CMSDA 2022

第二届计算建模、仿真与数据分析国际学术会议

2022 2nd International Conference on Computational Modeling, Simulation and Data Analysis

会议手册

CONFERENCE BROCHURE

2022/12/10 线上会议

河南大學 Henan University | 河南省科学院 HENAN ACADEMY OF SCIENCES | AEIC 让学术交流更简单 Make Academic Exchange Easier

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协办单位：
AEIC学术交流中心

Content

Conference Introduction

2022 2nd International Conference on Computational Modeling, Simulation and Data Analysis (CMSDA 2022) will be held during December 10, 2022 virtually online via ZOOM. The conference is co-hosted by Henan University, Henan Academy of Sciences. It dedicates to creating a platform for academic communications between specialists and scholars in related fields. The conference will create a path to establish a research relationship for the authors and listeners with opportunities for collaboration and networking among the universities and institutions for promoting research and developing technologies.

CMSDA 2022 will invite well-known scholars at home and abroad to share their latest research results and experiences in related research fields. The reports will be divided into keynote speeches, oral presentations and poster presentations. Conference hot topics include Computer modeling and simulation, Analysis and stochastic modeling techniques and applications, mathematical modeling, big data analysis, etc.

由河南大学，河南省科学院联合主办，由河南大学数学与统计学院、河南大学学术发展部承办，AEIC 学术交流中心协办的“第二届计算建模、仿真与数据分析国际学术会议(CMSDA 2022)”将于 2022 年 12 月 09-10 日以线上会议的形式召开。首届计算建模、仿真与数据分析国际学术会议已于 2021 年成功举办，吸引了 80 多名计算机与大数据等领域的专家学者参会，多所国内外高等院校、科研院所、企事业单位团体参会。在即将举行的第二届会议上，我们邀请到学术领域的知名教授将与参会者分享在计算建模、数据挖掘与分析等领域的最新创新和研究成果。本次会议旨在来自国内外高等院校、科学研究所、企事业单位的专家、教授、学者、工程师等提供一个分享专业经验，扩大专业网络，面对面交流新思想以及展示研究成果的国际平台，探讨本领域发展所面临的关键性挑战问题和研究方向，以期推动该领域理论、技术在高校和企业的发展和应用，也为参会者建立业务或研究上的联系以及寻找未来事业上的全球合作伙伴。

Organization

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AEIC 让学术交流更简单 Make Academic Exchange Easier

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Dr. Niketa Gandh, MIR Labs, USA

Conference Agenda

2022 年 12 月 9 日/ 9th December, 2022	
09: 00 - 17: 00	Test Meeting/会前测试
2022 年 12 月 10 日/ 10th December, 2022	
Main Conference（09:00-12:15） Session Chair: Prof. Yunhai Xiao(肖运海教授，河南大学)	
09: 00 - 09: 10	**Opening Address:** 张立新副校长，河南大学 Prof. Lixin Zhang, Vice President of Henan University, China
嘉宾报告 / Keynote speeches	
09: 10 – 09: 55	Keynote Speech 1: Multimodal data learning and applications 陈志奎教授（大连理工大学，中国） Prof. Zhikui Chen, Dalian University of Technology, China
09: 55 – 10: 00	合照/Photography
10: 00 – 10: 45	Keynote Speech 2: Advanced Neural Network Models for Time Series Prediction & Classifications Tasks Rozaida Ghazali 教授（敦胡先翁大学，马来西亚） Prof. Rozaida Ghazali, Universiti Tun Hussein Onn Malaysia, Malaysia
10: 45 – 11: 30	Keynote Speech 3: Enhancing Wind Energy Harvesting by Industrial Data Intelligence 杨秦敏教授（浙江大学，中国） Prof. Qinmin Yang, Zhejiang University, China
11: 30 – 12: 15	Keynote Speech 4: Recent Advances in Mechatronics and Machine Vision Subhas Chandra Mukhopadhyay 教授（麦考瑞大学，澳大利亚） Prof. Subhas Chandra Mukhopadhyay, Macquarie University, Australia
12: 15 – 14:00	**Break**
Session I（14:00-18:00） Session Chair: Prof. Bo Wang(王波教授，河南大学)	
14: 00 – 14: 45	Keynote Speech 5: Metaverse: Past, Present, and Future SIAU Keng Leng 教授（香港城市大学，中国） Prof. SIAU Keng Leng, City University of Hong Kong, China
14: 45 – 17: 30	**口头报告/Oral Presentations**
14: 45 – 15: 00	Oral Presentation 1：Prediction of micro evolution of 304 stainless steel turning surface based on finite element method Zichuan Zou（邹子川）/ Guizhou University, China

15: 00 – 15: 15	Oral Presentation 2: Global growth forecast and protective measures analysis of monkeypox Jiaqi Cui(崔佳琪), North China University of Technology, China
15: 15 – 15: 30	Oral Presentation 3: Research on UAV Location Based on Wolf Pack Optimization Algorithm Analysis Peng Xu(徐棚), Chongqing Jiaotong University, China
15: 30 – 15: 45	Oral Presentation 4: Emergency Evacuation Simulation of Urban Rail Transit Station Li Lin(林立), Lanzhou Jiaotong University, China
15: 45 – 16: 00	Oral Presentation 5: esearch on the activity trajectory and community governance of urban village residents based on Latent Dirichlet Allocation —— A case study of Xi'an under COVID-19 epidemic situation Mengchao Liu（刘梦超）, Xi'an International Studies University, China
Session Chair: Prof. Zhihao Ge(葛志昊教授，河南大学)	
16: 00 – 16: 15	Oral Presentation 6: Research and analysis of fuzzy reliability model of port machinery structure based on cumulative damage theory Jiale Wang(王嘉乐), Shanghai Maritime University, China
16: 15 – 16: 30	Oral Presentation 7: Coupling Coordination Analysis and Obstacle Factor Diagnosis of Sports and Pension Industry Based on Improved Entropy Weight Catastrophe Progression Method Qiusheng Fan(樊秋生), Shanghai Maritime University, China
16:30 – 16: 45	Oral Presentation 8: Prediction of bearing remaining useful life based on deep convolution fuzzy system Shunming Zhou(周顺铭), Shanghai Maritime University, China
16:45 – 17: 00	Oral Presentation 9: Research on ancient glass products based on optimization regression analysis Pengming Peng(彭鹏铭), Chongqing Jiaotong University, China
17:00 – 17: 15	Oral Presentation 10: Analysis on the Evolution Path of Chinese Subjective Attitude ： A prediction model based on structural equation Yuhao Wang(王雨豪), People's Public Security University of China
17:15 – 17: 30	Oral Presentation 11: FastDogleg: Acceleration Techniques for Optimization of Visual Simultaneous Localization and Mapping Haixun Sun(孙海迅), Army Engineering University of PLA, China
17:30 – 17: 45	Oral Presentation 12: Simulation and Analysis of Network Reliability for Avionics Applications Henan Gao(高赫男), National University of Defense Technology, China
17:45 – 18: 00	Oral Presentation 13: TBD
18:00 – 18: 15	Oral Presentation 14: TBD
18:15 – 18: 30	Oral Presentation 15: TBD

Keynote Speech 1

Prof. Zhikui Chen
Dalian University of Technology, China

Dr. Chen Zhikui, professor and doctoral supervisor of Dalian University of technology since November 2007, director of big data Research Institute of Dalian University of technology. Research direction: big data and artificial intelligence. 1998-2007 engaged in scientific research on network and data computing in Hong Kong Baptist University, French Institute of automation, University of Stuttgart, Germany.

A series of big data computing theories and algorithms as well as artificial intelligence technology have been created, a big data algorithm library platform has been developed, and an artificial intelligence computing platform has been constructed, which has been applied in engineering practice. Published more than 200 academic papers. More than 20 invention patents have been authorized. Four software copyrights were issued and four books were published.

Speech Title: Multimodal data learning and applications

Abstract

With the widespread use of computing devices and multimedia technologies, multimodal data is becoming more and more common in daily life. For example, in social life, people use different modal data, such as images, texts, videos, to express their moods when posting updates on Weibo, WeChat and other social software. Therefore, how to analyze and process multimodal data and capture the complementary knowledge hidden in multimodal data becomes an urgent problem to be solved. For multimodal analysis in real scenarios, present works first collect multi-modal data with the help of multi-source heterogeneous sensor equipment, which provides the basis for multi-modal data analysis. Then, these heterogeneous data are mapped to a common space through algorithms to capture the common information of multimodal data. Finally, fusion techniques are used to fuse these features to obtain complementary knowledge of multimodal data. However, the whole multimodal analysis process still has the problems of data imbalance, data mismatch and multiple modalities, which requires further research. Aiming at the problem of data imbalance in data acquisition based on multi-source equipment, a multi-modal low-rank tensor data reconstruction algorithm for imbalanced data is designed to complete imbalanced multi-modal data; For the problem of multi-modal data scales non-uniformity, an anchored multi-modal alignment method for multi-scale data is designed to achieve mismatched data alignment; for the feature fusion problem of multi-modal data, deep semantic feature fusion method for multi-modal data is designed to achieve multi-modality data fusion.

Keynote Speech 2

Prof. Rozaida Ghazali
Universiti Tun Hussein Onn Malaysia, Malaysia

Rozaida Ghazali is currently a Professor at the Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia (UTHM). She graduated with a PhD degree in Higher Order Neural Networks from the School of Computing and Mathematical Sciences at Liverpool John Moores University, United Kingdom in 2007. Earlier, in 2003 she completed her M.Sc. degree in Computer Science from Universiti Teknologi Malaysia (UTM). She received her B.Sc. (Hons) degree in Computer Science from Universiti Sains Malaysia (USM) in 1997. In 2001, Rozaida joined the academic staff in UTHM. Her research area includes neural networks, swarm intelligence, optimization, data mining, and time series prediction. She has supervised PhD and master students to successful completion and has published more than 150 refereed papers in top venues. She acts as a reviewer for various journals and conferences. She has also served as an editor for Springer book series, a conference chair, steering committee, and technical committee for numerous international conferences. She has led more than 15 research projects as a Principal Investigator under UTHM, Ministry of Education, and Ministry of Science, Technology & Innovation, Malaysia

Speech Title: Advanced Neural Network Models for Time Series Prediction & Classifications Tasks

Abstract

Time series forecasting and data classification get much attention due to their impact on many practical applications. The task is about gaining insights from data, using different tools, statistical models, and machine learning algorithms, with the goal of discovering hidden patterns from the raw data. However, extracting useful information has proven extremely challenging. Conventional mathematical and analytical methods still face difficulty in deciphering complex data systems. To tackle this, Neural networks (NN), which support a wide range of business intelligence applications, have opened up exciting opportunities for discovering patterns in various data types. They have been attracting widespread interest to be a promising tool for forecasting the times series signals and classifying data based on their respective groups. With the deployment of NN to scour extensive databases, diverse unique and meaningful patterns can be found, which otherwise remain unknown. They can handle imprecision, uncertainty, partial truth, and approximation to achieve tractability, robustness and low solution cost. Hence, this keynote presentation will discuss how NN, individually or in an integrated manner, are becoming strong candidates for performing tasks related to time series forecasting and data classification.

Keynote Speech 3

Prof. Qinmin Yang
Zhejiang University, China

Qinmin Yang received the Bachelor's degree in Electrical Engineering from Civil Aviation University of China, the Master of Science Degree in Control Science and Engineering from Institute of Automation, Chinese Academy of Sciences, and the Ph.D. degree in Electrical Engineering from the University of Missouri-Rolla.

He has been an advanced system engineer with Caterpillar Inc., and a Post-doctoral Research Associate at University of Connecticut. Since 2010, he has been with the State Key Laboratory of Industrial Control Technology, the College of Control Science and Engineering, Zhejiang University, China, where he is currently a professor. He has also held visiting positions in University of Toronto and Lehigh University. He has been serving as an Associate Editor for IEEE Transactions on Systems, Man, and Cybernetics: Systems, IEEE Transactions on Neural Networks and Learning Systems, Transactions of the Institute of Measurement and Control, Processes, and Automatica Sinica. His research interests include intelligent control, renewable energy systems, smart grid, and industrial big data.

Speech Title: Enhancing Wind Energy Harvesting by Industrial Data Intelligence

Abstract

Wind energy has been considered to be a promising alternative to current fossil-based energies. Large-scale wind turbines have been widely deployed to substantiate the renewable energy strategy of various countries. In this talk, challenges faced by academic and industrial communities for high reliable and efficient exploitation of wind energy are discussed. Industrial data intelligence is introduced to (partially) overcome problems, such as uncertainty, intermittence, and intense dynamics. Theoretical results and attempts for practice are both present.

Keynote Speech 4

Prof. Subhas Chandra Mukhopadhyay
IEEE Fellow
Macquarie University, Australia

Subhas holds a B.E.E. (gold medallist), M.E.E., Ph.D. (India) and Doctor of Engineering (Japan). He has over 30+ years of teaching, industrial and research experience. Currently he is working as a Professor of Mechanical/Electronics Engineering, Macquarie University, Australia and is Discipline Leader of the Mechatronics Engineering Degree Programme. He is Director of International Engagement of School of Engineering. His fields of interest include Smart Sensors and sensing technology, instrumentation techniques, wireless sensors and network, IoT etc. He has supervised over 55 postgraduate students and over 150 Honours students. He has examined over 60 postgraduate theses.

He has published over 500 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 thirty five books with Springer-Verlag and thirty journal special issues. He has organized over 20 international conferences as either General Chairs/co-chairs or Technical Programme Chair. He has delivered 410 presentations including keynote, invited, tutorial and special lectures.

He is a Fellow of IEEE (USA), a Fellow of IET (UK), a Fellow of IETE (India), a Topical Editor of IEEE Sensors journal, and an associate editor of IEEE Transactions on Instrumentation and Measurements, IEEE Review of Biomedical Engineering, IoP Measurement Science and Technology. He is a Distinguished Lecturer of the IEEE Sensors Council from 2017 to 2022. He is the Founding chair of IEEE IMS NSW chapter and IEEE NSW Sensors Council Chapter.

Speech Title: Recent Advances in Mechatronics and Machine Vision

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 at Macquarie University on Mechatronics and machine vision for home, health and environmental monitoring.

Keynote Speech 5

Prof. SIAU Keng Leng
City University of Hong Kong, China

Professor Siau is the Head of the Department of Information Systems and Chair Professor of Information Systems at the City University of Hong Kong. Professor Siau is Editor-in-Chief of the Journal of Database Management (SCI and ABDC's A journal). He is also a Senior Editor of the Industrial Management & Data Systems journal. Professor Siau has more than 300 academic publications. His research publications have appeared in journals such as MIS Quarterly, Journal of the Association for Information Systems, Journal of Strategic Information Systems, Decision Support Systems, Information Systems Journal, Data and Knowledge Engineering, IEEE Transactions on Information Systems in Biomedicine, IEEE Transactions on Systems, Man, and Cybernetics, IEEE Transactions on Professional Communication, IEEE Transactions on Education, and others. According to Google Scholar, he has a citation count of more than 18,000. His h-index and i10-index, according to Google Scholar, are 71 and 173, respectively. Professor Siau is consistently ranked globally as one of the top information systems researchers based on his h-index and productivity rate. In 2006, he was ranked as one of the top ten e-commerce researchers globally (Arithmetic Rank of 7, Geometric Rank of 3). In 2006, the citation count for his paper "Building Customer Trust in Mobile Commerce" was ranked in the top 1% in the field as reported by Essential Science Indicators. He is also on the 2020 and 2021 Stanford University lists of the top 2% most-cited scientists in the world (ranked in the top 1%) and one of the top computer scientists in the U.S. and the world. Professor Siau has received numerous teaching, research, service, and leadership awards such as the prestigious International Federation for Information Processing (IFIP) Outstanding Service Award in 2006, IBM Faculty Awards in 2006 and 2008, IBM Faculty Innovation Award in 2010, AIS Sandra Slaughter Service Award in 2019, and AIS Award for Outstanding Contribution to IS Education in 2019.

Speech Title: Metaverse: Past, Present, and Future

Abstract

Metaverse is changing the world and revolutionizing how we work, play, and socialize with one another. Academicians and practitioners have started to pay attention to this emerging field, setting off a wave of metaverse upsurge. The academic world can and should contribute to the development and evolution of the metaverse. This talk will look at the metaverse's past, present, and future.

Instructions for Presentations

Oral Presentation

1. Timing: a maximum of 15 minutes total, including speaking time and discussion. Please make sure your presentation is well timed. Please keep in mind that the program is full and that the speaker after you would like their allocated time available to them.
2. You can use CD or USB flash drive (memory stick), make sure you scanned viruses in your own computer. Each speaker is required to meet her/his session chair in the corresponding session rooms 10 minutes before the session starts and copy the slide file (PPT or PDF) to the computer.
3. It is suggested that you email a copy of your presentation to your personal inbox as a backup. If for some reason the files can't be accessed from your flash drive, you will be able to download them to the computer from your email.
4. Please note that each session room will be equipped with a LCD projector, screen, point device, microphone, and a laptop with general presentation software such as Microsoft PowerPoint and Adobe Reader. Please make sure that your files are compatible and readable with our operation system by using commonly used fronts and symbols. If you plan to use your own computer, please try the connection and make sure it works before your presentation.
5. Movies: If your PowerPoint files contain movie, please make sure that they are well formatted and connected to the main files.

Poster Presentation

1. Maximum poster size is one page of PPT (16：9).
2. Posters are required to be condensed and attractive. The characters should be large enough so that they are visible from 1 meter apart.

四、联系我们 Contact us

会议期间，如果您需要帮助，可以咨询以下会务组工作人员。

If you need help during the conference, you can ask the following staff.

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