The 11th International Conference on Computer Science and its Applications (CSA 2019)
&
The 14th KIPS International Conference on Ubiquitous Information Technologies and Applications (CUTE 2019)

December 18-20, 2019
Macau, China

Organized by

KIPS CSWRG

KIPS Korea Information Processing Society

KIPS CSWRG Korea Information Processing Society Computer Software Research Group

Conferences

The 14th International Conference on Multimedia and Ubiquitous Engineering (MUE 2020)

- April 22-24 2020, Chongqing, China
- http://www.mue-conference.org/2020/

The 15th International Conference on Future Information Technology (FutureTech 2020)

- April 22-24 2020, Chongqing, China
- http://www.futuretech-conference.org/2020/

Message from the CSA 2019 General Chair

International Conference on Computer Science and its Applications (CSA 2019) is the 11th event of the series of international scientific conference. This conference takes place Macau, China, December 18 - 20, 2019. CSA 2019 will be the most comprehensive conference focused on the various aspects of advances in computer science and its applications. CSA 2019 will provide an opportunity for academic and industry professionals to discuss the latest issues and progress in the area of CSA. In addition, the conference will publish high quality papers which are closely related to the various theories and practical applications in CSA. Furthermore, we expect that the conference and its publications will be a trigger for further related research and technology improvements in this important subject. CSA 2019 is the next event in a series of highly successful International Conference on Computer Science and its Applications, previously held as CSA 2018 (10th Edition: Kuala Lumpur, Malaysia), CSA 2017 (9th Edition: Taichung, Taiwan), CSA 2016 (8th Edition: Bangkok, Thailand, 2016), CSA 2015 (7th Edition: Cebu, December, 2015), CSA 2014 (6th Edition: Guam, December, 2014), CSA 2013 (5th Edition: Danang, December, 2013), CSA 2012 (4th Edition: Jeju, November, 2012), CSA 2011 (3rd Edition: Jeju, December, 2011), CSA 2009 (2nd Edition: Jeju, December, 2009), and CSA 2008 (1st Edition: Australia, October, 2008).

The papers included in the proceedings cover the following topics: Mobile and ubiquitous computing, Dependable, reliable and autonomic computing, Security and trust management, Multimedia systems and services, Networking and communications, Database and data mining, Game and software engineering, Grid and scalable computing, Embedded system and software, Artificial intelligence, Distributed and parallel algorithms, Web and internet computing and IT policy and business management.

Accepted and presented papers highlight new trends and challenges of Computer Science and its Applications. The presenters showed how new research could lead to novel and innovative applications. We hope you will find these results useful and inspiring for your future research. We would like to express our sincere thanks to Steering Chairs: James J. (Jong Hyuk) Park (SeoulTech, Korea), Yi Pan (Georgia State University, USA), Han-Chieh Chao (National Ilan University, Taiwan), Young-Sik Jeong (Dongguk University, Korea), Vincenzo Loia (University of Salerno, Italy).

\Our special thanks go to the Program Chairs: Arun Kumar Sangaiah (VIT University, India), Mu-Yen Chen (National Taichung University of Science and Technology, Taiwan), Houcine Hassan (Universitat Politècnica de València, Spain), and all Program Committee members and all the additional reviewers for their valuable efforts in the review process, which helped us to guarantee the highest quality of the selected papers for the conference.

We cordially thank all the authors for their valuable contributions and the other participants of this conference. The conference would not have been possible without their support. Thanks are also due to the many experts who contributed to making the event a success.

CSA 2019 General Chair

Simon James Fong, University of Macau, Macau, China
Kyungeun Cho, Dongguk University-Seoul, Korea
Kim-Kwang Raymond Choo, The University of Texas at San Antonio, USA
Victor Leung, The University of British Columbia, Canada
Jungho Kang, Baewha Women's University, Korea

Message from the CSA 2019 Program Chairs

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CSA 2019 provides an opportunity for academic and industry professionals to discuss the latest issues and progress in the area of Computer Science. In addition, the conference contains high quality papers which are closely related to the various theories and practical applications in Computer Science. Furthermore, we expect that the conference and its publications will be a trigger for further related research and technology improvements in this important subject. CSA 2019 is the next event in a series of highly successful International Conference on Computer Science and its Applications, previously held as CSA 2018 (10th Edition: Kuala Lumpur, Malaysia), CSA 2017 (9th Edition: Taichung, Taiwan), CSA 2016 (8th Edition: Bangkok, Thailand, 2016), CSA 2015 (7th Edition: Cebu, December, 2015), CSA 2014 (6th Edition: Guam, December, 2014), CSA 2013 (5th Edition: Danang, December, 2013), CSA 2012 (4th Edition: Jeju, November, 2012), CSA 2011 (3rd Edition: Jeju, December, 2011), CSA 2009 (2nd Edition: Jeju, December, 2009), and CSA 2008 (1st Edition: Australia, October, 2008).

CSA 2019 contains high quality research papers submitted by researchers from all over the world. Each submitted paper was peer-reviewed by reviewers who are experts in the subject area of the paper. Based on the review results, the Program Committee accepted papers.

For organizing an International Conference, the support and help of many people is needed. First, we would like to thank all authors for submitting their papers. We also appreciate the support from program committee members and reviewers who carried out the most difficult work of carefully evaluating the submitted papers.

We would like to give my special thanks to Prof. James J. (Jong Hyuk) Park, Prof. Yi Pan, Prof. Han-Chieh Chao, Prof. Young-Sik Jeong, and Prof. Vincenzo Loia the Steering Committee Chairs of CSA for their strong encouragement and guidance to organize the symposium. We would like to thank CSA 2019 General Chairs: Prof. Simon JamesFong, Prof. KyungeunCho, Prof. Kim-Kwang RaymondChoo, Prof. Victor Leung, and Prof. Jungho Kang. We would like to express special thanks to committee members for their timely unlimited support.

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Message from the CUTE 2019 General Chairs

On behalf of the organizing committees, it is our pleasure to welcome you to the 14th International Conference on Ubiquitous Information Technologies and Applications (CUTE 2019), will be held in Macau, China on December 18-20, 2019.

This conference provides an international forum for the presentation and showcase of recent advances on various aspects of ubiquitous computing. It will reflect the state-of-the-art of the computational methods, involving theory, algorithm, numerical simulation, error and uncertainty analysis and/or novel application of new processing techniques in engineering, science, and other disciplines related to ubiquitous computing.

The papers included in the proceedings cover the following topics: Ubiquitous Communication and Networking, Ubiquitous Software Technology, Ubiquitous Systems and Applications, Ubiquitous Security, Privacy and Trust. Accepted papers highlight new trends and challenges in the field of ubiquitous computing technologies. We hope you will find these results useful and inspiring for your future research.

We would like to express our sincere thanks to Steering Committees: James J. Park (SeoulTech, Korea), Doo-Soon Park (SoonChunHyang University, Korea), Young-Sik Jeong (Dongguk University, Korea), Hsiao-Hsi Wang (Providence University, Taiwan), Laurence T. Yang (St.Francis Xavier University, Canada), Hai Jin (Huangzhong University of Science and Technology, China), Chan-Hyun Youn (KAIST, Korea), Jianhua Ma (Hosei University, Japan), Mingyi Guo (Shanghai Jiao Tong University, China), Weijia Jia (City University of Hong Kong, Hong Kong). We would also like to express our cordial thanks to the Program Chairs & Program Committee members for their valuable efforts in the review process, which helped us to guarantee the highest quality of the selected papers for the conference.

Finally, we would thank all the authors for their valuable contributions and the other participants of this conference. The conference would not have been possible without their support. Thanks are also due to the many experts who contributed to making the event a success.

CUTE 2019 General Chairs

Simon James Fong, University of Macau, Macau, China
Yi Pan, Georgia State University, USA
Luis Javier Garcia Villalba, Universidad Complutense de Madrid, Spain

Message from the CUTE 2019 Program Chairs

Welcome to the 14th International Conference on Ubiquitous Information Technologies and Applications (CUTE 2019), will be held in Macau, China on December 18-20, 2019.

The purpose of the CUTE 2019 conference is to promote discussion and interaction among academics, researchers and professionals in the field of ubiquitous computing technologies. This year the value, breadth, and depth of the CUTE 2019 conference continues to strengthen and grow in importance for both the academic and industrial communities. This strength is evidenced this year by having the highest number of submissions made to the conference.

For CUTE 2019, we received a lot of paper submissions from various countries. Out of these, after a rigorous peer review process, we accepted only high-quality papers for CUTE 2019 proceeding, published by the Springer. All submitted papers have undergone blind reviews by at least two reviewers from the technical program committee, which consists of leading researchers around the globe. Without their hard work, achieving such a high-quality proceeding would not have been possible. We take this opportunity to thank them for their great support and cooperation.

Finally, we would like to thank all of you for your participation in our conference, and also thank all the authors, reviewers, and organizing committee members. Thank you and enjoy the conference!

CUTE 2019 Program Chairs

Muhammad Khurram Khan, King Saud University, Kingdom of Saudi Arabia
Neil Y. Yen, University of Aizu, Japan
Yunsick Sung, Dongguk University, Korea

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Invited Speaker

Cyber-Physical-Social Systems: Design Automation and Data Analytics

Prof. Laurence T. Yang

Department of Computer Science

St Francis Xavier University, Canada

Abstract:

The booming growth and rapid development in embedded systems, wireless communications, sensing techniques and emerging support for cloud computing and social networks have enabled researchers and practitioners to create a wide variety of Cyber-Physical-Social Systems (CPSS) that reason intelligently, act autonomously, and respond to the users' needs in a context and situation-aware manner. The CPSS are the integration of computation, communication and control with the physical world, human knowledge and sociocultural elements. It is a novel emerging computing paradigm and has attracted wide concerns from both industry and academia in recent years.

Currently, CPSS are still in their infancy stage. Our first ongoing research is to study effective and efficient approaches for CPSS modeling and general system design automation methods, as well as methods analyzing and/or improving their power and energy, security, trust and reliability features.

Once the CPSS have been designed, they collect massive data (Volume) from the physical world by various physical perception devices (Variety) in structured/semi-structured/unstructured format and respond the users' requirements immediately (Velocity) and provide the proactive services (Veracity) for them in physical space or social space. These collected big data are normally high dimensional, redundant and noisy, and many beyond the processing capacity of the computer systems. Our second ongoing research is focused on the Data-as-a-Service framework, which includes data representation, dimensionality reduction, incremental and distributed processing (securely on cloud), deep learning, clustering, prediction and proactive services, aiming at representing and processing big data generated from CPSS, providing more valued smart services for human and refining the previously designed CPSS.

This talk will present our latest research on these two directions. Corresponding case studies in some applications such as smart home and traffics will be shown to demonstrate the feasibility and flexibility of the proposed system design methodology and analytic framework.

Biography:

Laurence T. Yang got his BE in Computer Science and Technology and BSc in Applied Physics both from Tsinghua University, China and Ph.D in Computer Science from University of Victoria, Canada.

He is a professor and W.F. James Research Chair at St. Francis Xavier University, Canada. His research includes parallel and distributed computing, embedded and ubiquitous/pervasive computing, and big data. He has published around 400 international journal papers in the above areas, of which half on top IEEE/ACM Transactions and Journals, others mainly on Elsevier, Springer and Wiley Journals. In recent several years, 4 and 23 papers have been listed as top 0.1% and top 1% highly-cited ESI papers, respectively.

He has been involved actively act as a steering chair for 6+ IEEE international conferences. He served as the vice-chair of IEEE CS Technical Committee of Supercomputing Applications (2001-2004), the chair of IEEE CS Technical Committee of Scalable Computing (2008-2011). He was the vice-chair (2014) and the chair (2015) of IEEE Canada Atlantic Section. Now he is the chair of IEEE CS Technical Committee of Scalable Computing (2018-), the co-chair of IEEE SMC Technical Committee on Cybermatics (2016-) and the vice-chair of IEEE CIS Technical Committee on Smart World (2016-2018).

In addition, he was the editors-in-chief of several international journals. Now he is serving as an editor for many international journals (such as IEEE Systems Journal, IEEE Access, Future Generation of Computer Systems (Elsevier), Information Sciences (Elsevier), Information Fusion (Elsevier), Big Data Research (Elsevier), etc). He has been acting as an author/co-author or an editor/co-editor of more than 25 books from well-known publishers. He has been invited to give around 40 keynote talks at various international conferences and symposia.

His recent honours and awards include Fellow of Engineering Institute of Canada (2019), AMiner Most Influential Scholar Award for Internet of Things (2018), IEEE TCCPS Distinguished Leadership Award on Cyber-Physical Systems (2018), IEEE SCSTC Life-Career Achievement Award on Smart Computing (2018), Fellow of Canadian Academy of Engineering (2017), IEEE System Journal Best Paper Award (2017), IEEE TCSC Award for Excellence in Scalable Computing (2017), and the PROSE Award on Engineering and Technology (2010).

PROGRAM SCHEDULE FOR CSA & CUTE 2019

Day 1, December 18, 2019				
Time	**Min**	**HALL A**	**HALL B**	**HALL C**
08: 40-09: 00	20	**Registration**		
09: 00-10: 30	90	**Session A-1** **CSA** **Chair: Gi-Chul Yang**	**Session B-1** **CSA** **Chair: JiSu Park**	**Session C-1** **CUTE** **Chair: Geun-Hyung Kim**
10: 30-10: 40	10	**Coffee Break**		
10: 40-12: 10	90	**Session A-2** **CSA** **Chair: Byoungwook Kim**	**Session B-2** **CUTE** **Chair: Jin Gon Shon**	**Session C-2** **CUTE** **Chair: Yeong-Seok Seo**
12: 10-13: 30	80	**Lunch**		
13: 30-14: 20	50	**Keynote Speech: Laurence T. Yang** **"Cyber-Physical-Social Systems: Design Automation and Data Analytics"**		
14: 20-14: 30	10	**Coffee Break**		
14: 30-16: 00	90	**Session A-3** **CSA** **Chair: Yan Li**	**Session B-3** **CUTE** **Chair: Byoungwook Kim**	**Session C-3** **CUTE** **Chair: Yeong-Seok Seo**
16: 00-16: 10	10	**Coffee Break**		
16: 10-17: 30	90	**Session A-4** **CSA** **Chair: Joon-Min Gil**	**Session B-4** **SXRT 2019** **Chair: Yunsick Sung**	**Session C-4** **CUTE** **Chair: Soohyun Cho**
17: 30-18: 00	30	**Break**		
18: 00-19: 30	90	**Banquet**		

Day 2, December 19, 2019			
Time	**Min**	**HALL A**	**HALL B**
08: 40-09: 00	20	**Registration**	
09: 00-10: 30	90	**Session A-5** **CSA** **Chair: Jun-Ho Huh**	**Session B-5** **IPV 2019** **Chair: Nammee Moon**
10: 30-10: 40	10	**Coffee Break**	
10: 40-12: 10	90	**Session A-6** **CSA/CUTE** **Chair: Jun-Ho Huh**	**Session B-6** **IPV 2019** **Chair: Nammee Moon**

Day 3, December 20, 2019		
Time	**Min**	**HALL A**
09: 30-11: 00	90	**CSA/CUTE - Organizing Committee Meeting**
11: 00-12: 30	90	**Local Arrangement Committee Meeting**

1. **A paper presentation should be made by one of authors of the paper for 15 minutes (10 minutes for the presentation itself and 5 minutes for Q/A).**
2. **All speakers of each session should meet the session chair at their room 10 minutes before the session begins.**
3. **Windows 7 laptops running the Adobe Reader and Microsoft Office for paper presentations will be prepared. Please prepare for your presentation.**

DETAILED SCHEDULE FOR

THE 11TH INTERNATIONAL CONFERENCE ON COMPUTER SCIENCE AND ITS APPLICATIONS (CSA 2019)
&
THE 14TH KIPS INTERNATIONAL CONFERENCE ON UBIQUITOUS INFORMATION TECHNOLOGIES AND APPLICATIONS (CUTE 2019)

Day 1, December 18, 2019 (Wednesday)

08: 30-09: 00 Registration

09: 00-10: 30 Session A-1 : CSA
(HALL A)
(Chair: Gi-Chul Yang)

1. **Gated Convolutional Neural Networks for Text Classification**
   Jin Sun, Rize Jin, Xiaohan Ma, Joon-young Park, Kyung-ah Sohn, Tae-sun Chung
2. **Algorithm Research of Face Recognition System Based on Haar**
   Xiaoguang Deng, Zijiang Zhu, Jing Chang, Xiaojing Ding
3. **Personal Authentication based on EEG Signal and Deep Learning**
   Gi-Chul Yang
4. **Security Information & Event Management Model Based on Defense-in-Depth Strategy for Vital Digital Assets in Nuclear Facilities**
   Sangwoo Kim, Seonuk Kim, Ki-haeng Nam, Seung-min Kim, Kook-huei Kwon
5. **Preserving Sustainability for Mission-oriented Cyber-Physical Systems Collaboration**
   Horn Daneth, Nazakat Ali, Jang-Eui Hong
6. **Deep Learning based Malware Analysis**
   Sunoh Choi

09: 00-10: 30 Session B-1 : CSA
(HALL B)
(Chair: JiSu Park)

1. **Implementation of a Container-based Interactive Environment for Big-Data Analysis on Supercomputer**
   Seungmin Lee, Ju-Won Park, Kimoon Jeong, Jaegyoon Hahm
2. **Design of Restricted Coulomb Energy Neural Network Processor for Multi-modal Sensor Fusion**
   Jaechan Cho, Minwoo Kim, Yongchul Jung, Yunho Jung

3. **Low Complexity Pipelined FFT Processor for Radar Applications**
   Yongchul Jung, Jaechan Cho, Yunho Jung
4. **An Improved DBSCAN method considering Non-Spatial Similarity by using Min-Hash**
   Jin Uk Yoon, Byoungwook Kim, Joon-Min Gil
5. **Efficient Data Noise-Reduction for Cyber Threat Intelligence System**
   Seonghyeon Gong, Changhoon Lee
6. **An Architecture of Edge Server based Real-Time Robot Vision Processing**
   Kwang-il Hwang, Young-Bin Jeong, Junghoon Lee

09: 00-10: 30 **Session C-1 : CUTE**
(HALL C)
(Chair: Geun-Hyung Kim)

1. **A Method for Nocturia Monitoring in Smart Home using Decision Trees**
   Siriporn Pattamaset, Kwang Yong Kim, Min Kyu Joo, Jae Sung Choi
2. **Efficient Data Aggregation for Human Activity Detection with Smart Home Sensor Network using K-means Clustering Algorithm**
   Siriporn Pattamaset, Jae Sung Choi
3. **Design and Implementation of Real-Time Vehicle Recognition and Detection System based on YOLO**
   Hyeonmoo Jeon, Gilwoo Lee, Byeongcheol Jeong, Jae Sung Choi, Jeong-Dong Kim, Bongjae Kim
4. **Deep Learning-based Experimentation for Predicting Secondary Structure of Amino Acid Sequence**
   Syntia Widyayuningtias Putri Listio, Ermal Elbasani, Tae-Jin Oh, Bongjae Kim, Jeong-Dong Kim
5. **How will blockchain technology affect the future of the Internet?**
   Geun-Hyung Kim
6. **Design of middleware to support auto-scaling in Docker-based multi host environment**
   Minsu Chae, Sangwook Han, HwaMin Lee

10: 30-10: 40 **Coffee Break**

10: 40-12: 10 **Session A-2 : CSA**
(HALL A)
(Chair: Byoungwook Kim)

1. **A Web Archiving Method for Preserving Content Integrity by using Blockchain**
   Hyun Cheon Hwang, JiSu Park, Byung Rae Lee, Jin Gon Shon
2. **An SDN-based Distributed Identifier Locator Separation scheme for IoT networks**
   Chan-Haeng Lee, JiSu Park, Jin Gon Shon
3. **An Efficient Disposition for Wrist-worn Device Usage Time Expansion in Wearable Computing Environment**
   Jong won Lee, JiSu Park, Heung-Keun Kim, Jin Gon Shon

4. **A Study on the implementation of GRU Autoencoder Model for Detecting Insider Anomaly Behavior**
   Kyeong Geun Ryu, Deok Gyu Lee
5. **Blockchain based Authentication Method for ThingsBoard**
   Sung Il Jang, Ji Yong Kim, Alisher Iskakov, M.Fatih Demirci, Kok Seng Wong, Young Jong Kim, Myung Ho Kim
6. **Secure Management of Patient Medical Data Using QR Code and CP-ABE**
   Su-Mee Moon, Beakcheol Jang, Hoon Yoo, Jong Wook Kim

10: 40-12: 10 Session B-2 : CUTE
(HALL B)
(Chair: Jin Gon Shon)

1. **Analysis of Learning Model for Improvement of Software Education in Korea**
   Ji-Hoon Seo, Kil-Hong Joo
2. **Implementation and Experiment of Join Optimization Algorithm for Inverted Index in an RDBMS**
   Yoonmi Shin, Odsuren Temuujin, Minhyuk Jeon, Jinhyun Ahn, Dong-Hyuk Im
3. **Real-Time Subscriber Session Management on 5G NSA Wireless Network Systems**
   Kwan Young Park, Onur Soyer
4. **PCA and K-Means based Genome Analysis for Hymenobacter sp. PAMC26628**
   Ermal Elbasani, So-Ra Han, Tae-Jin Oh, Bongjae Kim, Jeong-Dong Kim
5. **An Efficient Micro-service Placement scheme based on Fuzzy System for Edge-enabled Digital Signage service**
   A-Young Son, Eui-Nam Huh
6. **PCA and K-Means based Genome Analysis for Hymenobacter sp. PAMC26628**
   Ermal Elbasani, So-Ra Han, Tae-Jin Oh, Bongjae Kim, Jeong-Dong Kim
7. **Intelligent Personalized Transport Alert System with Edge Computing**
   Hyolin Choi, Jiwon Hong, Yongik Yoon

10: 40-12: 10 Session C-2 : CUTE
(HALL C)
(Chair: Yeong-Seok Seo)

1. **Rethinking Blockchain and Decentralized Learning: Position Paper**
   Sandi Rahmadika, Kyung-Hyune Rhee
2. **A Study for Accelerating of Convolution Operations based on Multiple GPUs with MPI**
   Boseon Hong, Geunmo Kim, Sungmin Kim, Jeong-Dong Kim, Bongjae Kim
3. **Requirements of Future Network for Blockchain Platform Operation**
   Suyeon Kim
4. **TELL ME：Design of an intelligence-empowered recommendation system**
   Kuan-Hua Lai, Neil Y. Yen, Jason C. Hung
5. **Estimation of Weights in Growth Stages of Onions Using Statistical Regression Models and Deep Learning Algorithm**
   Wanhyun Cho, Junki Kim, Myung-Hwan Na, Sangkyoon Kim, Hyejin Lee

6. **Simulation and Analysis of RF Attacks on Wireless SCADA System**
   Sung-Won Lee, Ji-Hun Kim, Jonghee Youn

12: 10-13: 30 Lunch

13: 30-14: 20 Keynote Speech

Keynote Speech: Laurence T. Yang
"Cyber-Physical-Social Systems: Design Automation and Data Analytics"

14: 20-14: 30 Coffee Break

14: 30-15: 50 Session A-3 : CSA
(HALL A)
(Chair: Yan Li)

1. **Restore Fingerprints Using Pix2Pix**
   JiHwan Moon, GyeYoung Kim
2. **Generation of fake iris images using CycleGAN**
   Jae-gab Choi, Jin-ho Park, Gye-young Kim
3. **Robust 3D Reconstruction Through Noise Reduction of Ultra-fast Images**
   Nu-lee Song, Jin-ho Park, Gye-young Kim
4. **Web Site Usage History Management System Using Blockchain**
   Cheolmin Yeom, Seonghwa Yeon, Sunghyun Yu, Yoojae Won
5. **Blockchain-Based Multi-Fogcloud Authentication System**
   Jae Hwan Kwon, Young Kook Kim, Askhat Temir, Kamalkhan Artykbayev, M.Fatih Demirci, Myung Ho Kim
6. **Pedestrian Detection Using Regression-Based Feature Selection and Disparity Map**
   Chung-Hee Lee
7. **Mobile Charger Planning for Wireless Rechargeable Sensor Network based on Ant Colony Optimization**
   Fan-Hsun Tseng, Hsin-Hung Cho, Chin-Feng Lai

14: 30-15: 50 Session B-3 : CUTE
(HALL B)
(Chair: Byoungwook Kim)

1. **An implementation of DAQ system for a smart fish farm: based on a semi circulation filtration system in S. Korea**
   Joo H. Jean, Na E. Lee, Yoon H. Lee, Jea M. Jang, Moon G. Joo, Byung H. Yoo, Jea D. Yoo
2. **Lighting System to Maintain Color Temperature of Natural Light by Reflecting Changes of the Incoming Light**
   Se-Hyun Lee, Seung-Taek Oh, Jae-Hyun Lim

3. **Deep Neural Network Model for Calculating Ultraviolet Information with Seasonal Characteristics from Illuminance**
   Deog-Hyeon Ga, Dae-Hwan Park, Seung-Taek Oh, Heon-Tag Kong, Jae-Hyun Lim
4. **Model for Classifying Color Temperature Anomalies of Natural Light in Real Time using Deep Learning**
   Geon-Woo Jeon, Seung-Taek Oh, Heon-Tag Kong, Jae-Hyun Lim
5. **An Approach to Improving Software Security through Access Control for Data in Programs**
   Hyun-il Lim

14: 30-15: 50 Session C-3 : CUTE
(HALL C)
(Chair: Yeong-Seok Seo)

1. **Crack Detection using Fully Convolutional Network in Wall-Climbing Robot**
   Myeongsuk Pak, Sanghoon Kim
2. **On Invariance of Concept Stability for Attribute Reduction in Concept Lattice**
   Fei Hao, Erhe Yang, Lantian Guo, Aziz Nasridinov, Doo-Soon Park
3. **Divide the FCA Network Graph into the Various Community based on the k-Clique Methods**
   Phonexay Vilakone, Min-Pyo Hong, Doo-Soon Park
4. **Low-resolution LiDAR Upsampling using Weighted Median Filter**
   Hyun-bin Lim, Eung-su Kim, Pathum Rathnayaka, Soon-Yong Park
5. **Design of Tablet-Based Live Mobile Learning System Supporting Improved Annotation**
   Jang Ho Lee
6. **L-RDFDiversity: Distributed de-identification for large RDF data with Spark**
   MinHyuk Jeon, Odsuren Temuujin, Yoonmi Shin, Jinhyun Ahn, Dong-Hyuk Im

15: 50-16: 00 Coffee Break

16: 00-17: 30 Session A-4 : CSA
(HALL A)
(Chair: Joon-Min Gil)

1. **A Distributed SDN Architecture for 5G**
   Jeonghun Cha, Jong Hyuk Park
2. **Machine Learning based Intrusion Detection Prevention System for Securing Attacks in IoT Applications**
   Jose Costa sapalo sicato, Younghun Lee, Jong Hyuk Park
3. **Dynamic Mitigation of Catastrophic Forgetting Using the Sampling Network**
   Dae Yong Hong, Yan Li, Byeong-seok Shin
4. **Fault Response Scheme through Decentralized Network Configuration of Private Cloud-based Disaster Monitoring Service**
   Hwirim Byun, Hyeyoung Kang, Hyun-Woo Kim, Young-Sik Jeong
5. **Static Analysis for Malware Detection with Tensorflow and GPU**
   Jueun Jeon, Juho Kim, Sunyong Jeon, Sungmin Lee, Young-Sik Jeong

6. **IoT Malware Dynamic Analysis Scheme using the CNN Model**
   Jueun Jeon, Seungyeon Baek, Minho Kim, Inho Go, Young-Sik Jeong

16: 00-17: 30 Session B-4 : Workshop SXRT 2019
(HALL B)
(Chair: Yunsick Sung)

1. **Unsupervised Encoder-Decoder-based 3D Landmarks Extraction by Fusion of Vision and LiDAR for Human Motion Analysis**
   Jeonghoon Kwak, Yunsick Sung
2. **GAN-based Lost Region Image Generation method for Action Recognition**
   Woochul Han, Jisun Park, Yunsick Sung, Kyungeun Cho
3. **Malware Classification through Local Image for Information Security**
   Sejun Jang, Yunsick Sung
4. **Enhanced Aesthetic Painting Generation System using AttnGAN and One-hot Encoding**
   Hyewon Yoon, Sejun Jang, Yunsick Sung
5. **A 3D Object Segmentation Method Using CCL Algorithm for LiDAR Point Cloud**
   Yifei Tian, Wei Song, Jinming Liu, Simon Fong
6. **A Real-time Human Posture Recognition System Using Internet of Things (IoT) Based on LoRa Wireless Network**
   Wei Song, Jinqiao Liao, Jinkun Han

16: 00-17: 30 Session C-4 : CUTE
(HALL C)
(Chair: Soohyun Cho)

1. **Gearbox Fault Diagnosis under Variable Speed Condition Using Frequency Spectral Analysis with 1D Residual Neural Network**
   Md Arafat Habib, Jong-Myon Kim
2. **Health State Classification of a Spherical Tank Using a Hybrid Bag of Features and k-Nearest Neighbor**
   Md Junayed Hasan, Jaeyoung Kim, Jong-myon Kim
3. **Dynamic Offloading Model for Distributed Collaboration in Edge Computing**
   Jieun Kang, Svetlana Kim, Jaeho Kim, NakMyoung Sung, YongIk Yoon
4. **Induction Motor Bearing Fault Diagnosis using Statistical Time Domain Features and Hypertuning of Classifiers**
   Rafia Nishat Toma, Jong-myon Kim
5. **Reinforcement Learning for Rate Adaptation in CSMA/CA Wireless Networks**
   Soohyun Cho

17: 30-18: 00 Break

18: 00-19: 30 Banquet

Day 2, December 19, 2019 (Thursday)

08: 40-09: 00 Registration

09: 00-10: 30 Session A-5 : CSA
(HALL A)
(Chair: Jun-Ho Huh)

1. **A Location-Based Solution for Social Network Service and Android Marketing Using Augmented Reality**
   Jun-Ho Huh, Yeong-Seok Seo
2. **Optimal Location Recommendation System for Offshore Floating Wind Power Plant Using Big Data Analysis**
   Sang-Hyang Lee, Jun-Ho Huh
3. **Artificial Intelligence Based Electronic Healthcare Solution**
   Seong-Kyu Kim, Jun-Ho Huh
4. **An Approach to Automating Structure Decomposition in Large Scale System**
   Yeong-Seok Seo, Jun-Ho Huh
5. **Performance Evaluation of AODV and AOMDV Routing Protocols Under Collaborative Blackhole and Wormhole Attacks**
   Tran Hoang Hai, Nguyen Dang Toi, Eui-nam Huh
6. **A Suggestion for ERP Software Customization Model Using Module Modification Factors**
   Byung-Keun Yoo, Seung-Hee Kim

09: 00-10: 30 Session B-5 : Workshop IPV 2019
(HALL B)
(Chair: Nammee Moon)

1. **Indoor Positioning System Using Pyramidal Beacon in Mobile Augmented Reality**
   Hyeon-woo An, Nammee Moon
2. **Purchase Predictive Design Using Skeleton Model and Purchase Record**
   Jae-hyeon Cho, Namme Moon
3. **Intelligent Digital Signage Using Deep Learning Based Recommendation System in Edge Environment**
   Kihoon Lee, Nammee Moon
4. **CNN-GRU-based Feature Extraction Model of Multivariate Time-series Data for Regional Clustering**
   Jinah Kim, Nammee Moon
5. **DNN-based Mutual Satisfaction Prediction Model for Matching between Users**
   Hyunnoh Yun, Jinah Kim, Nammee Moon
6. **Biometric-based Seed Extraction Scheme for Multi-Quadratic-based Post-Quantum Computing**
   Aeyoung Kim, Seung-Hyun Seo

10: 30-10: 40 **Coffee Break**

10: 40-12: 10 **Session A-6 : CSA/CUTE**
(HALL A)
(Chair: Jun-Ho Huh)

1. **Inflight Tracking Method with Beacon System and Scouting Drone**
   Yunseok Chang
2. **Driver Behavior-Aware using Hybrid Sensing in Cyber-Physical Space**
   Svetlana Kim, YongIk Yoon
3. **Activity-Recognition model for violence behavior using LSTM**
   Svetlana Kim, Hyejeong Nam, Hyunho Park, Yong-Tae Lee, YongIk Yoon
4. **A Design of Improvement Method of Central Patch Controlled Security Platform Using Blockchain**
   Kyoung-Tack Song, Shee-Ihn Kim, Seung-Hee Kim
5. **Deep Learning Based Character Recognition Platform in Complex Situations**
   BoSeon Kang, Seong-Soo Han, You-Boo Jeon, Chang-Sung Jeong
6. **Performance Analysis of Pulse Modulation in Robot Control based on IEEE 802.11 LiFi Standard**
   Ho Kyung Yu, Jeong Gon Kim

10: 40-12: 10 **Session B-6 : Workshop IPV 2019**
(HALL B)
(Chair: Nammee Moon)

1. **Dynamic Projection Mapping based on the Performer's Silhouette**
   Injae Jo, Youjin Koh, Taewon Kim, Sang-Joon Kim, Gooman Park, Yoo-Joo Choi
2. **A Study on Vulnerabilities of Linux Password and Countermeasures**
   Sanghun Kim, Taenam Cho
3. **A Study on Evidences Stored in Android Smartphones**
   Moses Kwak, Jisun Kim, Sungwon Lee, Taenam Cho

Day 3, December 20, 2019 (Friday)

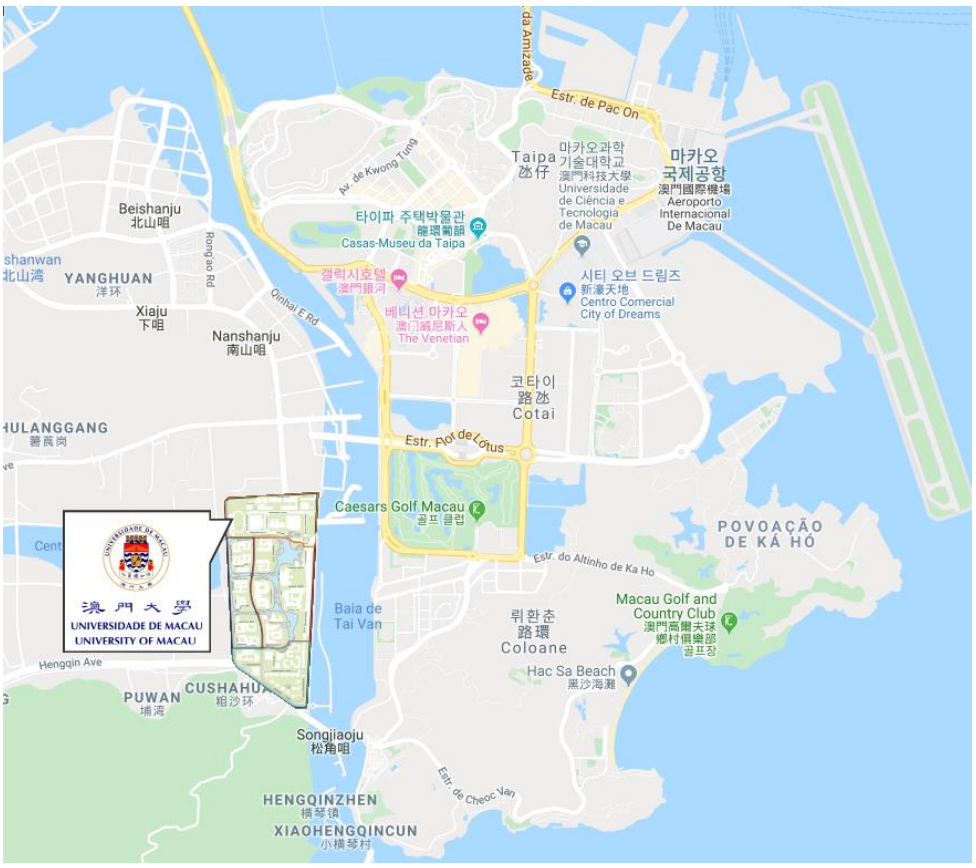
09:30-11:00 **CSA/CUTE - Organizing Committee Meeting**

11:00-12:30 **Local Arrangement Committee Meeting**

Conference Venue

University of Maccu, China

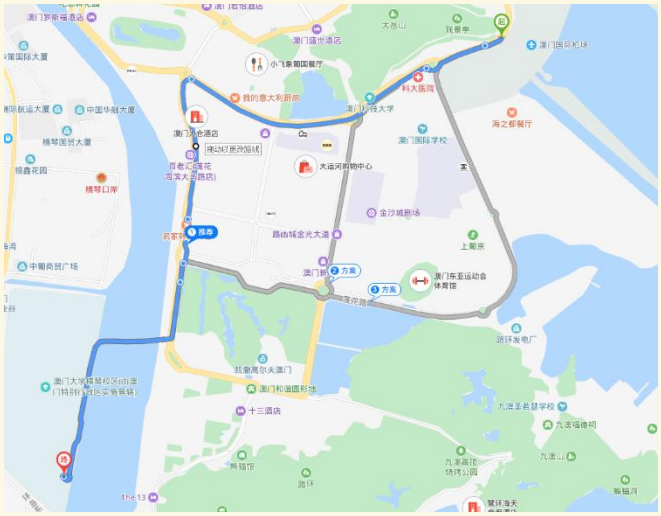
- Address: University of Macau Avenida da Universidade, Taipa, Macau, China
- Phone: +853 8822 8833, +853 8822 8822



How to get to University of Macau ?

I. By car

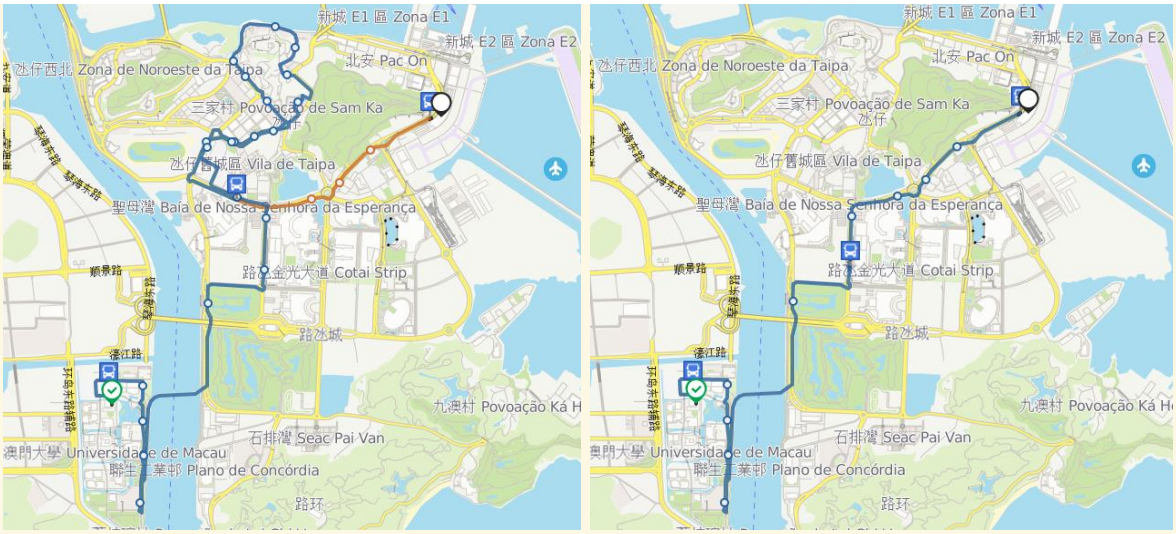
From Airport International De Macau, you can drive the car entering the Av. WaiLong road and drive 150 meters. Turning left, entering airfield circle, drive 510 meters. Entering roundabout, next, entering Av. WaiLong road, drive 2.4km. Turn left, enter Av. Marginal Flor de Lotus, drive 1.1 kilometers. Entering the roundabout and then entering the Rotunal Marginal, drive 350 meters. Enter roundabout and then entering Av. Marginal Flor de Lotus main road, drive 150 meters. Driving along the front right, from Av. Marginal Flor de Lotus main road to Hengqin campus of the university of Macau, drive 2.2 km.



II. By Bus

A. From Airport International De Macau, you can take the bus MT1 to the bus station called as Estrada da Baia de Nossa Senhora da Esperanca bus station. And then Transfer to No.72 bus to the University of Macau bus station. (RIGHT)

B. From Airport International De Macau, you can take the bus 51A to the bus station called as CidadeNova bus station. And then Transfer to No.72 bus to the Macau university bus station. (LEFT)


新城 E1 區 Zona E1
新城 E2 區 Zona E2
北安 Pac On
氹仔西北 Zona de Noroeste da Taipa
三家村 Povoação de Sam Ka
氹仔舊城區 Vila de Taipa
聖母灣 Baia de Nossa Senhora da Esperança
路氹金光大道 Cotai Strip
順景路
路氹城
濠江路
九澳村 Povoação Ká H
石排灣 Seac Pai Van
澳門大學 Universidade de Macau
聯生工業邨 Plano de Concórdia
路环