IEEE ISPCE-AS 2022

Programme

IEEE International Symposium
on Product Compliance Engineering-Asia 2022

4-6 November 2022

Guangzhou, China

https://dl2link.com/ISPCE-AS2022/

Co-Organised by   **Nanfang College·Guangzhou, China**
IEEE Product Safety Engineering Society

Sponsored by   **IEEE Product Safety Engineering Society**

01 Messages from IEEE ISPCE-AS 2022 Chairs

Dear Guests and Colleagues of the ISPCE-AS 2022,

ISPCE-AS 2022 will fully dedicate to the theme "Product Safety for Smart City". Topics of ISPCE-AS 2022 cover (1) Emerging IoT technologies such as 5G, NB IoT, LoRa, Sigfox, RFID, NFC etc for safety applications e.g. landslides, IoTree, 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 Guangzhou is 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-AS 2022 and that at the end of the conference we will learn new knowledge and ideas. Please join us at ISPCE-AS 2022!.

Yours sincerely,
Prof. Haijun Zhang, Prof. Kim-Fung Tsang and Prof. Zhi Yang

General Co-Chairs of ISPCE-AS 2022

02 Organization of IEEE ISPCE-AS 2022

IEEE ISPCE-AS 2022 General Chairs:

Haijun Zhang, P.R.C

IEEE ISPCE-AS 2022 General Co-Chairs:

Kim-Fung Tsang, HK

Zhi Yang, P.R.C

IEEE ISPCE-AS 2022 Technical Program Chairs:

Kai Liu, P.R.C

Tony CC Lee, HK

YH Shum, HK

IEEE ISPCE-AS 2022 Finance Chairs:

Jason Chan, HK

Tianyong Hao, P.R.C

Zhou Wu, P.R.C

IEEE ISPCE-AS 2022 PSES President:

Mike Nicholls, US

IEEE ISPCE-AS 2022 PSES Past President:

Stefan Mozar, AU

PSES VP Conference:

Bansi Patel, US

Publication Chairs:

Jingjing Cao, P.R.C

Hao Zhang, P.R.C

Choujun Zhan, P.R.C

Xin Su, P.R.C

SL Mak, HK

Jimmy Li, HK

International Coordinators:

Flore Chiang , TW

Nancy Leveson, US

Claire Tsai, TW

Mingbo Zhao, P.R.C

Weizhi Meng, DEN

Cuili Yang, P.R.C

Conference Secretaries:

Jimmy CH Li , HK

Mengmei Lin, P.R.C

Liaison:

WC Lee, HK

Alick Mak, HK

Eddie Liu, HK

Webmasters:

Fanny WF Tang, HK

Xinrui Yu, P.R.C

Luyang Long, P.R.C

Track Co-Chairs:

Track 1: Reliable Vehicular Communication and Networking

Penglin Dai, Southwest Jiaotong University, China

Hao Zhang, Chongqing University of Posts and Telecommunications, China

Track 2: AI-driven Cybersecurity Engineering and its Applications

Weizhi Meng, Technical University of Denmark, Denmark

Yu Wang, Guangzhou University, China

Track 3:Natural Language Processing and Semantic Computing for reliability and resiliency

Tianyong Hao, South China Normal University, China

Wenxiu Xie, City University of Hong Kong, China

Yuanyuan Mu, Chaohu University, China

Track 4: Neural Computing-driven Artificial Intelligence Technique for Consumer and Industrial Safety Applications

Mingbo Zhao, Donghua University, China

Hu Min, Nanfang College of Guangzhou, China

Zhao Zhang, Hefei University of Technology, China

Track 5: Advances in AI-driven Complex Systems and its Consumer and Industrial Applications

Jingjing Cao, Wuhan University of Technology, China

Xin Su, Hohai University, China

Choujun Zhan, South China Normal University, China

Track 6: Artificial Intelligence Methods in Fault Diagnostics and Prognostics of Consumer and Industrial Products

Yu Wang, Xi' an Jiaotong University, China

 Wangpeng He, Xidian University, China

Binqiang Chen, Xiamen University, China

Yizhen Peng, Chongqing University, China

03 Programme Overview

Tentative Rundown on 5 November 2022 (Saturday)

(Main Tencent meeting ID: 71359266579, password:110506;

Backup ID: 91025378710, password:110506)

Time	Event	Duration
9:00-9:20	Opening and Welcome Speech	20mins
9:20-9:30	Conference Introduction	10mins
9:30-9:40	Group Photo	10mins
9:40-10:25	Keynote speech 1: Micro-scale searching algorithm and its application – By Prof. Han Huang	45mins
10:25-10:30	Q&A of Keynote speech 1	5mins
10:30-10:50	Coffee Break	20mins
10:50-11:35	Keynote speech 2: Intelligent non-invasive wearable health systems: theory and applications – By Prof. Bingo Wing-Kuen Ling	45mins
11:35-11:40	Q&A of Keynote speech 2	5mins
12:00-14:00	**Lunch Break**	
14:00-17:20	Session 1: PPT Report	20mins per author
14:00-17:20	Session 2: PPT Report	20mins per author
18:30-20:30	Dinner Time and Reward Session	
END		

Tentative Rundown on 6 November 2022 (Sunday)

(Main Tencent meeting ID: 71359266579, password:110506;

Backup ID: 91025378710, password:110506)

Time	Event	Duration
9:00-9:45	Keynote speech 1: Research on Blockchain Reliability Engineering – By Prof. Zibin Zheng	45mins
9:45-9:50	Q&A of Keynote speech 1	5mins
9:50-10:35	Keynote speech 2: Common Certification Requirements and Testing for any Product – By Prof. John Allen	45mins
10:35-10:40	Q&A of Keynote speech 2	5mins
10:40-10:55	Coffee Break	15mins
10:55-11:40	Keynote speech 3: An integrated protection method of moving target defense and access control based on IPv6 network – By Prof. Yong Ding	45mins
11:40-11:45	Q&A of Keynote speech 3	5mins
11:45-14:00	Lunch Break	
14:00-17:20	Session 1: PPT Report	20mins per author
14:00-17:20	Session 2: PPT Report	20mins per author
17:30-18:00	Closing Ceremony	30mins
END		

Opening

Date & Time: November 5th (Saturday), 9:00-11:40
Venue: L1 Cuixi Conference Hall, Guangdong Hot Spring Hotel, No.112 Wenquan East Road, Conghua District, Guangzhou
Host: Prof. Tianyong Hao

1. **Opening Speech from Vice President of Nanfang College·Guangzhou**

2. **Opening Speech from General Chairs of IEEE ISPCE-AS 2022:**

   Haijun Zhang, Harbin Institute Technology;

   Kim-Fung Tsang, City University of Hong Kong

3. **Welcome Speech from IEEE PSES:**

   Mike Nicholls, PSES President;

   Stefan Mozar, PSES Past President;

   Bansi Patel, PSES VP Conference

4. **Conference Introduction from Technical Program Chair**

Keynote Speech

Host: Prof. Zhou Wu

5. **Keynote speech: Micro-scale searching algorithm and its application**
   Prof. Han Huang, South China University of Technology, China
   Time: 9:40-10:30

6. **Keynote speech: Intelligent non-invasive wearable health systems: theory and applications**
   Prof. Bingo Wing-Kuen Ling, Guangdong University of Technology, HK SAR
   Time: 10:50-11:40

Session 1

Date & Time: November 5th (Saturday), 14:00-17:45
Venue: L1 Cuixi Conference Hall, Guangdong Hot Spring Hotel, No.112 Wenquan East Road, Conghua District, Guangzhou
Chair: Prof. Mingbo Zhao, Dr. Yaqing Hou

1. (14:00-14:20) **3D Object Detection for Point Cloud in Virtual Driving Environment**
   Bing Xu, Mingbo Zhao and Yu Rong

2. (14:20-14:40) **A Gradient-Sampling-based Algorithm for Change Point Detection in Piecewise Linear Model**
   Kai Xiao, Yimin Shen, Xiaorui Qian, Xiangpeng Zhan, Yuanyuan Guo and Wen Huang

3. (14:40-15:00) **C-Mobile: A Lightweight Composite MobileNetV2 Model for Intrusive Object Detection under Power Grid Sureillance**
   Chao Ouyang, Haijun Zhang, Jie Hou, Qun L, Biao Yang and Feng Gao

4. (15:00-15:20)**Mobility-Aware Online Content Caching for Vehicular Networks based on Deep Reinforcement Learning**
   Ke Li, Shunrui Xiong and Qiang Yang

5. (15:20-15:40) **Humanoid Robot Collaborative Lifting Integrating Executable Judgment**
   Hua Chang, Pengfei YI, Rui Liu, Jing Dong, Yaqing Hou and Dongsheng Zhou

6. (15:40-16:00) **EFFECT OF EATING CHOCOL ATE ON HAPPINESS VIA ELECTROENCEPHALOGRAM ANALYSIS**
   Miaoyu Liao and Bingo Wing-Kuen Ling

7. (16:00-16:20) **ALGANS: Enhancing membership inference attacks in federated learning with GANs and active leaming**
   Yuanyuan Xie, Bing Chen, Jiale Zhang and Wenjuan Li

8. (16:20-16:40) **Empty Container Alocation and Transshipment in Road-Rail Transportation Network**
   Mingzhu Yu, Zhishan Yu and Bo Jin

9. (16:40-17:00) **A Context- Driven Merge Sort Model for Community-Oriented Lexical Simplification**
   Rongying Li, Wenxiu Xie, Jiayin Song, Leung-Pun Wong, Fu Lee Wang and Tianyong Hao

10. (17:00-17:20) Multi-objective detection based on Improved Center Point

   Yuhui Lu, Zhongxi Chen and Mingbo Zhao

11. (17:20-17:40) State of Charge Estimation of the Lithium-ion Battery based on Neural Network in Electric Vehicles

   Chi Chung Lee, Panpan Hu, Chun Yin Lee and Shaohao Wang

Session 2

Date & Time: November 5th (Saturday), 14:00-17:15
Venue: L1 Cuixi Conference Hall, Guangdong Hot Spring Hotel, No.112 Wenquan East Road, Conghua District, Guangzhou
Chair: Dr. Penglin Dai, Dr. Jingjing Cao

1. (14:00-14:20) **Broad learning systerm based on Savitzky-Golay filter and variational mode decomposition for shot-term load forecasting**
    Fabin Lin, Kaihan Wu, Junhui Lu, Zhengyang Hou, Choujun Zhan and Lulu Sun

2. (14:20-14:40) **Contextual Multi-Armed Bandit Learning for Freshness-aware Cache Update in Vehicular Edge Networks**
    Yaorong Huang, Penglin Dai, Kangli Zhao and Huanlai Xing

3. (14:40-15:00) **Verifiable and Multi-Keyword Searchable Encryption Scheme Based on LSSS**
    Su Li, Chengyi Qin, Zihui Xu, Xinzhe Zhang, Zhien Liu and Lei Wu

4. (15:00-15:20) **Non-invasive Blood Glucose Estimation Using Statistical Features Defined via Convex Combination of One Norm and Infinity Norm**
    Xiaoyu Ding, Bingo Wing-Kuen Ling and Cuilian Huang

5. (15:20-15:40) **DE-based Growing Echo State Network**
    Yilong Lang, Cuili Yang and Danlei Wang

6. (15:40-16:00) **Lyapunov-based Dynamic Computation ffloading Optimization in Heterogeneous Vehicular Networks**
    Yuchen Yue and Junhua Wang

7. (16:00-16:20) **A Three-dimension Stacking Model with Modifed Genetic Algorithm**
    Shu Wu, Shiyi Deng and Jingjing Cao

8. (16:20-16:40) **Detection of Bacteria in Water Using Deep learning**
    Nikhil R

9. (16:40-17:00) **Towards Eficient and Robust Night-time Vehicle Flow Monitoring via Lidar-based Detection**
    Sheng Yi, Hao Zhang, Kai Liu and Xiao Ke

10.

Keynote Speech

Date & Time: November 6th (Sunday), 9:00-12:00

Venue: L1 Cuixi Conference Hall, Guangdong Hot Spring Hotel, No.112 Wenquan East Road, Conghua District, Guangzhou

Host: Prof. Kai Liu

1. **Keynote speech: Research on Blockchain Reliability Engineering**

   Prof. Zibin Zheng, Sun Yat-sen University

   Time: 9:00-9:50

2. **Keynote speech: Common certification requirements and testing for any product**

   Prof. John Allen, CEO of Product Safety Consulting Inc., USA

   Time: 9:50-10:40

3. **Keynote speech: An integrated protection method of moving target defense and access control based on IPv6 network**

   Prof. Yong Ding, Guilin University of Electronic Science and Technology

   Time: 10:55-11:45

Session 1

Date & Time: November 6th (Sunday), 14:00-17:15
Venue: L1 Cuixi Conference Hall, Guangdong Hot Spring Hotel, No.112 Wenquan East Road, Conghua District, Guangzhou
Chair: Dr. Bingyi Liu, Dr. Hao Wang

1. (14:00-14:20) **A DDoS Impact Analysis Index for Edge Internet of Things System Evaluation**
    Yo-Che Lee, Yang Wei, Hao Wang, Hol-Ting Au, Yucheng Lu and Kim Fung Tsang

2. (14:20-14:40) **Human Gait Modelling via Stationary Wavelet Transform and Radial Basis Function Neural Networks**
    Guo Luo, Xinying Xie, Xuejao Peng, Angbo Xie and Shun Lu

3. (14:40-15:00) **A Survey on Detection of Bacteria in Water Using Deep learning**
    Nikhil R

4. (15:00-15:20) **RELAXATION ASSESSENT BASED ON HEART RATE VARIABILTY AND HEART RATE USING PHOTOPLETHSMOGRAMS**
    Yunqi Wang and Bingo Wing-Kuen Ling

5. (15:20-15:40) **A Hybrid Model for Predicting Missing Records in Data Using XGBoost**
    Pascal Ndayishimiye, Wilson Cheruiyot and Michael Kimwele

6. (15:40-16:00)**A study on Hearing Hazards and sound measurement for Dogs**
    Shu Lun Mak and Joanthan Au

7. (16:00-16:20) **Path Planning in Urban Environment Based on Traffic Condition Perception and Traffic Light Status**
    Bin Song, Tian Chen, Xinyu Zhou and Bingyi Liu

8. (16:20-16:40) **Multi- models with averaging in feature domain for non-invasive blood glucose estimation**
    Yiting Wei, Bingo Wing-Kuen Ling, Qing Liu and Jiaxin Liu

9. (16:40-17:00) **Prediction model of yellow rice wine raw material index content based on depth feature selection technology**
    Liang Peng, Kang Zhou, Wangyang Shen, Weiping Jin, Qing Zhao and Guangbin Li

10.

Session 2

Date & Time: November 6th (Sunday), 14:00-17:15
Venue: L1 Cuixi Conference Hall, Guangdong Hot Spring Hotel, No.112 Wenquan East Road, Conghua District, Guangzhou
Chair: Prof. Qiang Jia, Dr. Cuili Yang

1. (14:00-14:20) **Self-organizing Fuzzy Neural Network- Based Adaptive Tracking Control of Dissolved Oxgen in Wastewater Treatment Process**
   Dingyuan Chen, Cuili Yang and Junfei Qiao

2. (14:20-14:40) **ESN- based Prdition Strategy for Dynamic Multi-objecive Opimization**
   Danlei Wang, Cuili Yang and Yilong Liang

3. (14:40-15:00) **Design and application of ADP controller based on online ESN**
   Hongyu Wang and Cuili Yang

4. (15:00-15:20) **Event-Based Bipartite Synchronization of Nonlinear Dynamical Networks With Sampled Data**
   Kwaku Avepah, Mei Sun and Qiang Jia

5. (15:20-15:40) **A Critical Review on Safety of Pet Food Products**
   Shu Lun Mak, Jonathan Au and Fanny Tang

6. (15:40-16:00) **A 8pW Noise Inerfrece-Free Dual-Output Voltage Reference for Impl antable Medical Devices**
   Yang Liu, Jianghong Ma, Guangqian Zhu and Kangzhe Liu

7. (16:00-16:20) **Relationship between statistics and filters in noninvasive blood glucose estimation analysis**
   Cuilan Huang, Bingo Wing-Kuen Ling and Xlaoyu Ding

8. (16:20-16:40) **A Fast Reconstruction Method for Temperature Field Based on Principal Component Analysis and Convolutional Autoencoder**
   Fuqiang Sun, Anzhen Huang, Zhangang Wu. Weijle Huang and Menghua Zhang

9. (16:40-17:00) **Trajectory Tracking of Two-Joint Space Robot using Wavelet Neural Networks and Sliding Mode Control**
   Guo Luo, Angbo Xie, Xuejiao Peng, Shun Lu, Xinving Xie, Xinnu Lin, Qiie Chen, Xinyan Mo and Xuan Li

10.

Closing Ceremony

Time: November 6th (Sunday), 17:30-18:00

Venue: Taoran Restaurant, Guangdong Hot Spring Hotel, No.112 Wenquan East Road, Conghua District, Guangzhou

Summary Speech from Prof. Haijun Zhang, General Chair of IEEE ISPCE-AS 2022

Thank You!

Thank you for attending the IEEE ISPCE-AS 2022!