



# **The Sixth International Conference on Smart Vehicular Technology, Transportation, Communication and Applications (VTCA 2024)**

April 16-18, 2024, Kaohsiung, Taiwan  
(Kaohsiung Software Technology Park)

## **Conference Program** (Onsite/Online Hybrid)

**Time Zone for the Conference Program: GMT +08:00**  
Please visit <https://voovmeeting.com/> for VooV Meeting clients

**VTCA 2024 Official Website:** <http://bit.nkust.edu.tw/~vtca24>

## Conference Program

Time	April 16, 2024 (Tuesday)
09:00-09:50	<b>Registration</b> Conference saloon, 1F
09:50-10:00	<b>Opening</b> Conference saloon, 1F VooV Meeting ID: 963-845-863 <a href="https://meeting.tencent.com/dm/NP7t6NOnJWDS">https://meeting.tencent.com/dm/NP7t6NOnJWDS</a>
10:00-11:00	<b>Keynote Speech (I)</b> <i>Prof. Yao Zhao</i> Conference saloon, 1F VooV Meeting ID: 963-845-863 <a href="https://meeting.tencent.com/dm/NP7t6NOnJWDS">https://meeting.tencent.com/dm/NP7t6NOnJWDS</a>
11:00-11:20	Break
11:20-12:00	<b>Session 01</b> Conference saloon, 1F VooV Meeting ID: 963-845-863 <a href="https://meeting.tencent.com/dm/NP7t6NOnJWDS">https://meeting.tencent.com/dm/NP7t6NOnJWDS</a>
12:00-14:00	Lunch
14:00-17:00	<b>Session 02</b> VooV Meeting ID: 378-355-729 <a href="https://meeting.tencent.com/dm/1BurYRingB4z">https://meeting.tencent.com/dm/1BurYRingB4z</a>
17:30-20:00	Welcome Reception

Time	April 17, 2024 (Wednesday)
09:00-10:00	<b>Keynote Speech (II)</b> <i>Prof. Lyuchao Liao</i> Conference Room 301, 3F VooV Meeting ID: 823-713-738 <a href="https://meeting.tencent.com/dm/CEGgfKJuoINu">https://meeting.tencent.com/dm/CEGgfKJuoINu</a>
10:00-10:30	Break
10:30-11:30	<b>Keynote Speech (III)</b> <i>Prof. SK Hafizul Islam</i> Conference Room 301, 3F VooV Meeting ID: 823-713-738 <a href="https://meeting.tencent.com/dm/CEGgfKJuoINu">https://meeting.tencent.com/dm/CEGgfKJuoINu</a>
12:00-14:00	Lunch
14:00-17:00	<b>Session 03</b> VooV Meeting ID: 687-574-130 <a href="https://meeting.tencent.com/dm/xxncYw8Du4R1">https://meeting.tencent.com/dm/xxncYw8Du4R1</a>
17:30-20:00	Banquet

Time	April 18, 2024 (Thursday)
09:00-12:00	<b>Session 04</b> VooV Meeting ID: 102-779-526 <a href="https://meeting.tencent.com/dm/Lfm9KSqTscAx">https://meeting.tencent.com/dm/Lfm9KSqTscAx</a>
12:00-14:00	Lunch
14:00-15:00	<b>Keynote Speech (VI)</b> <i>Prof. Jingchun Geng</i> VooV Meeting ID: 603-492-870 <a href="https://meeting.tencent.com/dm/JL0RkF2Lo5cZ">https://meeting.tencent.com/dm/JL0RkF2Lo5cZ</a>
15:00-15:30	Break
15:30-16:30	<b>Keynote Speech (V)</b> <i>Prof. Liyuan Zhao</i> VooV Meeting ID: 603-492-870 <a href="https://meeting.tencent.com/dm/JL0RkF2Lo5cZ">https://meeting.tencent.com/dm/JL0RkF2Lo5cZ</a>
16:30-16:40	Ending

## Keynote Speech

**Keynote Speech (I):** Weakly Supervised & Interactive Image Segmentation

**Speaker:** Prof. Yao Zhao, Beijing Jiaotong University, China

**Keynote Speech (II):** The Next Horizon: Telematics to Autonomous Vehicles in the Connected Age

**Speaker:** Prof. Lyuchao Liao, Fujian University of Technology, China

**Keynote Speech (III):** Identity-based Deniable Authentication for Mobile Ad Hoc Networks

**Speaker:** Dr. SK Hafizul Islam, Indian Institute of Information Technology Kalyani, India

**Keynote Speech (IV):** Theory and Practice of the Train Headway and Design of Block Section for High-speed Railway

**Speaker:** Dr. Jingchun Geng, CHINA RAILWAY ECONOMIC AND PLANING RESEARCH INSTITUTE

**Keynote Speech (V):** Modeling urban land use transportation using big data and machine learning methods

**Speaker:** Dr. Liyuan Zhao, Huazhong University of Science and Technology

## Paper Presentation

### Session 01

1. VTCA-2024-136  
Identification of Multi-class Attacks in IoT with LSTM  
Yu-Xian Lee, Chin-Shiuh Shieh, Mong-Fong Horng, Thanh-Lam Nguyen,  
Ying-Chieh Chao
2. VTCA-2024-142  
A GPT-based chatbot for Security Log Parsing  
Xian-Fu Zhou, Chun-Chih Lo, Chin-Shiuh Shieh, Yuh-Ming Cheng,  
Mong-Fong Horng
3. VTCA-2024-144  
A Study of Handover Quality Prediction in 5G Networks with Deep Learning  
Tang-Chi Lo, Chun-Chih Lo, Chin-Shiuh Shieh, Mong-Fong Horng

### Session 02

1. VTCA-2024-040  
A Novel Hybrid DE-GOA Algorithm for Global Optimization Problems  
Yu Li, Qing-Yong Yang, Jia Zhao, Tien-Szu Pan, Jeng-Shyang Pan
2. VTCA-2024-072  
Genetic Algorithm: Unleashing Power of Evolutionary Computing in Problem Solving and Optimization  
Jeng-Shyang Pan, Trong-The Nguyen, Thi-Kien Dao, Thi-Minh-Phuong Ha
3. VTCA-2024-076  
Jira's Collaboration: Survey Insights on Optimizing Team Planning, Tracking, and Release Management  
Jeng-Shyang Pan, Thi-Kien Dao, Trong-The Nguyen, Trinh-Dong Nguyen,  
Thi-Xuan-Huong Nguyen
4. VTCA-2024-098  
Optimal Placement of Pressure Sensors in Water Supply Network with Gaining-Sharing-Knowledge Based Algorithm  
Li-Fa Liu, Shu-Chuan Chu, Tien-Szu Pan, Jeng-Shyang Pan
5. VTCA-2024-102  
Rafflesia Optimization Algorithm for Wireless Sensor Networks  
Jeng-Shyang Pan, Xin-Yi Zhang, Shu-Chuan Chu, Junzo Watada
6. VTCA-2024-118  
A Novel Gannet Optimization Algorithm with QUasi-Affine TRansformation

Evolutionary

Ji-kang Tao, Shu-Chuan Chu, Qingyong Yang, Jeng-Shyang Pan

7. VTCA-2024-120

An adaptive image fusion method based on Rafflesia Optimization Algorithm

Jeng-Shyang Pan, Huai-Jian Xu, Shu-Chuan Chu, Shi-Huang Chen

8. VTCA-2024-135

Research on Improvement of Harris Hawks Algorithm Based on Multi Strategy Optimization

Lin-yuan Lei, Shu-Chuan Chu, Jian-po Li, Vaclav snasel, and Jeng-Shyang Pan

9. VTCA-2024-140

Food digestion algorithm for engineering optimization problems

Shu-Chuan Chu, Xiao-Qi Liu, Ling-ping Kong, Jeng-Shyang Pan, Václav Snášel

10. VTCA-2024-016

Multi-objective Firefly Algorithm with Dynamic Reflection Guidance and Bi-dimensional Variants

Zhi-Yang Zeng, Shui-Ping Kang, Jia-Zhen Hou, Xiu-Mei Tian

11. VTCA-2024-031

Hybrid Kernel Function Fuzzy Least Squares Projection Twin Support Vector Machine by Wolf Pack Algorithm

Hai-peng Zhu, Jia Zhao, Si-wei Peng, Yuan-min Li, Jia-cheng Li, Bao-hong Liu

12. VTCA-2024-082

An Binary Particle Swarm Optimization with Learning from Neighbors for Multi-objective Feature Selection

Xiaofeng Wang, Jianhua Liu, Yuxiang Chen, Jian Zhu, Zhichun Xie

### Session 03

1. VTCA-2024-052  
Machine Vision Defect Detection System Designed with Halcon  
Mir Mehraj Ahmad, Lyuchao Liao, Jishi Zheng, Ali Shan, Jindun Zeng
2. VTCA-2024-068  
GPF-YOLO: A real-time vehicle object detection algorithm based on improved YOLOv8  
Yu-Xin Guo, Fu-Quan Zhang
3. VTCA-2024-132  
Optimizing Deep Kernel Mapping Network for Remote Sensing Hyperspectral Image Classification  
Jing Liu and Kechao Wang
4. VTCA-2024-IS-01-01  
Using computer vision to evaluate physical rehabilitation training in Internet of Things environments  
Lingfeng Huang, Lunan Liu, Shengwen Huang, Yeh-Cheng Chen
5. VTCA-2024-096  
Whispers of the Fan: An Interactive Installation Artwork Based on Arduino Sensors Integrated with Touch Designer  
Linling Xu, Chengfeng Zheng, Shutang Liu, Yue Wang, Chang Xu, Xu Wang, Fuquan Zhang
6. VTCA-2024-088  
Integration Teaching Research of Advanced Mathematics and Computational Mathematics Courses under the Framework of Applied Research Projects  
Chao-Fan Xie, Fuquan Zhang
7. VTCA-2024-130  
The Study of Organizational Commitment and Organizational Culture on Employee Satisfaction: on Vocational High School of Dongguan City  
Fang Luo, Sheng-Lun Shen and Rong Ye
8. VTCA-2024-058  
Research on Style Transfer Algorithm of JinCang Embroidery Based on CNN  
Miao-miao Kang, Ke-ke Sun, Tian-tian Xu
9. VTCA-2024-104  
Deciphering the Educational Process: An SVM Approach to Business English Teaching Analytics  
Rui Cong, Wei Sun

10. VTCA-2024-125  
Applying Emotion Recognition on Classroom Interaction  
Shih-Pang Tseng, Yaxin Wang, Chun-Cheng Wei, Yi-Chang Chen
11. VTCA-2024-112  
Research on the Coupling and Coordinated Development of Digital Economy and  
Dongguan Advanced Manufacturing Industry  
Jingjing Zhan
12. VTCA-2024-055  
Prediction Study of Mine Water Inflow Based on Chaos Theory  
Longqing Shi, XinHang Zhu, Jin Han
13. VTCA-2024-062  
Lightweight Semi-Supervised Semantic Segmentation Using Pixel-level  
Contrastive Learning  
Qingqing Su, AnHong Wang, Jing Zhang, Lijun Zhao, Yan Fang
14. VTCA-2024-116  
Prior Mask-Based Deep Neural Network For Silicon Wafer Defect Detection  
Chang Wang, AnHong Wang\*, AnAn Ren, Hao Jing, Kai Hu



## Session 04

1. VTCA-2024-007  
Research on the connection of through trains based on the deadline of goods transportation  
Shengdong Li, Qiangfeng Zhang, Xia Zhou, Chuijiang Guo, Li Shi
2. VTCA-2024-011  
Improved column generation algorithm for passenger service-like railway container transportation optimization  
Song Pu
3. VTCA-2024-036  
A Train Rescheduling Approach under Disruptions in Urban Rail Transit Systems  
Peng Qiu, Xuze Ye, Yongxin Li, Miaomiao Lv
4. VTCA-2024-048  
Vulnerability Assessment of Subway Station Operation Based on AHP-Matter Element Model  
Li Lu, Xiuze Zheng
5. VTCA-2024-080  
Research on Compiling Method of The Old and New Alternate Passenger Train Diagram  
Lv Miao-miao, Li Ke, Pan Jin-shan, Sun Yan-fei
6. VTCA-2024-086  
Research on Dynamic Compilation and Optimization of Train Operation Diagram Based on Multi-system Regional Rail Transit  
Mingqi Weng, Xinyue Li, Hongxia Lv
7. VTCA-2024-090  
The Influence of Using Artificial Intelligence Multimedia Devices in Vehicles on Driving Safety  
Shutang Liu, Jiadong Wang, Minggui Li, Ruoting Xie, Linling Xu, Chengdong Chen, Jiayan Huang
8. VTCA-2024-100  
Study on the dynamic preparation and optimization of multi-standard rail transit train operation scheme  
Zhanbao QI, Yanhao WANG, Jinshan PAN
9. VTCA-2024-106  
Remaining Charging Time Estimation for Lithium-Ion Batteries Based on CNN-GRU  
Si-Rui Lin, Fu-min Zou, Xiang Yu, Feng Guo

10. VTCA-2024-108  
Coordinated Optimization Research of Multi-Standard Rail Transit Train  
Operation Plans Based on Capacity Matching  
Wang Zhewei, Liu Zhen, Guo Xiuyun
11. VTCA-2024-110  
Research on Adjustment of High-Speed Railway Train Operation Plan Based on  
Passenger Flow Demands  
SHEN Zexi, WANG Jiajun, PAN Jinshan, LI Xueting
12. VTCA-2024-114  
Study of Instrumental Standard Curve Fitting with Relative Error Constraints  
Zhenhua Gan, Dongyu He, Fumin Zou\*, Feng Guo, Jinyang Li, Yuankun Bai,  
Bangda Chen, Shuting Chen
13. VTCA-2024-127  
Research on Comprehensive Evaluation of New and Old Alternate Train Diagrams  
Lv Miao-miao, Sun Yan-fei
14. VTCA-2024-128  
Traffic Sign Detection and Recognition in Complex Scenes  
Ming Zhang, Dequ Chen, Rong Hu, Weilong Dai
15. VTCA-2024-138  
The application and practice of computer operating systems in communication  
security in the transportation industry  
Cui Zhan
16. VTCA-2024-146  
Research on the benefit and efficiency evaluation of the high-speed railway  
operation plan oriented to the railway network  
MEI Tianci, LAI Jun, ZHANG Zhenchen, PAN Jinshan\*, ZHAN Cui