4**	
AE088 9:20-9:35	Do Males and Females Use Separate System Architectures in Multimodal Information Processing? Author: Manolya Kavakli Presenter: Manolya Kavakli, Aston University, United Kingdom
AE121 9:35-9:50	Design of a CNN based Autonomous Sitting Posture Recognition System Authors: Yash Gupta, Yogesh Goyal, Siddharth Chauhan and Madhav Rao Presenter: Yogesh Goyal, IIIT Bangalore, India
AE074 9:50-10:05	A Distributed, Self-powered Soil Monitoring Network for Smart Agriculture Authors: Jianzhi Yang, Yichen Luo, Yixuan Hou, Zihang Wu, Jianxing Li, Yanxue Guo, Yifei Hu, Haotao You, Xiaohui Zhu and Yong Yue Presenter: Xiaohui Zhu, Xi'an Jiaotong-Liverpool University, China
AE328 10:05-10:20	L-System on a Toroidal Topology: Crafting Refined Closed-Loop Mazes Authors: Jeyaprakash CHELLADURAI, BRILYND B Madeya, KAITLIN DIAZ Presenter: Jeyaprakash Chelladurai, East Stroudsburg University of Pennslyvania, USA
AE240 10:20-10:35	Investigation of the Latest Malware Detection Engines and Lightweight Byte n-gram Methods with Real Custom Malware

	Authors: Ryuya Uda and Shinnosuke Araki Presenter: Ryuya Uda, Tokyo University of Technology, Japan
AE215 10:35-10:50	Emergency Safety Vest (E-SaVe) for Women With Mobile Application Authors: Kristine Joyce Ortiz, Sophia Cura, Shiela Abigale Partoza and Mark Gibrian Poticano Presenter: Kristine Joyce Ortiz, Mapua Malayan Colleges Laguna, Philippines
AE102 10:50-11:05	Session Based Recommender System: A Generative Approach Authors: Rishoban Yokanathan and Gihan Seneviratne Presenter: Rishoban Yokanathan, University of Colombo, Sri Lanka
AE124 11:05-11:20	Metaverse Ecosystem Realization for its Application Development Authors: Razib Hayat Khan, Jonayet Miah, M M Mahbubul Syeed, Faisal Uddin Presenter: Razib Hayat Khan, Independent University, Bangladesh (IUB)

POSTER SESSIONS

Poster Session 1 - Intelligent Application Program Design and Control System Session Chair: Prof. Sanjay Agrawal, NITTTR Bhopal, India March 15, 2024 | 14:00-15:00 Meeting Room: Hallways of ROOM 1&2	
AE022	Possibilities of Using Deep Convolutional Neural Network and Autoencoder Neural Network for Predictive Maintenance Tasks Authors: Ivan Zajačko, Daria Fedorova, Vladimír Tlach, Ivan Kuric and Peter Forgáč Presenter: Ivan Zajačko, University of Žilina, Slovakia
AE111	Developing Automated System with Motion Sensor for Electrical Charged Equipment using Arduino Uno Authors: Flordeliza Valiente, Patricia Arianne Barnuevo and Paul Andrew Orani Presenter: Flordeliza Valiente, Mapua University, Philippines
AE181	Position and Trajectory Control of a Quadcopter using Optimization Algorithm Authors: Sanjay Kumar and Lillie Dewan Presenter: Sanjay Kumar, National Institute of Technology Kurukshetra, India
AE053	Mobile Application for IoT-Based Smart Home System for Appliance Control and Fire Alert Authors: Charmaine Paglinawan, Ramius Andrei Bagunu and Syd Castillo Presenter: Charmaine Paglinawan, Mapua University, Philippines
AE019	Decentralized Trajectory Planning for Covert Video Surveillance of a Ground-Moving Target Using Multiple UAVs Author: Talal Almuzaini Presenter: Talal Almuzaini, The University of New South Wales (UNSW Sydney), Australia
AE057	Real-Time Surgical Tool Classification and Characterization with Surface-EMG Signals Authors: Chinmay Sultania, Divyansh Singhal, Siddharth Chauhan, Madhav Rao and Vikas Vazhiyal Presenter: Chinmay Sultania, International Institute of Information Technology, Bangalore, India
AE113	Application of Cloud-based Monitoring and Feeding System for Smart Aquaculture Farming Authors: Flordeliza Valiente, Ernesto Vergara Jr, Neal Bryant Morilla and Alexandra Ashly Olsem Presenter: Flordeliza Valiente, Mapua University, Philippines

AE117	Research and Implementation of Drug Relocation Algorithm Based on Deep Learning Authors: Ren Tao, Li Yueqi, Wang Yuqing, Zhang Haodong, Xiao Jiacheng, Huang Yuxuan, Lu Chen and Guan Xiangxin Presenter: Ren Tao, Northeastern University, China

Poster Session 2 - Intelligent Image Analysis and Virtual Technology Session Chair: Asst. Prof. D.S.V. Bandara, Kyushu University, Japan March 15, 2024 | 16:30-17:30 Meeting Room: Hallways of ROOM 1&2	
AE196	Android-Based Smart Stick Using Radar With Haptic Feedback For The Visually Impaired Authors: Sean Bradley Galapia, Arnold Paglinawan and Charmaine Paglinawan Presenter: Arnold Paglinawan, Mapua University, Philippines
AE151	Defect, Size, Maturity, and Quality Detection on Ladies' Finger, Bitter Gourd, and Cucumber Using Image Processing and MobileNetV2 Authors: Flordeliza L. Valiente, Leonardo Valiente, Jr., Mark Olsen B. Lozano and Stephanie E. Ricasio Presenter: Flordeliza Valiente, Mapua University, Philippines
AE312-A	Detection of VR Sickness Using Skin Potentiometry Authors: Daiki Morimoto, Hiroshi Okumura, Osamu Fukuda, Nobuhiko Yamaguchi, Yeoh Wen Liang, Tatsuya Haruguchi Presenter: Daiki Morimoto, Saga University, Japan
AE046	Braille on Mouse - Enhancing Accessibility of Digital Education for Visually Challenged Authors: Divyansh Singhal, Chinmay Sultania, Anshul Madurwar, Mayank Kabra and Madhav Rao Presenter: Divyansh Singhal, International Institute of Information Technology, Bangalore, India
AE313-A	Prototype Implementation of a Training System for Ensemble Performance Techniques Using VR Authors: Tatsuya Haruguchi, Hiroshi Okumura, Osamu Fukuda, Nobuhiko Yamaguchi, Yeoh Wen Liang, Daiki Morimoto Presenters: Tatsuya Haruguchi & Hiroshi Okumura, Saga University, Japan
AE150	Detecting Alcohol-Induced Drowsiness in Four Wheeled Vehicles: An Eye Tracking and MQ3 Sensor based Approach with Arduino Uno and Raspberry Pi, Integrated with SMS Notification System and GPS Authors: Flordeliza L. Valiente, Leonardo Valiente, Jr., Ernesto M. Vergara, Jr. Earl Levi P. Parel and Gerzon Jil Y. Miranda Presenter: Flordeliza Valiente, Mapua University, Philippines

AE157	ML powered E-Nose for Liquid Food Classification Authors: Yash Gupta, Kushal Partani and Madhav Rao Presenter: Yash Gupta, IIIT Bangalore, India

ONLINE SESSIONS

Online Session 1 - Digital Image Processing and Methods Session Chair: Dr. Keshi He, Boston College, United States March 16, 2024 | 13:30-16:15 (UTC+11 AEDT) ZOOM ID: 864 8544 4721	
AE018 13:30-13:45	Evaluation of Classification of Brain Tumors Using Convolutional Neural Network Algorithm Authors: Andrew Chian, Logan Coons, Adam Ramos, Kaya Richardson, Kamaluddeen Usman Danyaro, Bimal Nepal, Mujaheed Abdullahi and Hashir Sohrab Presenter: Bimal Nepal, Texas A&M University, United States
AE039 13:45-14:00	Muscle Movement Tracking from Ultrasound Image Sequences with Optical Flow Author: Keshi He Presenter: Keshi He, Boston College, United States
AE148 14:00-14:15	Accelerating the Deep Learning based Brachial Plexus Nerve Trunks Recognition in Ultrasound Images using Edge Computing Authors: Maleesha Sudara, Nisansala Madhushani, Udara De Silva, Hasara Malavipathirana and Achintha Kondarage Presenter: Achintha Kondarage, University of Ruhuna, Sri Lanka
AE030 14:15-14:30	Online Finger Motion Recognition with Ultrasound Image of the Forearm Authors: Keshi He Presenter: Keshi He, Boston College, United States
AE191 14:30-14:45	Medicine Authentication Based on Image Processing Using Convolutional Neural Networks Authors: Rodolfo Ruperto T. Ramos III, Kevin Rayne B. Samonte, Cyrel O. Manlises Presenter: Rodolfo Ruperto T. Ramos III, Mapúa University, Philippines
AE238 14:45-15:00	Toward the Confidential Data Location in Spatial Domain Images via a Genetic-based Pooling in a Convolutional Neural Network Authors: Ntivuguruzwa Jean De La Croix, Muhammad Aidiel Rachman Putra and Tohari Ahmad Presenter: Ntivuguruzwa Jean De La Croix, Sepuluh Nopember Institute of Technology, Indonesia
AE324 15:00-15:15	Augmented Reality Visualization of Menu Items using Image Reconstruction Authors: Yashwith D Alva,Namrata Shrikant Janawade,Avani Jain,V Nimish Bhasu,Sarasvathi V Presenter: Yashwith D Alva, PES University,Bengaluru, India
AE076 15:15-15:30	Melon Ripeness Determination using K-nearest Neighbor Algorithm Authors: Homer John M. Samar, Hernanny Jeremy J. Manalang; Jocelyn F. Villaverde Presenter: Homer John M. Samar, Mapua University, Philippines

AE082 15:30-15:45	Sarid: Arabic Storyteller Using a Fine-Tuned LLM and Text-to-Image Generation Authors: Maria Alabdulrahman, Renad Khayyat, Kawthar Almowallad and Zahra Alharz Presenter: Maria Alabdulrahman, Prince Mohammad Bin Fahd University, Saudi Arabia
AE115 15:45-16:00	Distributed Key Architecture (DKA) for Blockchain Wallets Authors: Tuan Kiet Tran Ngo, Thu Nguyen, Khoa Vo Tan, Tu Anh Nguyen Hoang, Tri Nguyen and Ngoc Thanh Dinh Presenter: Tuan Kiet Tran Ngo, University of Information Technology, Vietnam
AE051 16:00-16:15	Neurological Disorder Rooted-Impaired Handwriting to Text Using Neural Network Image Processing for Special Education Applications Authors: Mark William Regala, Christian Josefh Sebastian and Charmaine Paglinawan Presenter: Mark William Regala, Mapua University, Philippines

Online Session 2 - Modern Information Theory and Computer Applications

Session Chair: Assoc. Prof. Herminiño Lagunzad, National University - Fairview, Philippines

March 16, 2024 | 13:30-16:30 (UTC+11 AEDT)

ZOOM ID: 873 2513 3488

AE060 13:30-13:45	A Comparative Efficiency Simulation of Package Sorting Systems using Factory IO Authors: Samuel Nwankwo, Yared Abraha, Evan Fadanelli and Nathir Rawashdeh Presenter: Samuel Nwankwo, Michigan Technological University, United States
AE058 13:45-14:00	Robotic-vision Material Handling System with a Centralized Programmable Logic Controller and Human Machine Interface Authors: Ujwal Goulikar, Srija Gummadi, Karthik Rao Racharla, Anjani Deeksha Muddasani and Nathir Rawashdeh Presenter: Ujwal Goulikar, Michigan Technological University, United States
AE103 14:00-14:15	Improving Radar-Camera Fusion Network for Distance Estimation Authors: Samuktha V., Hershitha Shukla, Nitish Kumar, Tejasri N., Santhosh Reddy D. and Rajalakshmi P. Presenter: Santhosh Reddy D, Indian Institute of Technology Hyderabad, India
AE122 14:15-14:30	Economical High-Speed Inspection Line for Tin-capped Glass Vials Authors: Chanakya Nanduri, Prarthana Hegde, Amey Hukkeri, Tanmay Deshpande and Nathir Rawashdeh

	Presenter: Chanakya Nanduri, Michigan Technological University, United States
AE035 14:30-14:45	Short-Term Load Demand Forecasting Using Multinomial Naive Bayes with Support Vector Machine Authors: Jan Franchezka Dansalan, Jedidia Diaz and Conrado Ostia Jr. Presenter: Jedidia Diaz, Mapua University, Philippines
AE172 14:45-15:00	Hierarchical Federated Learning for Predicting Water Levels: A Case Study in Thailand Authors: Kundjanasith Thonglek and Arnan Maipradit Presenter: Kundjanasith Thonglek , Osaka University, Japan
AE182 15:00-15:15	Tracking and Blocking Adware using DNS Sinkholing Algorithm Authors: Hermininño Lagunzad and Mikee Gonzaga Presenter: Hermininño Lagunzad, National University - Fairview, Philippines
AE032 15:15-15:30	Ensemble Deep Learning Classification Method Based on Generative Adversarial Networks Authors: Haoyuan Shen, Chenglong Lin, Yizhong Ma, En Xie Presenter: Haoyuan Shen, Nanjing University of Science and Technology, China
AE179 15:30-15:45	An ultra-fast MMC-HVDC Fault location algorithm based on transient voltage features and regression neural network Authors: Yunqi Zhang and Yue Yu Presenter: Yunqi Zhang, China Electric Power Research Institute, China
AE167 15:45-16:00	Long Term Load Forecasting for Luzon, Philippines using Optimized Hybrid Machine Learning Algorithm Authors: Deiscart D'Mitrio Maceda, Andrew Bitancor and Roel Calano Presenter: Deiscart D'Mitrio Maceda, Technological Institute of the Philippines-Manila, Philippines
AE174 16:00-16:15	ERSA-Net: Encoder Networks based on Residuals and Self-Attention for Accelerating MRI Reconstruction Authors: Jin Zheng, Hao Zou, Huaqiao Qiu, Ziyi Zhou, Xiaoran Li, Xiaofeng Fu and Ying Zhu Presenter: Jin Zheng, University of Electronic Science and Technology of China, China
AE212 16:15-16:30	Optimization and Evaluation Methods for Automation of E-Commerce Logistics Networks Authors: Jun He, Lingxiao Xu, Bo Li Presenter: Jun He, Communication University of China, China

Online Session 3 - Visual based Intelligent Autonomous System and Application Development Session Chair: Assoc. Prof. Tomasz Hachaj, AGH University of Krakow, Poland March 16, 2024 | 16:30-19:30 (UTC+11 AEDT) ZOOM ID: 864 8544 4721	
AE143 16:30-16:45	Vision-based Control of UAV for Autonomous Firefighting Authors: Ankit Mehra, Amit Shukla, Darshankumar Prajapati, Pushkar Kumar, Ashish Rana and Tushar Patil Presenter: Ankit Mehra, Indian Institute of Technology Mandi, India
AE067 16:45-17:00	Solar-Powered Soil Moisture Detection and Monitoring using Capacitive Sensor Probe and Calibrated by Gravimetric Method Authors: Aisel Louie Agulto, Jericho Casanares, Michael Pacis Presenter: Aisel Louie G. Agulto, Jericho B. Casañares, Mapua University, Philippines
AE100 17:00-17:15	Robust Obstacle Detection and Collision Warning for Autonomous Vehicles Using Autoware Universe Authors: Santhosh Reddy D, Kaipa Sri Charan, Sai Kumar Kayam and Prof. Rajalakshmi P Presenter: Santhosh Reddy D, Indian Institute of Technology Hyderabad, India
AE203 17:15-17:30	A Standing Support Arm Design for Robotic Wheelchairs Using PPO-based RL Strategy Author: Daifeng Wang Presenter: Daifeng Wang, Waseda University, Japan
AE198 17:30-17:45	Arduino Automated Irrigation and Fertigation System with IoT Interface for Tomato Garden Authors: Ace Daniel Atendido, Andrei Kent Osorio and Glenn Magwili Presenter: Ace Daniel Atendido, Mapua University, Philippines
AE135 17:45-18:00	Vision-based Autonomous Tracking of High-Rise Vertical Structure using a Quadcopter Authors: Ayush Gupta, Amit Shukla, Ashok Kumar Sivarathri and Naisarg Pandya Presenter: Ayush Gupta, Indian Institute of Technology Mandi, India
AE164 18:00-18:15	Conditional Generative Adversarial Network for Intrusion Detection System Based on Deep Learning Authors: Zhen Huang and Yong Xiang Presenter: Zhen Huang, Shenyang Institute of Computing Technology, Chinese Academy of Sciences, China
AE077 18:15-18:30	Small Sample Scene Cancer Classification Method Based on Combined Feature Dimensionality Reduction Authors: Shilong Zhang, Feng Qin, Jingli Xu and Jinbo Zhang Presenter: Shilong Zhang, University of Electronic Science and Technology of China, China

AE133 18:30-18:45	A Novel Multivariate Feature Ranking Method for Incomplete Categorical Data Based on Weighted Frequency Authors: Kunmei Li, Xiaoyu Ma, Zheng Bian, Hui Wang, Wei Xu, Xuan Zhang and Zhiwei Wang Presenter: Kunmei Li, Xi'an Electronic Engineering Research Institute, China
AE043 18:45-19:00	An Improved Graph Convolutional Neural Network based on Graph Auto-encoder Authors: Dongqi Wang, Tianqi Du, Zhongwu Liu and Dongming Chen Presenter: Dongqi Wang, Northeastern University, China
AE072 19:00-19:15	Trajectory Prediction in Autonomous Driving Tasks: A survey Authors: Haolin Xing, Wei Liu, Zuotao Ning, Qixi Zhao, Shuai Cheng and Jun Hu Presenter: Haolin Xing, Northeastern University, China
AE159 19:15-19:30	Enhancing Aspect Sentiment Analysis through Local and Global Context Fusion Authors: Hamdan Alshehri and Haitham Assiri Presenter: Hamdan Alshehri, Jazan University, Saudi Arabia

Online Session 4 - Virtual Reality and Augmented Reality **Session Chair: Asst. Prof. Kundjanasith Thonglek, Osaka University, Japan** **March 16, 2024 | 16:45-19:45 (UTC+11 AEDT)** **ZOOM ID: 873 2513 3488**	
AE330 16:45-17:00	Virtual model Of A 5-Storey Educational Institution for the Orientation Of The Construction Process Using Augmented Reality Authors: Joseline Sierra Ccorahua, Pedro Alonso Huertas Cansino, Elian Lisbeth Aycaya Mamani, Luis Hugo Huacasi Vasquez Presenter: Joseline Sierra Ccorahua, Universidad Continental, Peru
AE332 17:00-17:15	HoloGrad – A Holographic Health Information Platform for Patient Education Authors: Hossein Miri,SUY, S, CHAN–BORMEI Presenter: Hossein Miri, CMKL, Thailand
A327-A 17:15-17:30	Applying Serious Games and Machine Learning for Executive Function Training and Screening in Autism Authors: Athmar Nabil Shamhan,Dena A. Al-Thani Presenter: Athmar Shamhan, Hamad bin Khalifa University, Qatar
AE003 17:30-17:45	Deep Learning-Based Face Mask Recognition System with YOLOv8 Authors: Christine Dewi, Danny Manongga, Hendry Hendry and Evangs Mailoa Presenter: Christine Dewi, Satya Wacana Christian University, Indonesia
AE042 17:45-18:00	A community Detection Algorithm for Multi-View Attributed Network Authors: Yuxing He, Dongming Chen, Fei Xie, Mingshuo Nie and Dongqi

	Wang Presenter: Dongming Chen, Northeastern University, China
AE319 18:00-18:15	Investigation into Recording, Replay and Simulation of Interactions in Virtual Reality Authors: Michael Siebenmann;Mathieu Lutfallah;Dominic Jetter;Christian Hirt ;Andreas Kunz Presenter: Mathieu Lutfallah, ETH Zurich, Switzerland
AE311 18:15-18:30	Digital Twin of Rail for Defect Analysis Authors: Waqas Ahmad, Marcel Mutz, Dr Dirk Werth Presenter: Waqas Ahmad, August-Wilhelm Scheer Institut gGmbH, Deutschland
AE320 18:30-18:45	Revisited Threshold Detection in Redirection Techniques Authors: Michael Siebenmann;Mathieu Lutfallah;Dominic Jetter;Christian Hirt ;Andreas Kunz Presenter: Mathieu Lutfallah, ETH Zurich, Switzerland
AE323 18:45-19:00	A Pilot Study of User Preferences of Posture and Display Technologies in Virtual Reality Exercise Games Authors: Yu Fu; Yan Hu Presenter: Yu Fu, Blekinge Institute of Technology, Sweden
AE227 19:00-19:15	Geospatial-temporal Heterogeneity Embedded Graph Neural Network for AERONET AOD Forecasting Authors: Xifeng Kou, Qingshan Xu, Yi Cai Presenter: Xifeng Kou, University of Science and Technology of China, China
AE188 19:15-19:30	Semi-Supervised Framework for Dual Encoder Attention Network: Classification of Retinopathy in Optical Coherence Tomography Images Authors: Huaqiao Qiu, Jin Zheng Presenter: Huaqiao Qiu, Southwest Jiaotong University, China
AE331 19:30-19:45	« So… One reality is not enough? »A conceptual framework of immersive technologies Authors: Ghada EL HAJJAJI, Noureddine BELHSEN, Zohra SEMMA Presenter: El Hajjaji Ghada, The National School of Management of Tangier (ENCGT), Morocco

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