



International Conference on Innovative Computing (IC 2022)

Jan. 19-21, 2022

Final Program



The 5th international Conference on Innovative Computing (IC 2022)

IC 2022 Final Program

Online
JANUARY 19 - 21, 2022

Organized by

Frontier Computing Conference Group

Sponsors

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國際工程與科技學會中華民國分會

Message from Organizing Committees

The International Conference on Innovative Computing (IC 2022) was planned to be held in Guam, 19 - 21, January 2022. This event is the 5th 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). Each event brings the researchers worldwide together to have excited 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 in information technology, science, and engineering.

There are two international workshop and international conference are jointly operated with IC2020 at the same time and place, i.e., International Workshop on Metaverse in Computational Sociology, and Special Session on Computational Intelligence for Retinal Disease Detection, 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: database and data mining, networking and communications, web and internet of things, embedded system, soft computing, social network analysis, security and privacy, optics communication, and ubiquitous 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. In this year's IC2022. We appreciate the contributions from these experts and scholars to enrich our IC2022. We would like to thank and welcome all participants to IC2022. 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 appreciations 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.

IC2020 Organizing Committees
FC Conference Group
Korean Institute of Information Technology
Korea Institute of Information Technology and Innovation
SIEC Korea Chapter

January 2022

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Goldina Ghosh, Indian Institute of Information Technology, India

Schedule

Day 1 January 19, 2022 (Wednesday)	
14:00~15:00	Opening Ceremony
15:00~	Organizing Committee Meeting

Day 2 January 20, 2022 (Thursday)	
	Room1
09:00~10:00	Invited Speaker: Anna Yu-Ju Yen
10:00~12:00	Session 1
12:00~13:30	Lunch
13:30~15:30	Session 2

Day 3 January 21, 2020 (Friday)	
10:00~12:00	Session 3
12:00~13:30	Lunch
13:30~15:30	Session 4
13:30~17:30	Session 5

Invited Talk



Anna Yu-Ju Yen
Shih Chien University
Taiwan

Technology competition of Human-AI collaboration on the content creation of film and animation

Abstract

This study aims to explore the international technology competition of Human-Artificial Intelligence (AI) collaboration on content creation in the film and animation industries. The proposed work designs a hybrid approach of patent analysis that utilizes technology life cycle (TLC) and Latent Dirichlet allocation (LDA) topic modelling for analyzing the long-term change in the competition of AI collaborating on creating the film and animation content. The 1,982 patents applied to the primary patent application countries are collected from 2010 to 2020. The patents are applied to the U.S., China, Korea, Japan, and European Patent Office (EPO), which includes 44 European countries. TLC analysis shows increasing competition trends among countries. Combining the TLC trends and the LDA topic-based trends of different countries denote strong potential or future stagnation signals. The results imply the future R&D signals and support the decision-making and the strategic planning on the Human-AI collaboration. In addition, the growing competition in Human-AI collaboration may stimulate soft innovation in the film and animation industries.

Bio

Anna Yu-Ju Yen is a PhD candidate at the Graduate Institute of Creative Industries, Shih Chien University (Taiwan). She received an LL.M. degree in Technology Law from National Chiao Tung University. Ms. Yen has worked in the government think tanks to support technology policy, regulations, and the development of emerging technology and creative industries. She also provides consultation with business enterprises in R&D and experience-oriented design. Her main research interests include management of creativity, the creative industries, and technology innovation and ethics.

Day 1
January 19, 2022

PM: Opening Ceremony
Organizing Committee Meeting

Day 2

January 20, 2022

Invited Talk

Chair: Dr. Yan Pei

- ◆ **Technology competition of Human-AI collaboration on the content creation of film and animation**

Anna Yu-Ju Yen

Session 1

Chair: Dr. Jia-Wei Chang

- 1. A deep learning-based approach for mammographic architectural distortion classification**
Khalil Ur Rehman, Jianqiang Li, Yan Pei, Anaa Yasin and Saqib Ali
- 2. Double Upsample Dilated Pyramid Network for Pollen Detection**
Fengwei Liu, Yan Pei, Juan Li, Fujiao Ju, Jianqiang Li and Caihua Ye
- 3. Promoting foreign electronic commerce and economic welfare**
Yoonkyo Cho and Jaewhak Roh
- 4. Knowledge stock, corporatism, and new product development in open innovation**
Yoonkyo Cho
- 5. A feature fusion-based approach for mammographic mass**
Khalil Ur Rehman, Jianqiang Li, Yan Pei, Anaa Yasin, Saqib Ali and Yousaf Saeed
- 6. A Security Distributed Social Media Service Based on IoT and IPFS**
Jia-Wei Chang and Ting-Hong Chu
- 7. Analysis for sequential frame with facial emotion recognition based on CNN and LSTM**
Jason C. Hung and Sheng-Len Xu
- 8. Patent Litigation between NPEs and Non-NPEs: Being Trapped or Moving Forward?**
Yoonkyo Cho
- 9. Chinese Electronic Medical Record Retrieval Method Using Fine-Tuned RoBERTa and Hybrid Features**
Yang Yu, Jianqiang Li, Zhichao Zhu, Yan Pei, Zhenning Cheng, Ke Zeng and Jieqing Chen

Session 2

Chair: Dr. Jason Hung

1. **How Cultural Mindset Influences Creativity in New Product Development**
Jungim Mun
2. **The Effect of Game Playing and Goal Orientation on Creativity**
Jungim Mun
3. **Recognition of Chinese Medical Named Entity Using Multi-word Segmentation Method**
Dawei Li, Jianqiang Li, Zhichao Zhu, Yu-Chih Wei and Yan Pei
4. **Bronchiectasis Detection and Classification Based on Deep Learning**
Jingwei Zhang, Qinyan Zhang, Jijiang Yang, Xinshan Lin, Ning Yue, Qing Wang, Yi Lei and Yanqing Wang
5. **Implementation of a System for Multimedia Search and Management Based on Distance Education**
Byeongtae Ahn
6. **A Study for Development of Digital Contents Management System Based on Smart Home**
Byeongtae Ahn
7. **A Study of Smart Mart System Based on RFID/WSN**
Byeongtae Ahn
8. **Development of Automatic Voltage Stabilization System for Substation using Deep Learning**
Jiyong Moon, Minyeong Son, Byeongchan Oh, Jeongpil Jin, Kwangil Kim and Younsoon Shin

Day 3

January 21, 2022

Session 3

- 1. Innovation Research on User-Centered Internet Fintech Product Experience**
Ling Xiong
- 2. Design and Implementation of Online Teaching System for "Computer Foundation" Course Based on SSI Framework**
Lina Gao, Jiangfeng Lu
- 3. Research on the Online and Offline Mixed Teaching System of Dance in the Mobile Information Age**
Xiaojie Wang, Chi Zhang
- 4. Data Collection and Analysis of Differences between Chinese and Western Mianzi Concepts Based on web Crawler Technology**
Xuanyi Qu
- 5. Design and Implementation of Innovation and Entrepreneurship Platform for College Students under the Background of "Internet +"**
Hongmin Wang, Guoxing Chen, Shikai Qi

Session 4

- 1. Development and Application of Electronic Portfolio Evaluation System for Chinese Writing Teaching in the Big Data Era**
Quanquan Wu
- 2. The Design and Implementation of the University Network Education Information Monitoring System Based on Big Data Technology**
Li Wang
- 3. On-line and Off-line Mixed Teaching System and Teaching Application of Sports Based on Modern Information Technology**
Gang Yin, Tao Xu
- 4. Research on Multi-modal Corpus Construction Technology in ELAN-based Communicative Competence Cultivation**
Rui Li, Xiuli Gou
- 5. Research on Computer Aided English Teaching in Higher Vocational Education under the Background of Information Technology**
Jinghua Liu

Session 5

1. **Design and Implementation of Smart Tourism System Based on Internet of Things Information Technology**
Yan Zeng
2. **Optimization of Enterprise Logistics Management Information System Based on Two-dimensional Code Technology**
Xiuli Li
3. **Application of BIM and IoT Technology in Material Management of Construction Projects**
Yanan Yi, Langhua Li, Yingjia Wang
4. **The Influence of Computer Network on the Digital Communication of Ancient Literature**
Ziran Gao
5. **Horse Racing Decision and Analysis Based on Data Mining and Big Data Analysis Construction of Innovation and Entrepreneurship Curriculum System Based on New Media Technology**
Shuang Zhang, Mairu Liu