IC 2023

IET The Institution of Engineering and Technology

IC 2023

The 6th International Conference on Innovative Computing

Final Program

February 1-3, 2023
Singapore & Online Event

The 6th International Conference on Innovative Computing (IC 2023)

Co-located Conferences
The International Workshop on Technique for Language and Literature Information Modeling (LIM 2023)
The 7th International Conference on Big-data, IoT, Cloud computing Technologies and Applications (BICTA 2023)

IC 2023
Proceeding

Singapore & Online Event
February 1 - 3, 2023

Organized by

Frontier Computing Conference Group

Sponsors

IET

IET Taipei Local Network

Message from Organizing Committees

The International Conference on Innovative Computing (IC 2023) will be held in Singapore, 1 - 3, February 2023. We can finally hold a face-to-face conference after three years' COVID-19 pandemic. This event is the 6th event of the conference series, in which fruitful results can be found in IC2015 (Xiamen, China), IC2016 (Taichung, Taiwan), IC2020 (Ho Chi Minh, Vietnam), IC2021 (Online), and IC2022 (Online). Each event brings researchers worldwide together to have exciting and fruitful discussions as well as future collaborations. This conference series aims at providing an open forum to reach a comprehensive understanding of the recent advances and emergence of innovative computing in information technology, science, and engineering.

There are two international workshops and international conferences are jointly operated with IC2023 at the same time and place, i.e., Workshop on Technique for Language and Literature Information Modeling (LIM 2023), and The 7th International Conference on Big-data, IoT, Cloud computing Technologies and Applications (BICTA 2023), which are organized by FC conference group and Korean Institute of Information Technology, Korea Institute of information technology and innovation (KIITI) and SIEC Korea Chapter.

The papers accepted for inclusion in the conference proceeding primarily cover the topics: networking and communications, embedded system, soft computing, social network analysis, security and privacy, optics communication, ubiquitous, artificial intelligence, and pervasive computing. Many papers have shown their great academic potential and value and indicate promising directions of research in the focused realm of this conference series. We believe that the presentations of these accepted papers will be more exciting than the papers themselves, and lead to creative and innovative applications. We hope that the attendees (and readers as well) will find these results useful and inspiring to your field of specialization and future research.

On behalf of the organizing committee, we would like to thank the members of the organizing and the program committees, the authors, and the speakers for their dedication and contributions that make this conference possible. We appreciate the contributions of these experts and scholars to enrich our IC2023. We would like to thank and welcome all participants to IC2023. We also sincerely hope that all participants from overseas enjoy the technical discussions at the conference, build a strong friendship, and establish ties for future collaborations.

We send our sincere appreciation to the authors for their valuable contributions and the other participants of this conference. The conference would not have been possible without their support. Appreciates are also due to the many experts who contributed to making the event a success in Singapore.

IC2023 Organizing Committees
FC Conference Group
Korean Institute of Information Technology
Korea Institute of Information Technology and Innovation
SIEC Korea Chapter

February 2023

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Schedule

February 1, 2023 (Wednesday)

9 : 00 ~ 9 : 10	**Opening Ceremony**
9 : 10 ~ 10: 10	**Session 1**
10 : 15 ~ 11 : 30	**Session 2**
11 : 35 ~ 13 : 00	**Session 3** **BICTA 2023 & LIM 2023**
13 : 00 ~ 14 : 00	**Lunch Break**
14 : 00 ~ 15 : 00	**Session 4** **(Video Session)**
15 : 00 ~ 16 : 00	**Session 5** **(Video Session)**

February 2, 2023 (Tuesday)
Virtual Event

10 : 00 ~ 11 : 00	**Session 6**
11 : 00 ~ 12 : 00	**Session 7**
12 : 00 ~ 14 : 00	**Lunch Break**
14 : 00 ~ 15 : 00	**Session 8**
15 : 00 ~ 16 : 00	**Session 9**

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February 3, 2023 (Friday) Virtual Event	
11 : 00 ~ 12 : 00	**Executive Committee Meeting**
12 : 00 ~ 14 : 00	**Lunch Break**
14: 00 ~	**Organizing Committee Meeting**

Day 1
February 1, 2023

9:00 – 9:10 : Opening Ceremony

Session 1
Chair: Dr. Jia-Wei Chang, National Taichung University of Science and Technology, Taiwan

1. **FCGSM: Fast Conjugate Gradient Sign Method for Adversarial Attack on Image Classification**
   Xiaoyan Xia, Wei Xue and Pengcheng Wan

2. **A lightweight network for detecting small targets in the air**
   Jiaxin Li, Hui Li, Ting Yong and Xingyu Hou

3. **Exploring the Effects of using Different Audio Lengths in Transfer Learning for Sound Recognition**
   Jia-Wei Chang, Zhong-Yun Hu and Jason C. Hung

4. **Mobile Robot Controller Design Using Deep Learning**
   Jyun-Yu Jhang

Session 2
Chair: Dr. Neil Yen, University of Aizu, Japan

1. **An artificial intelligence camera system to check worker personal protective equipment before entering risk areas**
   Watthanaphong Muanme

2. **Applying 5PKC-based Skeleton Partition Strategy into Spatio-Temporal Graph Convolution Networks for Fitness Action Recognition**
   Jia-Wei Chang and Hao-Ran Liu

3. **A Skeletal Sequence-Based Method for Assessing Motor Coordination in Children**
   Zitong Pei, Wenai Song, Nanbing Zhao, Zhiyu Chen, Wenbo Cui, Yi Lei, Yanjie Chen and Qing Wang

4. **A Big Data based Learning Model from Student Questionnaire**
   Hwa-Young Jeong

5. **A Comparative Study of Female Image in "Eouyadam" and "Yojaejii"**
   Shaoshuo She, Young-Hoon An and Hwa-Young Jeong

Session 3
Workshop on Technique for Language and Literature Information Modeling (LIM 2023) &
Workshop on Big-data, IoT, Cloud Computing Technologies and Applications (BICTA 2023)

Chair: Dr. Hwa-Young Jeong, Kyung Hee University, Korea

1. **A Study on Data Mining for Type of Korean Paingting Poetry**
   Haeyoung Park, Young-Hoon An and Hwa-Young Jeong

2. **A phonetic investigation of Korean monophthong vowels by Vietnamese female speakers**
   Juhee Lee

3. **Korean Causal Connective Expressions in a Cross-linguistic and Cultural Perspective**
   Sujeong Choi and Sinhye Nam

4. **Smart Farm Management System Using Humidity Meter**
   Yuseung Shin and Jeong Jaeyun

5. **A Study of OSMU for Henan Seolheon's works**
   Wenxuan Zhao, Young-Hoon An and Hwa-Young Jeong

Session 4 Soft Computing

1. **Organizational Layout and Optimization Model of Agricultural Logistics Industry Based on Ant Colony Algorithm**
   Jingjun Shu

2. **Application of Image Recognition in Equipment Monitoring**
   Haidong Zou, Shaoqiang Yang, and Wei Wu

3. **Stability of Marine Physics Detection Sensor Based on Artificial Intelligence Technology**
   Xiran Liu

4. **Optimization System of Microbial Test on Account of Genetic Algorithm**
   Mingming Shao

Session 5 Machine Learning

1. **The Application of Virtual Reality Technology in Ophthalmology**
   Jingying Wang, Yi Zhang

2. **Research on the Application of BIM Technology in the Whole Process Cost Management of Construction Project**
   Kangyan Zeng, Zhen Wen

3. **Modal Parameter Identification of Bridge Structure based on Hybrid Genetic Algorithm**
   Rong Hu

4. **Overload Damage Detection Method of Motor Car Axle Based on Neural Network Algorithm**
   Pin Xia

Day 2
February 2, 2023

Session 6 IoT

1. **Ground Wire Status Object Detection Based on Cloud Application**
   Haoran Li, Shengli Xie, Qian Wang

2. **Design of Multimedia Assisted Course Based on Immersion Japanese Teaching**
   Shuai Sun, Yanqi Han, Yue Li, Wanting Zhao, Qifeng Gao, Yang Yang, Heng Li

3. **Analysis and Research of Intelligent Distribution UAV Control System Based on Optical Flow Sensor**
   Xiaomin Zhi, Liang Gao, Guohe Qin

4. **Method of Improving Logistics Distribution Efficiency by Combining Small Multi-Rotor UAV with the Visual Recognition System**
   Shuai Sun, Weilun Xia, Qiankun Zhu, Zeping Han

Session 7 Real World Applications

1. **Prediction Model of Popular Tourist Attractions Based on Big Data Fusion Algorithm**
   Yan Wang

2. **Application of Genetic Algorithm in Rail Transit Comprehensive Monitoring System**
   Hui Lin

3. **Construction of Inland VHF Communication System based on Opposite-Reason Model**
   Chen Kong, Zhongli Yi, Xiqi Liu, Shengbo Qin, Shanshan Wang

4. **Intelligent On-line Monitoring System of General Electrical Equipment Based on Remote Communication**
   Xinhe Cui, Fei Xia, Fanbo Meng, Xiaobo Huang, Xin An

Session 8 Feature Engineering

1. **Sports Video Moving Target Detection and Tracking Based on Particle Filter and Related Algorithms**
   Xiaocheng Wang

2. **Visual Reconstruction Design based on Image Technology Emotion**
   Meng Hou

3. **System of Cross-border E-commerce Network Pattern Evolution on Account of Bayes-BP Algorithm**
   Lina Zhang

4. **Construction of Internet Financial Risk Early Warning Model Based on Data Mining Algorithm**
   Jingshuang Liu, He Yu

Session 9 Applications Engineering

1. **Research on an Intelligent Logistics Blockchain Consensus Algorithm**
   He Yu, Jingshuang Liu

2. **Improved ID3 Algorithm in Sports Tourism Service System**
   Quanan Gui

3. **Design of Public Sports Service System in the Era of 5G + Artificial Intelligence**
   Xinying Liu

4. **Automatic Design System of Product Shape Based on Intelligent Algorithm**
   Ren Li

Day 3
February 3, 2023

AM: Executive Committee Meeting

PM: Organizing Committee Meeting

Information For Paper Presenters

The IC 2023 will be held in Singapore, and online by zoom at February 1 - 3, 2023. Times indicated are "UCT/GMT+8". You can check your local time, using an online time conversion tool, such as www.timeanddate.com

Papers will be presented during the **1-hour** parallel sessions of the conference, each with up to 5 papers. Each paper will be allocated up to **15 minutes** of presentation time, including questions and answers (Q&A) time.

For on-site participants, please refer to the next page "Conference Venue" for more information about the venue and transportation methods.

Authors who will participate in the online meeting can join the Zoom meeting as follows link:

Join Zoom Meeting
Title: The 6th International Conference on Innovative Computing (IC 2023)
Link:
https://us06web.zoom.us/j/85443637828?pwd=dXdHT1NmYnN6ZVdtMGdObzFzcEZGdz09
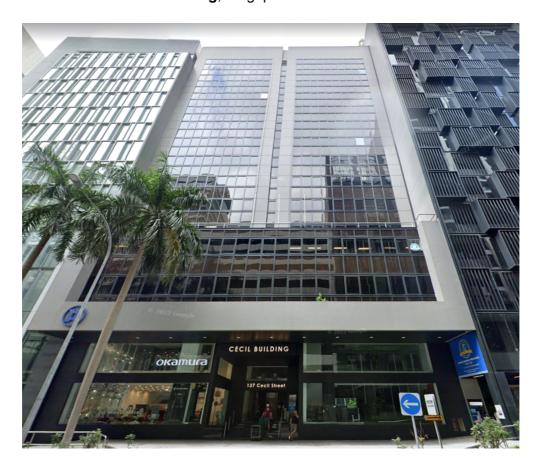Meeting ID: 854 4363 7828
Passcode: 889462
Time: 9:00 - 13:00 (UTC/GMT+8)
Date: Feb. 01, 2023

Conference Venue

The 6th International Conference on Innovative Computing (IC 2023) will be held at the **Kyoto at RNN Conference Center Cecil Building**, Singapore.

Address

137 Cecil Street, Cecil Building #04-01, Singapore 069537

Access

RNN Conference Centre is located in the heart of Singapore's Central Business District on Cecil Street.

- Take the East-West Line from Singapore Changi Airport MRT station to "Tanjong Pagar MRT Station" and walk 6 minutes (500m) to the venue, which takes about an hour.
- A taxi ride from Singapore Changi Airport will take approximately 20 minutes to reach the venue.