

IEEE ISPCE-CN 2018, 5-7 December 2018, Hong Kong/Shenzhen, China



**IEEE ISPCE-CN 2018**

# Program

## **IEEE International Symposium on Product Compliance Engineering-Asia 2018**

5-7 December, 2018,  
Hong Kong (5 December 2018)/  
Shenzhen (6-7 December, 2018), China  
<http://www.dl2link.com/ISPCE-CN2018/index.html>

**Organised by** IEEE Product Safety Engineering Society

**Co-Organised by** CityU (City University of Hong Kong)  
HITSZ (Harbin Institute of Technology, Shenzhen)

**Sponsored by** China Mobile Hong Kong

**Technical Sponsors:**

Connected City Alliance (CCA), CIE, HK, DEKRA, TW,  
HKIE END, HK, IEEE PSES, IET HK, NTNU, TW, OpenU,  
HK, PSES HK Chap, PSES TW Chap, SCC, HK, UL, TW



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# 01 Messages from ISPCE-CN 2018 Chairs

*Dear Guests and colleagues of the ISPCE-CN 2018,*

*It is my great pleasure to invite and welcome you to the IEEE 2018 ISPCE-CN Symposium (ISPCE-CN 2018) organized by the Product Safety Engineering Society of the IEEE. ISPCE-CN 2018 will be held on 5-7 December, 2018 in Hong Kong/Shenzhen China (Hong Kong: 5 December 2018, Shenzhen: 6-7 December, 2018).*

*ISPCE-CN 2018 will fully dedicate to the theme "Product Safety for Smart City". Topics of ISPCE-CN 2018 cover (1) Emerging IoT technologies such as 5G, NB IoT, LoRa, Sigfox, RFID, NFC etc for safety applications e.g. landslides, IoT Tree, IoT water, ... (2) Drones for building applications, healthcare, automobiles, road toll (3) artificial intelligence, robotics, stems, V2X, etc. (4) Mobile communication, transportation, energy efficiency (5) Public safety, critical communication (6) Internet of Things, Spectrum Policy (7) Inherently safer products and equipment (8) Product Safety services (9) Training and continuing education (10) Regulations and standards (11) Risk management (12) Workplace product safety (13) System and Software safety (14) Human factors, product compliance, smart sensors compliance. There will be Regular Sessions, Special Sessions, Tutorials and Visits. I am sure professionals and engineers may exchange ideas and learn from one another.*

*Please make yourself available for these three days of conference for informative scientific and technological presentations and discussions with professionals and colleagues.*

*The Organizing Committee (OC) does not only provide you the chance to enjoy an informative and stimulating atmosphere but also set up a first-class conference program. I want to make you aware that the City of Hong Kong and Shenzhen are wonderful and professional environments for smart city development and thus are excellent venues for professional exchange. The OC is thoughtful to include the authentic food, welcome reception and conference dinner into the registration fee.*

*I am confident that we will have an excellent time during these three days at ISPCE-CN 2018 and that at the end of the conference we will learn new knowledge and ideas. Please join us at ISPCE-CN 2018!*

*Best wishes,*



*Dr. K. F. Tsang*

*General Chair, ISPCE-CN 2018*

# 02 Organization of ISPCE-CN 2018

## IEEE ISPCE-CN 2018 General Chair:

- 1、 Dr. Kim-Fung Tsang, HK,

## IEEE ISPCE-CN 2018 Deputy General Chairs:

- 1、 Dr. Haijun Zhang, PRC,
- 2、 George Lau, HK,,

## IEEE ISPCE-CN 2018 Technical Program Chairs:

- 1、 Kai Liu, PRC,
- 2、 William Tse, GSMA,

## IEEE ISPCE-CN 2018 Finance Chairs:

- 1、 Jason Chan, HK,
- 2、 CC Lee, HK,
- 3、 Eric Ke Wang, PRC,



# 02 Organization of ISPCE-CN 2018

## **PSES President:**

John Allen, US

## **PSES VP Conferences:**

Stefan Mozar, AU

## **Publication Chairs:**

SL Mak, HK

Xiaofeng Zhang, PRC



## **Webmasters:**

Fanny WF Tang, HK

Donghai Li, PRC

## **International coordinators:**

Flore Chiang, TW

Wen-Chung Kao, TW

Nancy Leveson, MIT

Stefan Mozar, AU

Claire Tsai, TW

Mingbo Zhao, PRC

## **Conference Secretary:**

Jimmy CH Li, HK

Vivan Xiaoying Zhong, PRC

## **Liaisons:**

Dr. WC Lee, HK

Vivan Xiaoying Zhong, PRC

Alick Mak, HK

Eddie Liu, HK

# 03 Program Overview

## Tentative Rundown on 5 December 2018 Wednesday

9:00-9:25	<b>Registration</b>		25min
9:25-9:30	Opening speech 1: Dr. KF Tsang, General Chair, ISPCE-CN 2018		5min
9:30-9:35	Welcome speech: Prof. Stefan Mozar, VP Conferences, IEEE PSES		5min
9:35-9:40	<b>Photo taking</b>		5min
9:40-9:45	Opening speech 2: Prof. Albert Yu, JP Chairman, Hong Kong Council for Testing and Certification		5min
9:45-10:05	Keynote speech 1: Alex Cheng, CMHK		20min
10:05-10:25	Keynote speech 2: William Tse, GSMA		20min
10: 25-10:50	<b>Coffee Break 20min</b>		25min
10:50-11:10	Keynote speech 3: Dr. Steven Yang, Electronic Engineer, Standard and Calibration Laboratory, Innovation and Technology Commission		20min
11:10-11:30	Speech 4*: Dr. Hau Wah LAI, Terry, Standard and Calibration Laboratory, Provision of Traceable Calibration Services at SCL to Underpin Development of Smart City Initiatives		20min
11:30-12:05	Forum Discussion: On the Product Safety for IoT and Smart City Development Moderators: Dr. Tony Lee Panelists: Dr. SL Mak, Alex Cheng, William Tse, Dr. Steven Yang		35min
12:05-12:10	<b>Closing Speech</b>	Dr. WC Lee	5min
12:10-13:40	<b>Lunch</b>		
14:00-16:00	<b>Technical visit to HKPC</b>		
<b>END</b>			

\*Subject to paid up registration

# 03 Program Overview

## Tentative Rundown on 6 December 2018 Thursday

<b>9:00-9:30</b>	<b>Registration</b>	<b>30min</b>
<b>9:30-9:35</b>	Welcome speech: Prof. Yunming Ye	5min
<b>9:35-9:40</b>	Opening speech Prof. Haijun Zhang	5min
<b>9:40-10:00</b>	Keynote speech 1: Prof. Stefan Mozar, VP Conferences, IEEE PSES	20min
<b>10:00-10:30</b>	Keynote speech 2: William Tse, GSMA	30min
<b>10:30-10:50</b>	<b>Photo taking and souvenirs presentation &amp; Coffee Break</b>	20min
<b>10:50-11:20</b>	Keynote speech 3: Prof. Tommy W. S. Chow, FIEEE, City University of Hong Kong	30min
<b>11:20-11:50</b>	Keynote speech 4: Dr. Dengming Ke, Shenzhen Academy of Metrology & Quality Inspection	30min
<b>11:50-13:30</b>	<b>Lunch Break</b>	
<b>13:30-15:00</b>	Session 1A: Paper Report	15min per author
<b>13:30-15:00</b>	Session 1B: Paper Report	15min per author
<b>13:30-15:00</b>	Session 2: PPT Report	20min per author
<b>15:00-15:20</b>	<b>Coffee Break</b>	20min
<b>15:20-16:35</b>	Session 1A: Paper Report	15min per author
<b>15:20-16:35</b>	Session 1B: Paper Report	15min per author
<b>15:20-16:35</b>	Session 2: PPT Report	20min per author
<b>17:30-19:30</b>	<b>Gala Dinner/Banquet</b>	
	<b>END</b>	



### Tentative Rundown on 7 December 2018 Friday

<b>9:00-9:50</b>	<b>Keynote speech 1: Lifei Zhan, Wangsu Co.</b>	<b>50min</b>
<b>9:50-10:10</b>	<b>Coffee Break</b>	<b>20min</b>
<b>10:10-11:25</b>	Session 1: Paper Report	15min per author
<b>10:10-11:25</b>	Session 2: PPT Report	20min per author
<b>11:25-11:45</b>	<b>Break</b>	<b>15min</b>
<b>11:45-12:10</b>	<b>Closing Ceremony</b>	Prof. Haijun Zhang <b>30min</b>
<b>12:10-14:00</b>	<b>Lunch Break</b>	
<b>14:00-16:00</b>	<b>Technical visit INNO PARK</b>	
	<b>END</b>	

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### **Registration:**

**Date & Time:** December 5th (Wednesday), 9:00-9:25

**Venue:** Room P4701, 4/F,. AC1, City University of Hong Kong, 83 Tat Chee Avenue, Kowloon, Hong Kong SAR

**Date & Time:** December 6th (Thursday), 9:00-9:30

**Venue:** Harbin Institute of Technology, Shenzhen

### **Banquet**

**Date & Time:** December 6th (Thursday), 17:30-19:30

**Venue:** Harbin Institute of Technology, Shenzhen

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## **Opening (Hong kong Side)**

**Date & Time:** December 5th (Wednesday), 9:25-11:30

**Venue:** Room P4701, 4/F,. AC1, City University of Hong Kong, 83 Tat Chee Avenue, Kowloon, Hong Kong SAR

**Chair:** Dr. KF Tsang, General Chair of IEEE ISPCE-CN 2018

- 1. Opening Speech: Dr. KF Tsang, General Chair, ISPCE-CN 2018**
- 2. Welcome Speech: Prof. Stefan Mozar, VP Conferences, IEEE PESE**
- 3. Opening Speech 2: Prof. Albert Yu, JP Chairman, Hong Kong Council for Testing and Certification**
- 4. Keynote Speech 1: Alex Cheng, CMHK**
- 5. Keynote Speech 2: William Tse, GSMA**
- 6. Keynote speech 3: Dr. Steven Yang, Electronic Engineer, Standard and Calibration Laboratory, Innovation and Technology Commission**
- 7. Speech 4\*: Dr. Hau Wah LAI, Terry, Standard and Calibration Laboratory, Provision of Traceable Calibration Services at SCL to Underpin Development of Smart City Initiatives**



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*Photo taking (9:35 – 9:40)*

*Coffee Break (10:25 – 10:50)*

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## **Forum Discussion: On the Product Safety for Smart City Development**

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**Date & Time:** December 5th (Wednesday), 11:30-12:05

**Venue:** Room P4701, 4/F., AC1, City University of Hong Kong, 83 Tat Chee Avenue, Kowloon, Hong Kong SAR

**Moderator:** Dr. Tony Lee

**Panelists:** Dr. SL Mak, Alex Cheng, William Tse, Dr. Steven Yang

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## **Closing Speech**

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**Date & Time:** December 5th (Wednesday), 12:05-12:10

**Venue:** Room P4701, 4/F., AC1, City University of Hong Kong, 83 Tat Chee Avenue, Kowloon, Hong Kong SAR

**Chairs:** Dr. WC Lee

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## **Technical visit to HKPC**

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**Date & Time:** December 5th (Wednesday), 14:00-16:00

**Venue:** HKPC Building, 78 Tat Chee Avenue



## **Opening (Shenzhen Side)**

**Date & Time:** December 6th (Thursday), 9:30-11:50

**Venue:** Rm.404, T5# Building, Harbin Institute of Technology, Shenzhen

**Chair:** Dr. Haijun Zhang, Deputy General Chair of IEEE ISPCE-CN 2018

1. **Welcome Speech from Prof. Xuan Wang, Head, Department of CST, HITSZ**
2. **Opening Speech from Prof. Yunming Ye**
3. **Keynote Speech by Dr. Stefan Mozar, GDUT**
4. **Keynote Speech by William Tse, GSMA**
5. **Keynote Speech by Prof. Tommy W. S. Chow, FIEEE, City University of Hong Kong**
6. **Keynote Speech by Dr. Dengming Ke, Shenzhen Academy of Metrology & Quality Inspection Commission**



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*Photo taking and souvenirs presentation (10:00 – 10:20)*

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## **Session 1A**

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**Date & Time:** December 6th (Thursday), 13:30-15:00

**Venue:** Rm.305, T5# Building, Harbin Institute of Technology, Shenzhen

**Chair:** Prof. Mingbo Zhao

- 1. A Surrogate-based Optimization Algorithm with Local Search**  
Mingyuan Yu, Shaocheng Qu, Zhou wu
- 2. An Empirical Investigation on Movie Industry from 1980 to 2018**  
Choujun Zhan, Jianjin Li, Wei Jiang
- 3. Discriminative Feature Selection via Joint Trace Ratio Criterion and  $l_{2,1}$ -norm Regularization**  
Zhang Jiang, Mingbo Zhao, Weijian Kong
- 4. Design and Implementation of a Fog Computing Based Collision Warning System in VANETs**  
Xincao Xu, Kai Liu, Ke Xiao, Hualing Ren, Liang Feng and Chao Chen
- 5. Tradeoff between Duration and Energy Optimization for Speed Control of Quadrotor Unmanned Aerial Vehicle**  
Hong Lu, Kun Chen, Xiangping (Bryce) Zhai, Bing Chen, Yunlong Zhao
- 6. Robust Hybrid Beamforming Design for Millimeter Wave MIMO Relay Channels**  
Zhen Luo, Lin Zhang

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## Session 1B

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**Date & Time:** December 6th (Thursday), 13:30-15:00

**Venue:** Rm.405, T5# Building, Harbin Institute of Technology, Shenzhen

**Chair:** Prof. Zhou Wu

- 1. Soft measurement of ammonia nitrogen concentration based on GA-SCN**  
Kang Li, Wei Wang, Lin Shao Han
- 2. Applying Stationary Wavelet Transform for Locating and Cancelling Electrocardiogram Interference Interval in Diaphragmatic Electromyography**  
Guo Luo, Peiyi Qiu, Wenshi Huang, Lihua Huang
- 3. A Perturbed Compressed Sensing based Authentication Mechanism in Multi-hop Wireless Sensor Networks**  
Hui Huang, Feng Huang, Chunlong Li, Xiaoming Yuan, Xiangping Zhai, Jie Hao
- 4. Intermittent Finite-Time Control for Consensus of Coupled Kuramoto Oscillators**  
Qiang Jia, Eric S.Mwanandiye
- 5. Repurposition of Lithium Ion Battery Packs from Electric Vehicles to Energy Storage Systems**  
Benjamin Chen
- 6. An Interharmonics Traceability Method Based on Thermal Converters**  
Yubo Yang, Da Lu, Sha Zhao, Yan Qin

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## Session 2

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**Date & Time:** December 6th (Thursday), 13:30-15:00

**Venue:** Rm.503, T5# Building, Harbin Institute of Technology, Shenzhen

**Chair:** Prof. Kai Liu

- 1. The Recent Progress of Large Scale Clinical Trial Text Processing**  
Tianyong Hao
- 2. Regularized Echo State Network Design for Time Series Prediction**  
Cui-Li Yang, Junfei Qiao
- 3. Traffic flow prediction model combining Granular Computing and Deep neural network**  
Wenjing Yuan, Jingjing Cao
- 4. Memetic Differential Search Algorithm for Cross-training with Learning-Forgetting in Cellular Manufacturing System**  
Xianghua Chu, Da Gao, Shi Cheng, Lang Wu, Yuhui Shi, Quande Qin
- 5. A New Generative Adversarial Network for Titled Clothing Image Generation**  
Yanfang Sun

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## Session 1A

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**Date & Time:** December 6th (Thursday), 15:20-16:35

**Venue:** Rm.305, T5# Building, Harbin Institute of Technology, Shenzhen

**Chair:** Prof. Mingbo Zhao

- 1. Network-based output feedback stabilization for one-sided Lipschitz nonlinear systems with unknown nonlinearities**  
Daoyuan Zhang, Yanjun Shen, Zhou Wu
- 2. The evolution of keywords co-occurrence network based on MAG dataset, 1800-2017**  
Choujun Zhan, Zhuohui Dong, Jingxiang Ye
- 3. Scalable Subspace Clustering via Adaptive Low-rank Model**  
Yue Zhang, Mingbo Zhao, Weijian Kong
- 4. Segmentation of Precast Concrete Elements in Outdoor Laser Scan Data via image processing**  
Dongsheng Li, Wenbo Wuy, Jiepeng Liu, Zhou Wuz, Liang Feng
- 5. A Resilient Safety LPWAN for Ubiquitous Medical Applications**  
Yang Wei, Yucheng Liu, Hongxu Zhu, Chung Kit Wu and Kim Fung Tsang

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*Tea/Coffee Break (15:00 – 15:20)*

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## Session 1B

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**Date & Time:** December 6th (Thursday), 15:20-16:35

**Venue:** Rm.405, T5# Building, Harbin Institute of Technology, Shenzhen

**Chair:** Prof. Zhou Wu

**1. Tree Health Index: An Assessment and Guidance for the Prevention and Transmission of Tree Hazard to Human Safety**

Hao Wang, Yang Wei, Chung Kit Wu, K.F. Tsang, Yu Cheng Liu, Hong Xu Zhu

**2. Critical Study on the Relationship between Power Conversion Technique and Energy Efficiency on Set-top Box**

C.C. Lee, P.S. Lam

**3. Product Integrity for Photovoltaic System**

Siu-Kei Lam, Tony Lee

**4. Neural network-based AILC for non-repetitive trajectory tracking of non-affine pure-feedback discrete-time systems**

Qing-Yuan Xu, Choujun Zhan, YunShan Wei

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## Session 2

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**Date & Time:** December 6th (Thursday), 15:20-16:35

**Venue:** Rm.503, T5# Building, Harbin Institute of Technology, Shenzhen

**Chair:** Prof. Kai Liu

**1. Quality of Mobile Health Care in China based on Semantic Technology**

Wang Yi, Cai Lei

**2. Miniaturized Antenna Designs for Wireless Capsule Endoscopy System**

Ren Junming, Yang WEI, Yucheng LIU, Hongxu ZHU and Chung Kit WU

**3. MOHR: A Dataset for Multi-scaled Objects Detection in High Resolution UAV Images**

MingShan Sun, Haijun zhang

**4. An Intelligence-based Indexing Scheme for Supply Chain Management**

Hao Wang, Yang Wei, Yucheng Liu, Hongxu Zhu

**5. Improving Artificial Bee Colony Algorithms With Applications**

Xin Zhang



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## Keynote Speech

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**Date & Time:** December 7th (Friday), 9:00-9:50

**Venue:** Rm.404, T5# Building, Harbin Institute of Technology, Shenzhen

**1. Product-From 0 to 1: The Product Development Flow you should know**

Dr. Lifei Zhan, Product Manager, Wangsu Science and Technology Co.Ltd

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## Session 1

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**Date & Time:** December 7th (Friday), 10:10-11:25

**Venue:** Rm.305, T5# Building, Harbin Institute of Technology, Shenzhen

**Chair:** Prof. Choujun Zhan

**1. Testing of Walking Aids for Elderly**

S.L. Mak, C.H. Li, H.K. Lau

**2. Application of Lean Manufacturing in Product Safety**

C.H. Li, H.K. Lau

**3. A Review on the Self-Cleaning Glass Technology Applied in Automobile**

Fanny Tang

**4. Toy Product Safety Enhancement Using Smart Product Development**

C.H. Li, H.K. Lau

**5. Representation of Job-Skill in Artificial Intelligence with Knowledge Graph Analysis**

Shanshan Jia, Xiaoan Liu, Ping Zhao, Chang Liu, Lianying Sun, Tao Peng

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*Tea/Coffee Break (9:50 – 10:10)*

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## Session 2

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**Date & Time:** December 7th (Friday), 10:10-11:25

**Venue:** Rm.503, T5# Building, Harbin Institute of Technology, Shenzhen

**Chair:** Prof. Jingjing Cao

**1. Research on Salient Object Detection in Images and Videos**

Yuzhu Ji, Haijun Zhang

**2. A Feasibility Study of Using Polypropylene Material to Make Orthopedic Insole**

Mak Shu Lun, Chan Lok Lam, Chan Wing Ki, Fong Tsz Ying & Wong King Nam

**3. Development of automatic intelligent system for monitoring and enhancing renewable energy feed-in tariff in Hong Kong**

Choi Kit Ming, Shum Mang Chiu, Lai Wai Ping, Chan Chun Lok, Lee Chi Chung

**4. A study of Additive Manufacturing Application on Tailor-made Orthopedic Cast**

Mak Shu Lun, Ma Chi Yan, Lo Man Lok & Tam Shiu Hong Jeffrey

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*Tea/Coffee Break (11:25-11:45)*

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## Closing Ceremony

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**Date & Time:** December 7th (Friday), 11:45–12:10

**Venue:** Rm.404, T5# Building, Harbin Institute of Technology, Shenzhen

**Chair:** Prof. Haijun Zhang

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# IEEE 2018 ISPCE-CN

IEEE International Symposium  
on Product Compliance Engineering-Asia

## Thank You!

Thank you for attending the IEEE ISPCE-CN 2018!



香港城市大学  
City University of Hong Kong



哈爾濱工業大學(深圳)  
HARBIN INSTITUTE OF TECHNOLOGY, SHENZHEN