



The 9th International Conference on Frontier Computing

Theory, Technologies and Applications

JULY 9-12

(KITAKYUSHU, JAPAN)

Final Program



Kitakyushu, Japan
TRANSformative
Meetings



The 9th International Conference on Frontier Computing

~ Theory, Technologies, and Applications ~

FC 2019

Final Program

**Kitakyushu JAPAN
JULY 9-12, 2019**

Organized by

Frontier Computing Conference Group

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Message from Organizing Committees

The International Conference on Frontier Computing – Theory, Technologies, and Applications (FC) was first proposed in early 2010 on an IET executive meeting. This conference series aims at providing an open forum to reach a comprehensive understanding to the recent advances and emergence in information technology, science, and engineering, with the themes in the scope of Communication Technology and Applications, Business Intelligence and Knowledge Management, Artificial Intelligence, and any related fields that prompt the development of information technology. This will be the ninth event of the series, in which fruitful results can be found in the digital library or conference proceedings of *FC 2010 (Taichung, Taiwan)*, *FC 2012 (Xining, China)*, *FC 2013 (Gwangju, Korea)*, *FC2015 (Bangkok, Thailand)*, *FC2016 (Tokyo, Japan)*, and *FC2017 (Osaka, Japan)*, *FC2018 (Kuala Lumpur, Malaysia)*, *FC ABH2019 (Taichung, Taiwan)*. Each event brings together the researchers worldwide to have excited and fruitful discussions as well as the future collaborations.

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 in addition, 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 FC2019, we have the following keynote speaker, invited talk, and tutorial.

- 1 Generalized Optimization and its Applications by Dr. Mario Köppen from Kyushu Institute of Technology, Japan,
- 2 Big Data Discovery: The Next Big Trend in Analytics by Dr. Bo Liu from Beijing University of Technology, China,
- 3 When New Technology Meets Old Traditional Service Business by Dr. Nigel Lin from Auto-Chlor System, USA, and
- 4 Machine learning algorithms in a high dimensional constructed representation space by Dr. Yan Pei from University of Aizu, Japan.

We appreciate the contributions from these experts and scholars to enrich our FC2019. We also organized a Fi-Award Competition and received ten submissions in our final program, thanks to the advisors and team members of each submission. It makes our FC2019 become more actively and socially. FC conference series will continue to hold this event in our future conferences.

We would like to thank and welcome all participants to Kitakyushu, Japan. Though most of countries may share some similar characteristics, you will find that culture of Japan is

quite different from many aspects, such as art, religion, nomadic life style, food, and music. Kitakyushu is one of center city in Kyushu, Japan. We encourage the participants to take this chance to see and experience Kyushu island, especially the remote counties and the nomadic lifestyle there. We also sincerely hope that all participants from overseas and from Japan 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.

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***Jason C. Hung,
National Taichung University of Science and Technology, Taiwan
Neil Y. Yen,
The University of Aizu, Japan***

July 2019

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Schedule

Day 1 July 9, 2019 (Tuesday)		
	Room1	Room2
13:00~14:30	Tutorial	Fi-Award Competition
14:30~15:00	Coffee Break	
15:00~16:30	Session 1-1 DBCI2019 - 1	Session 1-2
16:30~17:00	Coffee Break	
17:00~18:00	Session 2-1 DBCI2019 - 2	Session 2-2 MLB 2019
18:00~	Enjoy the beauty of Kitakyushu	

Day 2 July 10, 2019 (Wednesday)			
09:00~10:30	Keynote Speech: Dr. Mario Köppen Chair: Dr. Neil Yen		
10:30~11:00	Coffee Break		
	Room1	Room2	Room3
11:00~12:30	Session 3-1 ITFA 2019 - 1	Session 3-2 ESMD 2019	Session 3-3 ABCat 2019 - 1
12:30~14:00	Lunch		
14:00~15:30	Session 4-1 ITFA 2019 - 2	Session 4-2	Session 4-3 ABCat 2019 - 2
15:30~16:00	Coffee Break		
17:00~18:00	Session 5-1 ITFA 2019 - 3	Session 5-2	Session 5-3
18:00~	Banquet		

Day 3 July 11, 2019 (Thursday)			
09:00~10:30	Invited Talk 1: Dr. Bo Liu Chair: Dr. Yan Pei		
10:30~11:00	Coffee Break		
11:00~12:30	Invited Talk 2: Dr. Nigel Lin Chair: Dr. Jason C. Hung		
12:30~14:00	Lunch		
	Room1	Room2	Room3
14:00~15:30	Session 6-1	Session 6-2 ABC - 1	Session 6-3
15:30~16:00	Coffee Break		
16:00~17:30	Session 7-1 ADINTECH 2019	Session 7-2 ABC - 2	Session 7-3
17:30~	Enjoy the beauty of Kitakyushu		

Day 4 July 12, 2019 (Friday)	
10:30~12:00	Executive Committee Meeting
12:30~13:30	Lunch
13:30~16:00	Organizing Committee Meeting

Keynote Speaker



Dr. Mario Köppen
Professor
Kyushu Institute of Technology
Japan

Generalized Optimization and its Applications

Abstract

The efficient design, management and control of today's technological systems and solutions is to an increasing degree characterized by societal aspects. This also applies to the classical task of optimization as it appears now in new domains like group decision making, fair distribution, equity of resource sharing. Often those goals can't be expressed by extremizing functions anymore, all we have is a method to compare two solutions by the degree of one being better than the other. Relational mathematics, which is studied in mathematical economics and social choice theory, provides a rich and general framework and appears to be a natural and direct way to express such optimization goals, to represent user preferences, to justify fairness criterions, or to valuate utility. The keynote will have two main parts. In the first part, basic approaches from mathematical economics to the problem of fairness (esp. in distribution and allocation of resources) are recalled. It is followed by the presentation of a set of relations that are able to represent various aspects of fairness along with their motivation. Starting with the "classical" fairness relations maximin fairness, proportional fairness and lexicographic maximin, we can recover their mutual relationships and their design flexibility in order to define further relations, with regard to e.g. multi-resource problems, ordered fairness, self-weighted fairness, collaborative fairness, and fuzzy fairness. In the second part, we want to illustrate and demonstrate the application of these concepts to basic data processing and optimization tasks, especially in data mining, multi-agent systems, pattern recognition and performance comparison of metaheuristic algorithms. In this part we will also mention the tractability of larger-scaled problems by presenting algorithmic approaches by meta-heuristic algorithms derived from well-known evolutionary multi-objective optimization algorithms. As a side note, and if time permits, we will also show that the No-Free-Lunch theorems do not apply to the proposed relational optimization.

Biography

Mario Köppen studied physics at the Humboldt-University of Berlin and received his master degree in solid state physics in 1991. Afterwards, he worked as researcher at the Central Institute for Cybernetics and Information Processing in Berlin and changed his main research interests to image processing and neural networks. From 1992 to 2006, he was working with the Fraunhofer Institute for Production Systems and Design Technology. He continued his works on the industrial applications of image processing, pattern recognition, and soft computing, esp. evolutionary computation. During this period, he achieved the doctoral degree at the Technical University Berlin with his thesis works: "Development of an intelligent image processing system by using soft computing" with honors. He has published more than 150 peer-reviewed papers in conference proceedings, journals and books and was active in the organization of various conferences as chair or member of the program committee, incl. the WSC on-line conference series on Soft Computing in Industrial Applications, and the HIS conference series on Hybrid Intelligent Systems. He is founding member of the World Federation of Soft Computing, and since 2016 Editor-in-Chief of its Elsevier Applied Soft Computing journal. In 2006, he became JSPS fellow at the Kyushu Institute of Technology in Japan, and in 2008 Professor at the Network Design and Research Center (NDRC) and 2013 Professor at the Graduate School of Creative Informatics of the Kyushu Institute of Technology, where he is conducting now research in the fields of soft computing, esp. for multi-objective and relational optimization, digital convergence and human-centered computing.

Invited Talk 1



Dr. Bo Liu
Beijing University of Technology
China

Big Data Discovery: The Next Big Trend in Analytics

Abstract

According to Gartner, "Big Data Discovery" will be the next big trend in analytics, which combines Big Data, Data Discovery, and Data Science. In this talk, we will briefly review the development of big data, its key technologies and characteristics. Several practical cases on big data's applications in medical care and meteorology will be presented to give you a better understanding of how we can use big data to facilitate our life. More specifically, in meteorology, with the advent of increasingly severe haze, how to precisely predict the air quality and further mine the cause of air pollution has become the most important environmental problem. We have fused heterogeneous data sources, integrated machine learning, data mining and semantic analysis technologies, proposed air pollution prediction models and dynamic causal association mining methods, to provide high-precision prediction results and deduce the causes of an air pollution process, finally supporting the control and treatment of air pollution. In medical care, this talk will introduce several cases including medical concept detection and semantic search for meaningful use of Electronic Medical Records, data-driven predicting of Small-for-Gestational-Age (SGA) Infants, vessel recognition of retinal fundus images based on fully convolutional network, and semantic segmentation of cancerous areas in pathological sections of gastric cancer.

Biography

Bo Liu received the B.S. degree from Beijing Institute of Technology, Beijing, China, and the Ph.D. degrees from Tsinghua University, Beijing, China in 2003 and 2008, respectively. She had worked in NEC Laboratory China as a researcher and in Computation Institute, the University of Chicago and Argonne National Laboratory, USA as a Research Professional. She is currently working at School of Software Engineering, Beijing University of Technology as an associate professor and doctoral supervisor, also serving as the deputy dean of School of Software Engineering. Her research interests include big data, data mining, machine learning, scientific workflow, Semantic Web and ontology reasoning. She has authored over 60 articles and 40 inventions.

Invited Talk 2



Dr. Nigel Lin
Auto-Chlor System
USA

When New Technology Meets Old Traditional Service Business

Abstract

Auto-Chlor System is an 80-year traditional restaurant dishwasher services company with more than 925 employees, 61 branches among the United States, and 2 factory plants. As an enterprise with a long history, there are many existing, effective processes and rules that have helped the business grow naturally and profitably over the years. However, most of these processes and procedures are manually completed; they require the help from technology to automatize them to keep up the growth of the business. In addition, the corporate office, branches, and factory plants are geographically distributed across the US. As a result, it has become a huge challenge to maintain the hardware and IT infrastructure. In this section, I will share our solutions that we have implemented to solve our challenges in both software and network aspects. From the network aspect, I will talk about how we built the IT hardware and network infrastructure that requires no local IT techs to set up equipment and connect to our main framework. Furthermore, I will explain the process of promptly providing support to our remote users as well as the way to maintain high availability network with minimal interruption and downtime. From the software aspect, I will introduce our software platform and architecture. From a non-high tech and traditional business background, we were able to develop our internal software tailored for our business. We continue to extend the functionalities to cover users' upcoming requests and growing business needs, based on our existing software platform. I hope that through sharing our experience of practically applying technologies in our business. We can exchange thoughts and ideas on how other technologies can be utilized or applied to continuously create positive impacts to traditional businesses, such as Auto-Chlor System.

Biography

Nigel Lin is the Director of Information Services at Auto-Chlor System. He spent 9 years studying computer science and information engineering and received his Ph.D., Master, and Bachelor in Engineering from Tamkang University in Taiwan. After moving to the bay area in 2006, he worked for Microsoft for about a year before he joined Auto-Chlor System as a software engineer. After his success in handheld route accounting and acquisition projects, he moved up to the position of Director of Information Services in 2009. As an IT director, he leads both software and network teams to accomplish several major software and hardware projects, maintain network and system security, and continue researching the best solution which fits the company needs. He believes in the teach and learn philosophy; therefore, in 2016, he began his part time adjunct lecturer career at Santa Clara University. For more info about Nigel, you can visit his linked in profile at <https://www.linkedin.com/in/nigel-lin-71574916>.

Day 1

July 9, 2019

Tutorial

Chair: Dr. Jason C. Hung, National Taichung University of Science and Technology, Taiwan

Machine learning algorithms in a high dimensional constructed representation space.

Lecturer : Dr. Yan Pei, University of Aizu, Japan

Abstract:

In this tutorial, we will learn the basic knowledge on kernel method, which is a family of algorithms in machine learning community. The primary concept of kernel method lies in constructing a reproducing kernel Hilbert space (RKHS) where we can design machine learning model or algorithm with a linear characteristic. The topics in this tutorial are 1 presenting a data from two-dimensional space to three-dimensional space 2 what is a kernel function 3 distance and angle in RKHS 4 a simple classifier in feature space using kernel method 5 and some other issues on kernel method We will obtain the basic concept and motivation after having this tutorial.

Biography

Yan Pei obtained Doctor of Engineering at Kyushu University, Fukuoka, Japan. He received the B.Eng. and M.Eng. degree from Northeastern University, Shenyang, China. He is currently working at the University of Aizu as an Associate Professor. His research interests include Evolutionary Computation, Machine Learning, and Software Engineering.

Fi-Award Competition

Chair: Dr. Chuan-Feng Chiu, Minghsin University of Science and Technology

1. Unsupervised Labeling And Keyword Identification From Conversational Contexts

Affiliation: National Taichung University of Science and Technology

Advisor: Jia-Wei Chang, Jason C. Hung

Team member: Yi-Xiang Luo, Wei-Hung Tu, Ying-Kai Hung

2. eSports player training system

Affiliation: National Taichung University of Science and Technology

Advisor: Jason C. Hung, Jia-Wei Chang

Team member: Zong-Qi Lin, Wei-Hung Tu, Yu-Ting Hsiao

3. Design and Development of the Red Blood Cell AR Game

Affiliation: National Chiayi University

Advisor: Po-Sheng Chiu

Team member: Yan-Shan Hong, Siou-Wun Huang, Yu-Hun Chen, Jia-Jyun Sie, Yi-Bin Wang

4. Predicting the Trend of Taiwan Stocks with Deep Learning

Affiliation: Ming Chuan University

Advisor: Ming-Che Lee

Team member: Bang Tai Qu, Yu Wei Tsai, Ru Jun Xu

5. Predicting International Exchange Rate Trends with Deep Neural Networks

Affiliation: Ming Chuan University

Advisor: Ming-Che Lee

Team member: Xu Ming Chen, Zi Wang, Yu Han Zhang, Sheng Feng Zhang

6. Combining Deep Learning Algorithm and Haptic Feedback for Entertainment Applications

Affiliation: Tamkang University

Advisor: Chien-Hsing Chou

Team member: Kong-Chang Lee, Che-Ju Hsu, Hui-Ju Chen, Yi-Hung Lin,

7. Creating a Fantastic Experience with Thermal Illusion by Using Thermal and Electrical Stimulation

Affiliation: Tamkang University¹, National Taipei University², National Taiwan University³

Advisor: Chien-Hsing Chou

Team member: Mni-Chin Laio¹, Cheng-Chun Peng¹, Ping-Hsuan Han², Yang-Sheng Chen³, Chia-Chun Chang¹

8. The Method of Deep Learning on Multi-joint Robotic Design for Operating Puppet

Affiliation: Tamkang University

Advisor: Chien-Hsing Chou, Ching-Chang Wong

Team member: Wei-Tse Chang, Wei-Jin Lin, Chi-Hung Tseng, Keng-Hsiu Lee, Tzu-Hsien Yang

9. The taboo of Taiwanese Ghost Month

Affiliation: National Taichung University of Science and Technology

Advisor: Wen-Yen Lin

Team member: LUO-YA HUANG, ZI-JUN LIAN, WAN-JU CHEN, JOU-YING CHANG, XIAO-WEI JIA

10. Drawing AI Game

Affiliation: Tamkang University, LungHwa University of Science and Technology

Advisor: Lin Hui, Yung-Hui Chen

Team member: Guan Yi Jhan, Jeng-Chung Lien, Jie Chen, Teng Hom Khoo

Session 1-1

The 2019 International Workshop on Big Data Science and Computational Intelligence (DBCI2019)-session 1

Chair: Dr. Bo Liu Beijing University of Technology, China

1. Semi-automated Construction of Air Pollution Domain Ontology

Bo Liu, Jiahui Zhang, Jianqiang Li, Guangzhi Qu, Yong Li and Jianlei Lang

2. Macrosomia Fetus Prediction with Cluster-based Feature Selection Scheme

Faheem Akhtar, Jianqiang Li, Yan Pei, Shafaq Siraj and Zeeshan Shaukat

3. Optimal Features Subset Selection for Large for Gestational Age Classification Using GridSearch Based Recursive Feature Elimination with Cross-validation Scheme

Faheem Akhtar, Jianqiang Li, Yan Pei, Yang Xu, Asif Rajput, and Qing Wang

4. Turner Syndrome Prognosis with Facial Features Extraction and Selection Schemes

Xiang Gao, Jianqiang Li, Yan Pei and Faheem Akhtar

5. An Ontology based Approach for User Preference Statistics

Yuxi Chen, Xiaotong Zhang, Qing Zhao and Faheem Akhtar

Session 1-2

Internet of Things

Chair: Dr. Jun-Hong Shen, Asia University, Taiwan

1. Efficiency of Financial Holding and Non-Financial Holding Bank in Taiwan: An application of Meta-Frontier Malmquist Productivity Gap Index

Wei-Liu Liao, Cui-You Yao and Yi-Ping Yang

2. Research on Smart Infusion Set Based on Internet of Things

Yu Liu, Jing Mi, Benzhen Guo, Jingjing Yang and Xiao Zhang

3. Simulation analysis of IoT_based police force effectiveness on hostage rescue

Lin Hui, Sheng-Chih Chen, Kuei Min Wang, Yi-Cheng Chen, Li-Ling Liu and Timothy K. Shih

4. A study on the effect of an aptamer with an embedded phosphate-methylated nucleotide on the binding of a target molecule using molecular simulation

Wen-Pin Hu, Hui-Ting Lin, Wen-Yih Chen and Jeffrey J. P. Tsai

5. An Adjustable-Tree Method for Processing Reverse Nearest Neighbor Moving Queries

Ye-In Chang, Jun-Hong Shen and Che-Min Chu

6. Finding Interference between social and internet layer

Yeh-Cheng Chen, Chia-Chen Chen, Shyhtsun Felix Wu

Session 2-1

The 2019 International Workshop on Big Data Science and Computational Intelligence (DBCI2019)-session 2

Chair: Dr. Jianqiang Li, Beijing University of Technology, China

1. An Automatic Turner Syndrome Identification System with Facial Images

Guohong Yao, Jianqiang Li, Yan Pei, Faheem Akhtar and Bo Liu

2. A Deep Learning Method for MRI Brain Tumor Segmentation

Jingchao Sun, Jianqiang Li, Qing Wang, Jijiang Yang, Ting Yang and Ke Huang and Jun Li

3. Granger-causality mining in atmospheric visibility based on deep learning

Bo Liu, Xi He, Jianqiang Li, Guangzhi Qu, Jianlei Lang and Rentao Gu

4. Enhanced Intelligence Using Collective Data Augmentation for CNN Based Cataract Detection

Azhar Imran, Jianqiang Li, Yan Pei, Fawaz Mahiub Mokbal, Ji-Jiang Yang and Qing Wang

Session 2-2

The 2nd International workshop on machine learning and bioinformatics (MLB 2019)

Chair: Dr. Chong Fu, Northeastern University, China

1. A Light CNN Model for Defect Detection of LCD

Yue Lu, Ling Ma and Huiqin Jiang

2. CRC-Model for Word Attributes Classification in Chinese Diagnostic Report

Jitong Zhang, Huiyan Jiang, Liangliang Huang and Yan Pei

3. Improving Skin Lesion Segmentation with Deep Convolutional Generative Adversarial Networks

Pu-Fang Shan, Yi-Ding Wang and Chong Fu

4. A Preliminary Study of Transferring the existing CNN models for Small-size Nuclei Recognition in Histopathology Images

Seiya Fujita, Yoshiaki Ueda and Xian-Hua Han

5. Breast Cancer Classification with Ultrasound Images Based on SLIC

Zhihao Fang, Wanyi Zhang and He Ma

6. SeFM: A Sequential Feature Point Matching Algorithm for Object 3D Reconstruction

Zhihao Fang, He Ma, Xuemin Zhu, Xutao Guo and Ruixin Zhou

Day 2

July 10, 2019

Session 3-1

The 2019 International Workshop on Internet of Thing and FinTech Application (ITFA 2019)-session 1

Chair: Dr. Yu-Chih Wei, National Taipei University of Technology, Taiwan

1. Improving Health Information Exchange Frequency Using Blockchain

Wei-Chen Wu, Horng-Twu Liaw

2. Establish a predictive model for pancreatic cancer in patients with type 2 diabetes

Hsiu An Lee, Louis R. Chao, Chien-Yeh Hsu

3. Establish a medical image analysis and identification platform

Hsiao-Hsuan Chen, Hsiu An Lee, Chien-Yeh Hsu

4. Establishing a Blockchain Architecture for cross-area PHR Management

Hsin-Hua Kung, Hsiu An Lee, Chien-Yeh Hsu

Session 3-2

The international workshop on emerged soft-computing and management decision making (ESMD-2019)

Chair: Dr. You-Shyang Chen, Hwa Hsia University of Technology, Taiwan

1. Relationships between direct selling customer trust and repurchase intentions

Chiao-An Wu, Jerome Chih-Lung Chou

2. A study on using mobile augmented reality to learn 3D modeling in a Maya textbook

Cheng-Wei Chiang, Hung Yi Shen

3. Research of investment strategies of periodic versus active for the Yuanta Taiwan Dividend Plus ETF

Cheng-Ming Chang, Zhi-Gang He

4. An appropriate investigation the relationships between performance and degree of internationalization: Case in Taiwan

Cheng-Min Chuang and Chih-Chuan Yeh

5. A study for the operating case of stationery industries to modeling sales forecasting performance

You-Shyang Chen, Chien-Ku Lin, Yu-Pei Lin

6. Exploring the relationship of regular exercise and physical health of elderly in Taiwan

Su-Fen Chen

7. Vehicle Detection and Tracking in Night Times using Vision and Rear Features with An Intelligent Methodology

Jieh-Ren Chang, Wai-Leong Loh

Session 3-3

The 2019 International Workshop on Artificial intelligence, Big data and Cloud computing application and technology (ABCat 2019)-session 1

Chair: Dr. Prof. Chao-Tung Yang, Tunghai University, Taiwan

1. Usage-aware Resource Allocation in Edge computing

Kuan-Yu Ho, Tsu-Hao Hsieh, Meng-Yo Tsai and Kuan-Chou Lai

2. eNB-Assisted Peer Discovery Mechanisms for D2D Communications in LTE-Advanced Networks

Jeng-Yueng Chen, Hsia-Hung Ou, Yi-Ting Mai, Ching-Hong Fang and Chun-Chuan Yang

3. An Implementation of House Rental Platform with Blockchain Technology

Tsan-Ching Kang, Chih-Hung Chang, Yu-Wei Chan, Yin-Te Tsai and Tin-En Liu

4. Using XGBoost for Cyberattack Detection and Analysis in a Network Log System with ELK Stack

Cing-Han Lai, Chao-Tung Yang, Endah Kristiani, Jung-Chun Liu and Yu-Wei Chan

5. The Deep Learning Modules for Cyberattack Identification in NetFlow Data Log with Ceph

Ming-Lun Liu, Chao-Tung Yang, Endah Kristiani and Jung-Chun Liu

6. A Holistic and Local Feature Learning Method for Machine Health Monitoring with Convolutional Bi-Directional LSTM Networks

Shih-Meng Huang, Yu-Wei Chan, Chih-Hung Chang, Tsan-Ching Kang, Chao-Tung Yang and Yin-Te Tsai

Session 4-1

The 2019 International Workshop on Internet of Thing and FinTech Application (ITFA 2019)- session 2

Chair: Dr. Yu-Chih Wei, National Taipei University of Technology, Taiwan

1. Establish a Blockchain-Based Personal Health Check Report Secure Sharing Mechanism with Healthcare Certificate and Citizen Digital Certificate in Taiwan

Yen-Liang Lee, Hsiu An Lee, Chien-Yeh Hsu, Hung-Wen Chiu

2. Personally Identifiable Data Field Checking using Machine Learning

Yu-Chih Wei, Wei-Chen Wu, Ya-Chi Chu

3. Using Blockchain in Game Virtual Items Platform

Jiun-Ting Chen

4. Augmented Reality Applied to Campus Guide Sport Assist

Kai-Bin Yang, Jiun-Ting Chen

Session 4-2

Deep Learning

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

1. Transportation Management and Logistics System with Business Intelligence Approach

Plubpla Dounpong and Poonphon Suesaowaluk

2. Semantic-Aware Techniques Enhanced Recommendations in Social Network

Jia-Yi Liao, Jia-Wei Chang, Chun-Yu Chang and Ying-Hung Pu

3. Low Illumination Image Enhancement Based on U-net

Mengxing Li and Suyu Wang

4. The Explore of Using Deep Learning Models for Fake News Classification

Ting-Hao Chang, Wei-Hung Tu, Jia-Wei Chang, Tien-Chi Huang and Yi-Xiang Luo

Session 4-3

The 2019 International Workshop on Artificial intelligence, Big data and Cloud computing application and technology (ABCat 2019)-session 2

Chair: Dr. Prof. Chao-Tung Yang, Tunghai University, Taiwan

1. The Implementation of a Network Log System Using RNN on Cyberattack Detection with Data Visualization

Chao-Tung Yang, Wei-Je Jiang, Endah Kristiani, Yu-Wei Chan and Jung-Chun Liu

2. Designing a Near Optimal Solution via Simulated Annealing for Dimensional Chain Assembly

Chen-Kun Tsung, Hsuan-Yu Huang, Shu-Hui Yang, Po-Nien Tsou, Ming-Cheng Tsai and Yi-Ping Huang

3. The Implementation of Pressure Measurement of Feet and Jogging Position Adjustment System

Chi Shian Chien and Chen Wan Tsung

4. An Integrated Framework of Supply Chain Traceability based on Blockchain Technology

Chien-Ying Chen, Tsan-Ching Kang, Yu-Wei Chan, Chao-Tung Yang, Chih-Hung Chang and Yin-Te Tsai

5. The Implementation of Objects Detection and Analysis Using Deep Learning with GPU

Chao-Tung Yang, Tianyi Zhang, Endah Kristiani and Chun-Tse Cheng

Session 5-1

The 2019 International Workshop on Internet of Thing and FinTech Application (ITFA 2019)- session 3

Chair: Dr. Wei-Chen, Wu Taiwan

1. Multi-sensations Mechanism of Users on the Learning Platform Design of Music Aural Skills

Yu Ting Huang, Chi Nung Chu

2. A Research on Real-name Blockchain System Bind Health Passbook Electronic Medical Record Exchanges Mechanism

Jui-Hung Kao, Wei-Chen Wu, Li-Min Hsu, Horng-Twu Liaw

3. A Comparative Analysis of Students' Learning Effectiveness in Pathways of Multiple Admission System—A Case Study of Students in A Nursing University

Yu-Yu Yen, Jui-Hung Kao, Horng-Twu Liaw

4. An Eye Tracking for Virtual Reality Advertising: A Pilot Study Understanding Visual Attention

Chun-Chia Wang, Shih-Cheng Wang, Chun-Hong Huang, and Chiung-Pei Chu,

Session 5-2

Modeling and Data Mining

Chair: Dr. Wen-Yen Lin, National Taichung University of Science and Technology, Taiwan

1. Research on Taxi Sharing Mode Based on Live Map Matching

Zhang Xijun, Zhang Qirui, Zhang Lijuan and Wang Chenhui

2. A computational investigation of atrial fibrillation treatment using HIFU energy source

Huang-Wen Huang, Lin Hui, Yung-Hui Chen and Yu Hsiang Cheng

3. Research on the Influence of BBL and EBL on Students' Learning Factors in Digital Sculpture Course

Hung Sun

4. The impact of Interface User Experience in Learning Website in Multimedia Learning and Production

Chin-Chun Chen

5. Witch Roundtable: Investigating PCG for Player Experience

Yi-Chun Liao, Jie-Fen You, Tsai-Ling Chi, Yu-Cing Luo and Chia-Hsin Hsiao

6. Virtual reality applied to astronomy education in primary and middle schools

Yang Tung-Hua, Chen Chin-Chun, Huang Ching-Chi and Yang Yi-Ru

Session 5-3

Neural Networks

Chair: Dr. Chih-Kun Ke, National Taichung University of Science and Technology, Taiwan

1. 3D Convolutional Neural Networks for Super-Resolution Reconstruction of Hyperspectral Images

Xin Li, Suyu Wang and Chen Yu

2. Real-time quality monitoring and diagnosis using convolutional neural network: an application to the pasting process of battery manufacturing

Yumin Liu, Zheyun Zhao and Yang Li

3. Recent Advances in Parametric Modeling of Microwave Components Using Neural Networks

Weicong Na and Wanrong Zhang

4. Travel Route Recommendation via Location-based Social Network and Skyline Query

Chih-Kun Ke, Szu-Cheng Lai, Chia-Yu Chen and Li-Te Huang

5. The Study on the Access Mechanism for My Health Bank

Mei-Yu Wu, Chih-Kun Ke and Li-Hao Chung

Day 3

July 11, 2019

Session 6-1

Evolutionary Computation

Chair: Dr. Lin Hui, Tamkang University, Taiwan

1. Research on Malicious Code Classification Algorithms Based on Multi-feature Fusion

Dapeng Lang, Wei Ding, Haocheng Jiang and Xiangyu Liu

2. Application of particle spacing based PSO algorithm in sintering batching

Lihui Sun and Xiaojing Wu

3. A Biomedical Way for Personality Assessment

Chun-Hsiung Tseng, Yung-Hui Chen, Lin Hui and Jia-Rou Lin

4. The Application of Game with Artificial Intelligence

Lin Hui, Sheng-Chih Chen, Kuei Min Wang, Timothy K. Shih, Jie Chen and Teng Hom Khoo

5. Research on gene similarity search algorithm in heterogeneous network

Jinlian Du, Kaimin Yang and Xueyun Jin

Session 6-2

The International Workshop for Artificial intelligence & Big data Convergence (ABC 2019) - session 1

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

1. A Study of Used Car Trading Management System based Block-chain

Byeongtae Ahn, Seung-Gyun Yoo

2. 3D Printing based Tracking Guidance using Depth and Visual Information Fusion

Sunjin Yu

3. An Algorithm of Protecting Personal Information through Multi-Level Blocking

Seokjoo Chang, Seok-Woo Jang

4. Authentication Protocol for Improving Safety of Medical IoT Devices

Yoon-Su Jeong, Dong-Ryool Kim and Seung-Soo Shin

Session 6-3

New Trends in Social Network

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

1. The Research of Applying Affective Computing based on Deep Learning for eSports Training

Jason C. Hung, Zong-Qi Lin, Chun-Hong Huang and Kuan-Cheng Lin

2. An empirical study on implement cybersecurity framework based in National Museum of Natural Science

Hsin-Chuan Lai, Guey-Shya Chen, Hsin-Chuan Lai and Min-Feng Lee

3. A sharing platform of emergency cars based on blockchain environment

Yishui Zhu, Feng Du, Bo Wu and Zongtao Duan

4. A Model for Resisting Data Poisoning Based on Credibility Calculation

Dapeng Lang, Bohong Wang, Wei Sun, Fang Bai and Feiyang Xiao

5. Combined General Vector Machine for Single Point Electricity Load Forecast

Binbin Yong, Yongqiang Wei, Jun Shen, Fucun Li, Xuetao Jiang and Qingguo Zhou

Session 7-1

The 3rd International Conference on Advanced Information Technology with Sensor or Sensor Network (ADINTECH 2019)

Chair: Dr. Wen-Yen Lin, National Taichung University of Science and Technology, Taiwan

1. A design of Quadrature VCO using by high performance differential Inductors

Miyoung Lee

2. Indoor Plant Grower Based on Smart Farm

Jihun Kim and Young Jae Lee

3. Coupling Technique of Multiple Neural Networks for e-Procurement Fraud Detection

Jin Kim, Hun-Hee Kim and Chang-Suk Oh

4. Beyond Smart Cities: Sensor Network for Personal Life, Industrial Economies and Public Administration

Jeongeun Byun, Jeoung-Woo Byun and Jae-Pyo Hong

5. Single-Layer Half Adder Structure Based on Quantum-Dot Cellular Automata

Nuriddin Safoev and Jun-Cheol Jeon

Session 7-2

The International Workshop for Artificial intelligence & Big data Convergence (ABC 2019) - session 2

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

1. Protection Method of IoT Privacy Based on Blockchain in the Cloud Environment

Yoon-Su Jeong, Dong-Ryool Kim and Seung-Soo Shin

2. Facial Imperfection Detection and Segmentation to Identify Skin Conditions from a Facial Photograph taken with a Smartphone Camera

Kyung Joo Cheoi and Mi-hye Kim

3. Naïve Bayes' classification with document and semantic embedding

Jinseog Kim, Seung-Gyun Yoo

4. Business Analytics and R&D Decision Making

Eun Sun Kim, Yunjeong Choi and Jeongeun Byun

5. Measuring Public Opinion with Social Media Use in Local Government of Asian Cities

Shih-Nung Chen, Ridho Al-Hamdi, Yong-Kok Tan, Aulia Nur Kasiwi, and Achmad Nurmandi

Session 7-3

Technological Education and Multimedia

Chair: Dr. Posheng Chiu, Taiwan National Chiayi University, Taiwan

1. A STEM Education Evaluation Model based on Meaningful Learning for Computational Thinking Course

Hua-Xu Zhong, Chin-Feng Lai, Jui-Hung Chang, Ying-Hung Pu, Po-Sheng Chiu

2. PBL for Developing Digital Game: Take a Multimedia Course as Example

Wen-Yen Lin, Yu Shu, Ya-Ling Tu, Xuan-Chen Liu and Min-Chih Chen

3. The Design of Collaborative Surveillance System based on Blockchain Technology

Chuan-Feng Chiu, Hsiao-Yu Wang, Han-Yun Hsieh and Wei-Chuan Chung

4. Research on Medical Image Fusion Technology Based on NSCT and PCNN

Jin-Lian Du and Jiang Li

5. Chatbots for Smart Customer Services on Official Museum Websites

Yi Ting Chen

6. Schematic Cycle Counting Approach for Retail Business

Natth Pattaravongwanich and Santithorn Bunchua

Day 4

July 12, 2019

AM: Executive Committee Meeting

PM: Organizing Committee Meeting

Conference Venue

The 9th International Conference on Frontier Computing - Theory, Technologies and Applications will be held at the **Kitakyushu International Conference Center, Kitakyushu, Fukuoka, Japan.**



Access To Kitakyushu International Conference Center

Step 1.

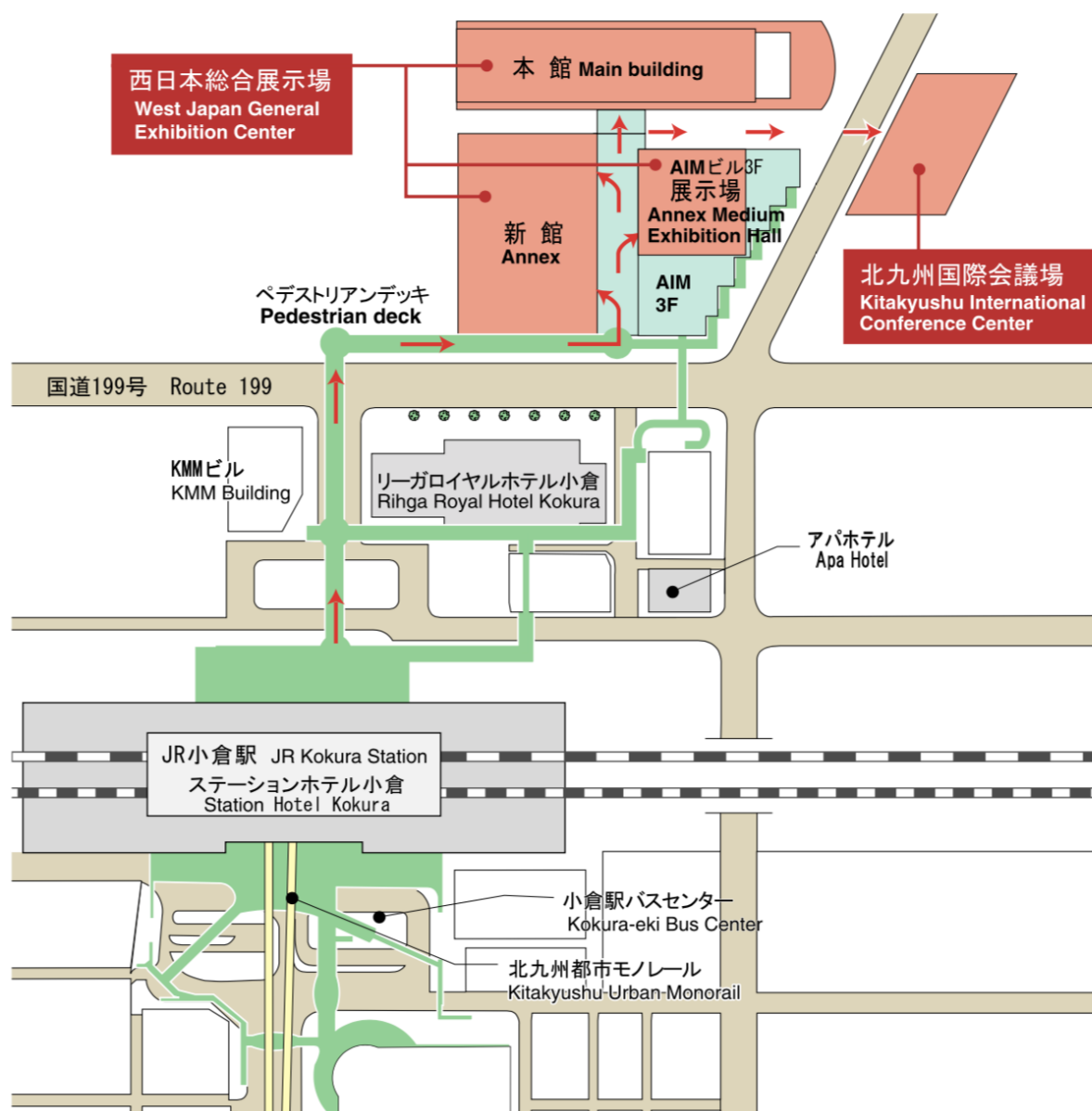
Take Subway from Fukuoka Airport to Hakata Station (6 minutes)

Step 2.

Take Shinkansen from Hakata Station to Kokura Station (16 minutes)

Step 3.

Walk to venue from JR Kokura Station (8 minutes)



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