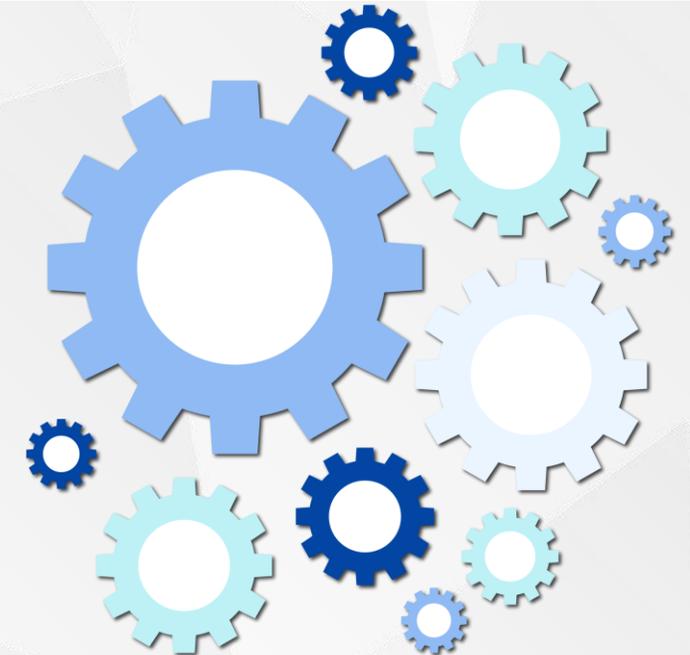


5th International Conference on Artificial Intelligence Applications and Technologies

In conjunction with ICACR 2021

# AIAAT 2021&ICACR 2021 Conference Program

Aug. 06, 2021 | Virtual Conference



Organized & Sponsored by



# CONTENTS

- PART 01 / WELCOME MESSAGE
- PART 02 / CONFERENCE SPEAKERS
- PART 03 / PRESENTATION GUIDE
- PART 04 / PROGRAMME OVERVIEW
- PART 05 / TECHNICAL SESSION
- PART 06 / POSTER SESSION
- PART 07 / CONFERENCE COMMITTEE

# 01 / WELCOME MESSAGE



Dear Participants,

Currently, the entire world is struggling against the virulent pandemic COVID-19. Unfortunately, each of us is affected, either overtly or covertly. Our conference, 5th International Conference on Artificial Intelligence Applications and Technologies (AIAAT 2021), is not an exception.

To actively respond the call of the government, to strengthen the protection work, to effectively reduce people gathering and prevent coronavirus transmission, AIAAT 2021 which should be held in Xi'an, China from Aug. 5 to 7, 2021 as planned, is now changed as on-line conference. Changing the format however shall not affect the desire of the conference. We wish to continue our communication to share our new research ideas, discuss challenges and form collaborations to solve various issues on Artificial Intelligence Applications and Technologies.

We would like to thank our outstanding Speakers: Prof. Dan Zhang from York University, Canada; Prof. Fumin Zhang from Georgia Institute of Technology, USA; Prof. Guimin Chen from Xi'an Jiaotong University, China; Prof. Cheng Siong Chin from Newcastle University in Singapore campus, Singapore, for sharing their deep insights on future challenges and trends.

We would like to thank all the committees for their great support on organizing the conference. We also would like to thank all the reviewers for their great effort on reviewing the papers submitted to AIAAT 2021. Special thanks to all the researchers and students who with their work and participate in the conference.

While we may not see each other face-to-face in Xi'an, we hope the conference can still establish a solid linkage among all the participant as desired. We look forward to your contribution to making AIAAT 2021 a success.

AIAAT 2021 Organizing Committee



**Prof. Dan Zhang**  
(Keynote Speaker)

York University, Canada

**Biography:** Dr. Dan Zhang is a Kaneff Professor and Tier 1 York Research Chair in Advanced Robotics and Mechatronics in the Department of Mechanical Engineering at York University. Dr. Zhang was a Canada Research Chair in Advanced Robotics and Automation, was a founding Chair of the Department of Automotive, Mechanical, and Manufacturing Engineering with the Faculty of Engineering & Applied Science at Ontario Tech University. He received his Ph.D. in Mechanical Engineering from Laval University, Canada, in June 2000.

Dr. Zhang's research interests include robotics and mechatronics; high performance parallel robotic machine development; sustainable/green manufacturing systems; rehabilitation robot and rescue robot.

Dr. Zhang has published 210 journal papers and 180 conference papers, 12 books, 9 book chapters and numerous other technical publications. Dr. Zhang has served as a General Chair for 51 International Conferences and delivered 94 keynote speeches. Dr. Zhang is listed as the World's Top Two Percent Researchers by Stanford's Standardized Citation Indicators in 2020 (published in PLOS BIOLOGY).

Dr. Zhang is a Fellow of the Canadian Academy of Engineering (CAE), a Fellow of the Engineering Institute of Canada (EIC), a Fellow of American Society of Mechanical Engineers (ASME), and a Fellow of Canadian Society for Mechanical Engineering (CSME), a Senior Member of Institute of Electrical and Electronics Engineers (IEEE), and a Senior Member of SME.

# 02 / CONFERENCE SPEAKERS



**Prof. Dan Zhang**  
(Keynote Speaker)

York University, Canada

**Keynote Lecture:** Innovation Design and Applications of Robotic Manipulators in Intelligent Manufacturing System

**Abstract:** Due to the potential high rigidity, high accuracy, and high loading capacities of parallel manipulators, research and development of various parallel mechanism applications in engineering are now being performed more and more actively in every industrial field, and it is considered a key technology of robot applications in industry in the future.

In this talk, the rational of using parallel robots for parallel robotic machines is discussed and explained. A comparative study is carried out on some successful parallel robotic machines and conventional machine tools. Meanwhile, the latest research activities on parallel manipulator and its innovative design in the Laboratory of Advanced Robotics and Mechatronics at York University are introduced, they are: parallelization of serial robots, parallel robotic machines, reconfigurable robotic manipulators, reconfigurable modular moving robots as well as the applications of parallel manipulators in micro-motion device, parallel robot based sensors, exoskeleton, rehabilitation robot and rescue robot.

# 02 / CONFERENCE SPEAKERS



**Prof. Fumin Zhang**  
(Keynote Speaker)

Georgia Institute of Technology, USA

**Biography:** Dr. Fumin ZHANG is Professor in the School of Electrical and Computer Engineering at the Georgia Institute of Technology. He received a PhD degree in 2004 from the University of Maryland (College Park) in Electrical Engineering, and held a postdoctoral position in Princeton University from 2004 to 2007. His research interests include mobile sensor networks, maritime robotics, control systems, and theoretical foundations for cyber-physical systems. He received the NSF CAREER Award in September 2009 and the ONR Young Investigator Program Award in April 2010. He is currently serving as the co-chair for the IEEE RAS Technical Committee on Marine Robotics, associate editors for IEEE Journal of Oceanic Engineering, Robotics and Automation Letters, IEEE Transactions on Automatic Control, and IEEE Transactions on Control of Networked Systems.

# 02 / CONFERENCE SPEAKERS



**Prof. Fumin Zhang**  
(Keynote Speaker)

Georgia Institute of Technology, USA

## **Keynote Lecture:** A Layered Approach for Bio-Inspired Distributed Active Perception

**Abstract:** There is a perceivable trend for robots to serve as networked mobile sensing platforms that are able to collect data in challenging environments with difficulty for localization and communication. The need for undisturbed operation of search and monitoring posts higher goals for sustainable autonomy.

We propose a layered approach to achieve signal propagation over large swarms through active perception. Biological evidence from fish swarms has shown that active perception is used by animals to allow fast response to stimulations when only a few members are stimulated. Active perception based consensus has advantage over averaging consensus, such as reduced communication and faster signal propagation. After transferring this knowledge to the design of robotic swarms, we found that multiple perception layers can be overlaid on top of the feedback control layer to achieve complex swarm behaviors. The findings also lead to effective distributed optimization algorithms that are quite different from the known consensus-based algorithms. One key feature is the capability to handle vanishing and exploding gradients that often arise in machine learning. Our algorithms are rigorously analyzed and verified by experimental effort on mobile and flying robot

# 02 / CONFERENCE SPEAKERS



**Prof. Guimin Chen**  
(Keynote Speaker)

Xi'an Jiaotong University, China

**Biography:** Guimin Chen is currently a Professor of Xi'an Jiaotong University. He serves as an Associate Editor for two international journals, i.e., ASME Journal of Mechanisms and Robotics, and IEEE Transactions on Automation Science and Engineering. He has been elected as a General Member of ASME Mechanisms and Robotics Committee, and a Member of Tri-Co Robots Committee of Chinese Association of Automation. He was a recipient of the ASME Compliant Mechanism Award. His research focuses on compliant mechanisms with large deflections and their applications.

# 02 / CONFERENCE SPEAKERS



**Prof. Guimin Chen**  
(Keynote Speaker)

Xi'an Jiaotong University, China

## **Keynote Lecture:** Compliant Mechanisms: Design Challenges and Applications

**Abstract:** After reviewing recent advances of compliant mechanism research, this talk will discuss the major challenges in designing in compliant mechanisms, and how these challenges can be solved. Then several compliant mechanism designs are provided to demonstrate how compliant mechanisms can be designed to solve engineering problems.

# 02 / CONFERENCE SPEAKERS



**Prof. Cheng Siong Chin**  
(Keynote Speaker)

Newcastle University in Singapore campus, Singapore

**Biography:** Dr Chin received his Ph.D in Applied Control Engineering at Research Robotics Centre in Nanyang Technological University (NTU) in 2008 and M.Sc. (Distinction) in Advanced Control and Systems Engineering from The University of Manchester in 2001. He also graduated with a B.Eng (Hons) in Mechanical and Aerospace Engineering from NTU in 2000. He is currently an Associate Professor (Reader) and Director of Innovation at Newcastle University on the Singapore campus.

He was a Lecturer in Mechatronics Engineering at Temasek Polytechnic. He worked in the consumer electronics industry for more than 4 years before moving into academia. He currently holds 3 U.S. Patents in the area of electronics test systems and components. His research interests include intelligent systems modeling and designing complex systems under uncertain environments such as marine electric vehicles, energy storage systems, and acoustic systems. He is an author/co-author of over 100 peer-reviewed papers on journals and conference proceedings. Dr Chin has obtained 7 research grants from Singapore Maritime Institute (SMI) and Economic Development Board Singapore - Industrial Postgraduate Programme (EDB-IPP) grants in his research areas. He is an elected Vice-Chairman for IEEE Oceanic Engineering Society in Singapore Section, Associate Editor for IEEE Access Journal, IEEE Transportation Electrification Community (TEC) eNewsletter and Electronics. He has served as General Chair, Session Chair, and Technical Committee in various international conferences.

# 02 / CONFERENCE SPEAKERS



**Prof. Cheng Siong Chin**  
(Keynote Speaker)

Newcastle University in Singapore campus, Singapore

## **Keynote Lecture:** Intelligent Realization of Marine Electric Vehicle for Control

**Abstract:** The integration of inaccurate remotely-operated vehicle (ROV) model obtained by computational fluid dynamics for control is presented. Since the ROV is highly nonlinear and uncertain, a sliding-mode control (SMC) system using a direction-based genetic algorithm (GA) and fuzzy inference mechanism is proposed. The GA influences the right evolutionary step and direction of the SMC parameters subjected to uncertainties in the evolutionary process. The effectiveness of reducing the sensitivity of the proposed control scheme to model parameters and external disturbance is verified by simulations and sea trial. The results demonstrate the proposed controller performed better with less chattering in position responses than SMC without GA-Fuzzy optimization, fuzzy logic controller, and proportional integral derivative (PID).



## Oral Presentation

1. File format: MS-PowerPoint (\*.ppt) or Adobe PDF (\*.pdf)
2. Time: About 15mins, including Q/A time. Each presentation should have at least **10 minutes**.
3. Language: English
4. Fonts: Arial or Times New Roman
5. Dress code: Formal clothes
6. Facility: Presenters need to use own laptop, please notify conference secretary via e-mail in advance and test the connection before session start.

## Poster Presentation

1. Poster Size: 1m\*0.8m (height\*width).
2. Language: English.
3. The poster should include: Paper ID, Conference Name's Acronym(AIAAT 2021), Significance of the research, the methods used, the main results obtained, and conclusions drawn.
4. Posters are required to be condensed and attractive.
5. The conference organizer won't send/keep any posters after the conference.

## Note:

1. We'll record the whole conference. If you do mind, please inform us in advance. We'll stop to record when it's your turn to do the presentation.
3. The recording will be used for conference program and paper publication requirements. It cannot be distributed to or shared with anyone else, and it shall not be used for commercial nor illegal purpose.



## Online Conference Software---Tencent Meeting(腾讯会议)

### Download link:

A) Chinese version

<https://meeting.tencent.com/download-mac.html?from=1001&fromSource=1> (Mac OS)

<https://meeting.tencent.com/download-win.html?from=1001&fromSource=1> (Windows)

B) International Version

<https://voovmeeting.com/download/darwin> (Mac OS)

<https://voovmeeting.com/download/windows> (Windows)

### Conference Information:

Conference Room ID: 289 845 077

Conference Link: <https://meeting.tencent.com/s/KCcVRbCrteAV>

### Note:

1. Please rename your name to your paper ID-AIAAT 2021 when you join the online room;
2. Suggest to change your virtual background to conference background.
3. Please wear headphones during the conference.
4. We will call the roll 10 minutes before the session, please join the conference in advance for at least 10-15 minutes.
6. If you have any questions, please hands up or unmute your microphone directly or send you questions to the Chat box.
7. We will take a group photo and announce the best presenter after all the presentations this session.

# 04 / PROGRAMME OVERVIEW



Aug. 06, 2021 Friday | Beijing time, GMT+8 | Room ID: 289 845 077

09:00-09:10		Opening Remark
09:10-09:55	Keynote Lecture 1	<b>Innovation Design and Applications of Robotic Manipulators in Intelligent Manufacturing System</b> Prof. Dan Zhang, York University, Canada
09:55-10:40	Keynote Lecture 2	<b>A Layered Approach for Bio-Inspired Distributed Active Perception</b> Prof. Fumin Zhang, Georgia Institute of Technology, USA
10:40-11:25	Keynote Lecture 3	<b>Compliant Mechanisms: Design Challenges and Applications</b> Prof. Guimin Chen, Xi'an Jiaotong University, China
14:00-14:45	Keynote Lecture 4	<b>Intelligent Realization of Marine Electric Vehicle for Control</b> Prof. Cheng Siong Chin, Newcastle University in Singapore campus, Singapore
14:45-15:45	Technical Session	T001, T011, T013, T302
15:45-16:00	Poster Session	T002, T006, T008, T014, T1003, T1007



## Technical Session

Session Chair: Manik Sharma

14:45-15:45, Aug. 06, Friday | Room ID: 289 845 077

### Workspace Analysis of Spray Painting Robot with Two Working modes for Large Ship Blocks in Ship Manufacturing

*Qingfei Zeng*, Tongji University, China

Abstract: Spray painting is crucial in the process of shipbuilding and runs through the whole process of shipbuilding. In order to obtain the good coating quality during the painting process, gantry type painting robot could be used because of its resource-saving and environment-friendly characteristics. Based on the structural parameters of the spray painting manipulator with 3DOF (Degree of freedom) gantry, the kinematic model of the painting robot system can be established. From the perspective of the two commonly working modes, namely 3P3R robot structure and the 3P6R redundant robot structure, their spraying workspace are analyzed. The result shows that the workspace volume of the 3P6R robot is much larger than that of the 3P3R robot. However, the inverse kinematics solution of 3P3R robot has analytical solution, which makes the control accurate and easy to use, and through the simulation, we can give the theoretical basis for the engineering.

T011

14:45-15:00

### Deep Reinforcement Learning for Stock Recommendation

*Yifei Shen*, Xi'an Jiaotong-Liverpool University, China

Abstract: Recommending stocks is very important for investment companies and investors. However, without enough analysts, no stock selection strategy can capture the dynamics of all S&P 500 stocks. Nevertheless, most existing recommending strategies are based on predictive models to buy and hold stocks with high return potential. But these strategies fail to recommend stocks from different industrial sectors to reduce risks. In this article, we propose a novel solution that recommends a stock portfolio with reinforcement learning from the S&P 500 index. Our basic idea is to construct a stock relation graph (RG) which provide rich relations among stocks and industrial sectors, to generate diversified recommendation result. To this end, we design a new method to explore high-quality stocks from the constructed relation graph with reinforcement learning. Specifically, the reinforcement learning agent jumps from each industrial sector to select stock based on the feedback signals from the market. Finally, we apply portfolio allocation methods (i.e., mean-variance and minimum-variance) to test the validity of the recommendation. The empirical results show that the performance of portfolio allocation based on the selected stocks is better than the long-term strategy on the S&P 500 Index in terms of cumulative returns

T013

15:00-15:15

T302

15:15-15:30

## **An AUV path planner for large-scale search and rescue based on A\* algorithm**

*Chang Cai*, Northwestern Polytechnical University, China

Abstract: For large-scale search and rescue (SAR) tasks that require complete coverage of the workspace, it is important to increase the efficiency and obtained sensor data quality. A novel path planner named SAR-A\* to this problem is introduced, which takes into account the sensor performance and practical prior information. Firstly, the workspace is decomposed into plenty of hexagonal cells which are treated as waypoints for A\* algorithm. Target present probability is then modeled to Gaussian distribution and the performance of the side-scan sonar (SSS) is evaluated. The proposed path planner is validated in a complex terrain scenario which proves that the SAR-A\* path planner can increase confidence in locating the target quickly, and is suitable for the large-scale SAR.

T001

15:30-15:45

## **RainfallNet: A Dual-Source of Spatial-Channel Attention Fusion Network for Precipitation Nowcasting**

*Junhao Huang*, Southeast University, China

Abstract: Accurate rainfall prediction is conducive to human life and disaster prevention. Meanwhile, deep learning methods are confirmed to be helpful to improve the accuracy of weather prediction. A novel data-driven neural network is proposed in this work referred as RainfallNet which introduces fusion module based on both radar echo observations and numerical weather prediction (NWP) data. The architecture of the network includes three elements: (1) dual encoders to extract the spatio-temporal feature of the radar echo images and NWP data respectively, (2) parallel attention mechanism combining channel attention and spatial attention to reveal the contribution of each data source and (3) combined loss function joining structural similarity loss, mean square error and mean absolute error with different weight for each rainfall level to further increase the meteorologically assessment metrics. The experiments on South China dataset demonstrate the effectiveness of our model, achieving superior performance on meteorologically assessment metrics over most existing algorithms.

## Poster Session

Session Chair: Manik Sharma

15:45-16:00, Aug. 06, Friday | Room ID: 289 845 077

### **An Intra-Pulse Modulation Type Recognition Algorithm for Radar Signals Based on the Improved Residual Network**

*Jun Tang*, Anhui University, China

T002

Abstract: For purpose of solve the problem of poor discrimination and robustness of intra-pulse signal features extracted by the traditional methods, this paper proposes a radar signal intra-pulse modulation type recognition algorithm based on the improved residual network. Firstly, one-dimensional time-domain radar signal is converted into two-dimensional time-frequency image by Smoothing Pseudo Wigner-Ville Distribution; Then the time-frequency image is preprocessed; ResNet-50 network is chosen as the framework. In order to retain the feature map information as much as possible, the convolution kernel is increased in the residual module. The cross entropy loss function and the center loss function are used as the loss function to speed up the convergence of the network. The improved residual network is used to realize the intra-pulse modulation type recognition of radar signal. The simulation experiments show that when the SNR is -14dB, the overall average recognition accuracy of the improved algorithm for eight kinds of radar signals (CM, LFM, NLFM, BLFM, BPSK, QPSK, OPSK, LFM+BPSK) can reach 97.29%, which shows the effectiveness.

### **Design of Intelligent Security Management and Control System for a Large Nuclear Facility**

*Fei Wu*, Naval University of Engineering, China

T006

Abstract: There are many kinds of safety control sub-systems of a large nuclear facility, and their information is isolated from each other, so the overall safety control efficiency is low. To solve this problem, based on the original security control sub-system, an intelligent security management and control system is designed by using the technology of system integration and multi-sensor cooperative scheduling. Firstly, the web service interfaces of each security control sub-system are developed, and the interconnection and information sharing of each security control sub-system are realized through these interfaces. Then, based on the multi-sensor system cooperative optimization scheduling technology and the improved ant colony algorithm, the information synthesis and security cooperative optimization scheduling of heterogeneous multi-sensor messages are realized. The highly integrated intelligent security management and control system reduces the alarm omission rate and false alarm rate of the safety

T008

## Design of Fault Diagnosis Algorithm fo Electromechanical System Based on Artificial Intelligence

*Fuyou Zhao*, Harbin Institute of Technology, China

Abstract: A relatively perfect system for the fault diagnosis of mechanical and electrical products has been formed through decades of development. Nevertheless, the traditional fault diagnosis methods fail to cope with the gradual huge mechanical and electrical system. As a result, the advantages of fault diagnosis mode driven by data are increasingly prominent. Meanwhile, the effect of fault diagnosis has exceeded the traditional fault diagnosis methods in many fields. Through the use of the deep learning technology based on artificial intelligence, it carries out mapping and fitting. By fully taking advantages of neural network, it can effectively obtain the accurate classification of fault data. A fault diagnosis method based on the fault data of mechanical and electrical system is designed in this thesis. When it comes to the basic process, it is to take data sets for different mechanical and electrical products. Through the use of feature engineering method, it extracts the fault features of data. Through the use of deep learning technology, it carries out the intelligent diagnosis. According to the experimental results, it indicates that the fault diagnosis method based on deep learning technology can distinguish a variety of fault modes in mechanical and electrical system in an effective way. What's more, good classification results in fault recognition have been achieved by a variety of deep convolutional neural network structures, so the feasibility of the method is further verified.

T014

## The Reform Scheme of Fundamentals of Computer Culture based on Multi-level Blended Teaching

*Jiemin Yang*, Shanghai University of Medicine&Health Sciences, China

Abstract: As a general course for college students, Fundamentals of Computer Culture plays an important role in the training of professional talents. However, there is a large gap in the ability and quality of college students. In order to promote the creative teaching reform of this course and improve the theoretical and skill levels of college students, our college proposed a reform scheme of multi-layer blended teaching to realize an all-round reform of curriculum system, teaching content, teaching arrangement, teaching method and means, teaching assessment, etc. It also gives a detailed introduction to the reform plan and its implementation in the paper, and provides a creative solution for the teaching reform of the Fundamentals of Computer Culture in other universities, which has great practical value.

T1003

## **Research on scheduling problem of manufacturing/remanufacturing hybrid systems**

*Si Huang*, Hefei University of Technology, China

Abstract: Remanufacturing plays a significant effect on saving social resources, developing green economy and reducing enterprise cost. Aiming at a production scheduling problem in manufacturing/remanufacturing hybrid systems we investigated, a multi-objective optimal scheduling model is built. The goals of optimization are to minimize total equipment idle time, total delivery delay and total setup time which are consistent with actual needs of the enterprise. An improved NSGA-II is adopted to increase the population diversity and improve the search performance. The similarity degree  $S$  is employed to evaluate the diversity of population in this paper. Crossover and mutation operations are adjusted adaptively based on  $S$ . This algorithm is applied to an engine manufacturing enterprise compared with the original genetic algorithm. The analysis of experimental results shows that the way in this paper has certain superiority.

T1007

## **Control of Stochastic Nonlinear Switched Systems using Fuzzy Law**

*Hong Yang*, Shenyang University, China

Abstract: The problem about controller design for stochastic nonlinear switched systems with delay is considered. Stochastic switched nonlinear system is a kind of nonlinear system which integrates switching and nonlinear fuzzy characteristics and can fully reflect stochastic factors. First, the mathematical model of stochastic nonlinear switched systems with time delay and disturbance is given. Second, the corresponding controller is designed for the proposed model. Then, we use the multi-Lyapunov method to establish the closed-loop system on the basis of our designed controller, and give the necessary and sufficient conditions for the stability of the system. The switching law is designed to ensure the stability of subsystems activated by switching time. Finally, through the simulation software, we can see that the stability condition we obtained can make the studied system stable.



## **Conference Chairman**

Dan Zhang, York University,

## **Program Committee**

Xiaochuang Xu, Fudan University, China (Chair)

Cheng Siong Chin, Newcastle University in Singapore campus, Singapore

Wilson Q. Wang, Lakehead University, Canada

## **Advisory Committee**

Dharmendra Sharma, University of Canberra, Australia

Ge Chen, Donghua University, China

Ying Tan, Peking University, China

## **Publication Co-Chairs**

Qian Wu, Institute of Intelligent Manufacturing Technology, China

Raja Kumar Murugesan, Taylor's University, Malaysia

## **Publicity Chairs**

Chengxu Zhou, University of Leeds, UK

Wen-Jer Chang, National Taiwan Ocean University, Taiwan, R. O. C.

## **Organizing Co-Chairs**

Zhongbin Wang, China University of Mining and Technology, China

Zidong Wang, Chiba Institute of Technology, Japan

## **Technical Program Committee**

Abdel-Badeeh M. Salem, Ain Shams University, Egypt

Addisson Salazar, Universidad Politécnica de Valencia, Spain

Ahmed Mancy Mosa, Al Mansour University College, Iraq

Amar Faiz Zainal Abidin, Universiti Teknikal Malaysia Melaka, Malaysia

Grigorios N. Beligiannis, University of Patras, Greece

Irene Fassi, Institute of Intelligent Industrial Technologies and Systems for Advanced Manufacturing (CNR-STIIMA), Italy

Jamil Abedalrahim Jamil Alsayaydeh, Universiti Teknikal Malaysia Melaka, Malaysia

Jianjun Huang, Shenzhen University, China

Jianping Luo, Shenzhen University, China

Kadriye Merve Dogan, Embry-Riddle Aeronautical University, USA

Khaldi Amine, Universite Kasdi Merbah Ouargla, Algeria

Martin Lukac, Nazarbayev University, Kazakhstan

Miaohui Wang, Shenzhen University, China

Muhammad Aminul Haque Akhand, Khulna University of Engineering & Technology (KUET), Bangladesh

Peng Chang, University of Science and Technology of China, China

Priti Srinivas Sajja, Sardar Patel University, India

Shamsul Fakhur bin Abd Gani, Universiti Teknikal Malaysia Melaka, Malaysia

Shao Cheng, Dalian University of Technology, China

Tansel Yucelen, University of South Florida, USA

Tongda Zhang, Southern University of science and technology, China

Yuquan Leng, Southern University of science and technology, China

Zhengang Zhai, University of Science and Technology of China, China

# CONTACT US



HKSME WeChat



HKSME Official Account



HKSME LinkedIn

**Hong Kong Society of Mechanical Engineers**

Tel: +852-30506862 / +86-18200296850

E-mail: [info@smehk.org](mailto:info@smehk.org)

Website: [www.smehk.org](http://www.smehk.org)