



# The 18th International Conference on Intelligent Information Hiding and Multimedia Signal Processing

December 16-18, 2022, Kitakyushu, Japan (Online)

<http://bit.nkust.edu.tw/~iihm22>

## IIHMSP-2022 Conference Program

- Please visit <https://voovmeeting.com> for VooV Meeting clients
- Time Zone for the Conference Program: GMT+8

	December 15, 2022
09:00-10:00	VooV Meeting System Test VooV Meeting ID: 244-903-164

	December 16, 2022	
09:30-09:40	Opening VooV Meeting ID: 715-571-904	
09:40-10:30	Keynote Speech I: Recent Results on Object Detection and Data Augmentation Jun-Wei Hsieh, National Yang-Ming Chiao-Tung University, Taiwan VooV Meeting ID: 715-571-904	
10:30-10:50	Break	
10:50-12:10	Session A01 Bio-Inspired Multimedia Technologies and Systems VooV Meeting ID: 326-168-466	Session B01 Information Hiding and Security VooV Meeting ID: 299-362-728
12:10-13:50	Break	
13:50-15:10	Session A02 Bio-Inspired Multimedia Technologies and Systems VooV Meeting ID: 691-819-778	Session C01 Multimedia Signal Processing and Networking VooV Meeting ID: 329-397-491
15:10-15:30	Break	
15:30-16:20	Keynote Speech II: Tarek Gaber, University of Salford, UK VooV Meeting ID: 121-314-283	

	December 17, 2022
09:30-10:20	Keynote Speech III: Reversible Data Hiding Yao Zhao, Beijing Jiaotong University, China VooV Meeting ID: 499-548-255
10:20-10:40	Break

10:40-12:00	<b>Session A03</b> Bio-Inspired Multimedia Technologies and Systems VooV Meeting ID: 524-826-083	<b>Session B02</b> Information Hiding and Security VooV Meeting ID: 783-218-746
12:00-13:50	<b>Break</b>	
13:50-15:10	<b>Session A04</b> Bio-Inspired Multimedia Technologies and Systems VooV Meeting ID: 484-767-777	<b>Session B03</b> Information Hiding and Security VooV Meeting ID: 352-991-338
15:10-15:30	<b>Break</b>	
15:30-17:00	<b>Session A05</b> Bio-Inspired Multimedia Technologies and Systems VooV Meeting ID: 826-211-800	<b>Session C02</b> Multimedia Signal Processing and Networking VooV Meeting ID: 448-786-414

	<b>December 18, 2022</b>	
09:30-12:10	<b>Session A06</b> Bio-Inspired Multimedia Technologies and Systems VooV Meeting ID: 170-439-713	
12:10-12:20	<b>Closing Remarks</b>	

## **Session A01: Biomedical System Design and Applications**

December 16 (Friday), 10:50-12:10

VooV Meeting ID: 326-168-466

Chair: Pei Hu, Shandong University of Science and Technology, China

### **Paper ID: IIHMSP-2022-IS01-01**

Paper Title: A Novel Strategy for Improvements in Binary Swarm Optimization Algorithms

Author(s): Fang-Dong Geng, Ruo-Bin Wang, Rui-Bin Hu, and Lin Xu

### **Paper ID: IIHMSP-2022-IS01-02**

Paper Title: A Fast Approach for Adversarial Training by Fleeing the Illness Parameter Space

Author(s): Liyao Yin, Shen Wang, Wang Zhenbang, Tian Shigang, and Dechen Zhan

### **Paper ID: IIHMSP-2022-IS01-03**

Paper Title: Robust Image Hashing based on Histogram Reconstruction

Author(s): Yao Jia, Chen Cui, Zhenbang Wang, Shigang Tian, and Shen Wang

### **Paper ID: IIHMSP-2022-IS01-04**

Paper Title: ECDSA Certificate Enrollment and Authentication for SCEP Protocol in Smart Grid PKI

Author(s): Ding-Wen Hsu, Hsuan-Tung Chen, Hung-Min Sun, and Tsan-Yu Huang

### **Paper ID: IIHMSP-2022-IS01-05**

Paper Title: A Nonconvex Total Variation Based Method for SAR Image Despeckling

Author(s): Chao Wang, Baolong Guo, and Cheng Li

### **Paper ID: IIHMSP-2022-IS01-06**

Paper Title: Improved ShuffleNetV2 for Garbage Image Classification

Author(s): Jinghan Zhang, Cheng Li, and Baolong Guo

### **Paper ID: IIHMSP-2022-IS01-07**

Paper Title: Extraction of Small Water Bodies based on HRNet

Author(s): Zhaolei Liu, Yulin Cai, Sichao Wang, and Hongzhen Gao

## **Session A02: Biomedical System Design and Applications**

December 16 (Friday), 13:50-15:10

VooV Meeting ID: 691-819-778

Chair: Qingyong Yang, Shandong University of Science and Technology, China

### **Paper ID: IIHMSP-2022-IS01-08**

Paper Title: Land Cover Classification of Yellow River Delta based on Hybrid Convolutional Residual Network

Author(s): Yulin Cai, Sichao Wang, Xiaoqing Zhang, Zhaolei Liu, and Hongzhen Gao

### **Paper ID: IIHMSP-2022-IS01-09**

Paper Title: Research on Carbon Emission Prediction Method Based on Deep Learning: A Case Study of Shandong Province

Author(s): Qingqing Qi and Xiaoqing Zhang

### **Paper ID: IIHMSP-2022-IS01-10**

Paper Title: Many-Objective Evolutionary Algorithm Based on Improved Dominance Relation

Author(s): Zhen-yu PEI, Ze-yuan YANG, Geng-geng LIU, Jeng-Shyang Pan

### **Paper ID: IIHMSP-2022-IS01-11**

Paper Title: SRPose: Low Resolution Human Pose Estimation with Super-Resolution

Author(s): Xiyue Sun, Feng Li, Huihui Bai, Rongrong Ni, and Yao Zhao

### **Paper ID: IIHMSP-2022-IS01-12**

Paper Title: UAV Formation Group Consistency Control Method Considering Time-Varying Formation

Author(s): Tianye Sun, Wei Sun, Xuyang Zhou, Jianjun Wu, and Wei Lu

### **Paper ID: IIHMSP-2022-IS01-13**

Paper Title: An Opposition-Based Beluga Whale Optimization

Author(s): Shi-Lei Xu, Qing-Wei Chai, Wei-Min Zheng, Jeng-Shyang Pan, and Pei Hu

### **Paper ID: IIHMSP-2022-IS01-14**

Paper Title: Multi-Secret Sharing Visual Cryptography for Grayscale Images by Polarization

Author(s): Zi-Nan Liu, Bin Yan, Tao Liu, Jeng-Shyang Pan, and Hong-Mei Yang

## **Session A03: Biomedical System Design and Applications**

December 17 (Saturday), 10:40-12:00

VooV Meeting ID: 524-826-083

Chair: Pei-Cheng Song, Shandong University of Science and Technology, China

### **Paper ID: IIHMSP-2022-IS01-15**

Paper Title: Firefly Algorithm based on Division of Labor for Solving Constrained Optimization Problems

Author(s): Ning-Kang Pan, Ping Kang, and Li Lv

### **Paper ID: IIHMSP-2022-IS01-16**

Paper Title: Explainable Chance-Constrained Programming for VR Video Resource Allocation

Author(s): Jeng-Shyang Pan, Pei-Cheng Song, Shu-Chuan Chu, Junzo Watada, and Jun-Bao Li

### **Paper ID: IIHMSP-2022-IS01-17**

Paper Title: An Efficient Multilevel Threshold Image Segmentation Approach Based on Rafflesia Optimization Algorithm

Author(s): Jin-Liang Zhou, Shu-Chuan Chu, Shaowei Weng, and Wei-Min Zheng

### **Paper ID: IIHMSP-2022-IS01-18**

Paper Title: Distributed Face Biometric with Blockchain Federated Learning

Author(s): Kuo-Kun Tseng, Tian Tan, and Juan David Guerra Veloz

### **Paper ID: IIHMSP-2022-IS01-19**

Paper Title: Region Guide Point for Depth Estimation

Author(s): Wang Jun and Kuo-Kun Tseng

### **Paper ID: IIHMSP-2022-IS01-20**

Paper Title: Research on PLC Communication Technology in Intelligent Loading Control System

Author(s): Wenling Zhou and Botao Liu

### **Paper ID: IIHMSP-2022-IS01-21**

Paper Title: Combined Synchronization for Fractional-order Chaotic Systems with Time Delay

Author(s): Wenhao Yan, Wenjie Dong, Zijing Jiang, Xin Huang, and Qun Ding

## **Session A04: Biomedical System Design and Applications**

December 17 (Saturday), 13:50-15:10

VooV Meeting ID: 484-767-777

Chair: Sui Xiao, Shandong University of Science and Technology, China

### **Paper ID: IIHMSP-2022-IS01-22**

Paper Title: A New Four-dimensional Discrete Chaotic System Is Used for S-box Masking

Author(s): Zijiang Jiang, Wenjie Dong, and Qun Ding

### **Paper ID: IIHMSP-2022-IS01-23**

Paper Title: A Parallel Gannet Optimization Algorithm with Communication Strategies (PGOA)

Author(s): Jing-Bo Su, Ruo-Bin Wang, Fang-Dong Geng, Qiang Wei, and Lin Xu

### **Paper ID: IIHMSP-2022-IS01-24**

Paper Title: Adaptive Target Tracking Algorithm Based on Template Updating and Graph-regularized Saliency

Author(s): Xiang Gao, Yafei Wang, Lingxia Zhang, and Yunyi Yan

### **Paper ID: IIHMSP-2022-IS01-25**

Paper Title: Fault Detection Method of Insulator Image based on Gabor Texture and Convolutional Neural Network

Author(s): Xiaoquan Chu, Wenwen Gong, Yunpeng Gao, and Fujia Han

### **Paper ID: IIHMSP-2022-IS01-26**

Paper Title: RGB-T Target Tracking based on Saliency with Graylevel Co-occurrence Matrix and KCF

Author(s): Shuaijiang Hu

### **Paper ID: IIHMSP-2022-IS01-27**

Paper Title: An Optimal Power System Multi-Objective Environmental Economic Planning Based on Moth-FLame Optimization

Author(s): Shu-Chuan Chu, Trong-The Nguyen, Vinh-Tiep Nguyen, Trinh-Dong Nguyen, and Thi-Kien Dao

### **Paper ID: IIHMSP-2022-IS01-28**

Paper Title: A Power-System Economic Dispatching Based on Enhanced Group Search Optimizer

Author(s): Jeng-Shyang Pan, Trong-The Nguyen, Trinh-Dong Nguyen, Vinh-Tiep Nguyen, and Thi-Kien Dao

## **Session A05: Biomedical System Design and Applications**

December 17 (Saturday), 15:30-17:00

VooV Meeting ID: 826-211-800

Chair: Zhongije Zhuang, Shandong University of Science and Technology, China

### **Paper ID: IIHMSP-2022-IS01-29**

Paper Title: Research Review on Security Protection Scheme of Distributed Photovoltaic Grid Connected Network

Author(s): Xin LIU, He WANG, Xi LI, Qigui NIE, Jing LIU, Hongri LIU, and Wenting WANG

### **Paper ID: IIHMSP-2022-IS01-30**

Paper Title: A Method of Constructing Fine-grained Pose Evaluation Model

Author(s): Zhen Song, Longfei Zhang, Haoyu Li, Yufeng Wu, and Gangyi Ding

### **Paper ID: IIHMSP-2022-IS01-31**

Paper Title: Research on Meteorological Public Opinion Combining Domain Keywords and LinearSVC

Author(s): Sheng Yan, Feng Zhou, Hongmei Luo, Lina Zhu, and Yugui Chen

### **Paper ID: IIHMSP-2022-IS01-32**

Paper Title: Study on Dynamic Evaluation of Limiting Factors of High Speed Railway Station Operation Efficiency

Author(s): Jiahe Liu, Rui Song, and Xiaopeng Shen

### **Paper ID: IIHMSP-2022-IS01-33**

Paper Title: A Novel Algorithm for Video Frame Prediction based on Convolutional Neural Network

Author(s): Ming Zhao, Tie Luo, Bingxue Zhou, and Jeng-Shyang Pan

### **Paper ID: IIHMSP-2022-IS01-34**

Paper Title: GVNet: Graph-Voxel Fusion Network for 3D Object Detection

Author(s): Yu-Bing Li, An-Hong Wang, Hao Jing, and Dong-Han Bu

## **Session A06: Biomedical System Design and Applications**

December 18 (Sunday), 09:30-12:10

VooV Meeting ID: 170-439-713

Chair: Ruyu Wang, Shandong University of Science and Technology, China

### **Paper ID: IIHMSP-2022-IS01-35**

Paper Title: Relation Extraction Model based on Global Pointer and Potential Relation Embedding

Author(s): Han Yang and Yulong Qiao

### **Paper ID: IIHMSP-2022-IS01-36**

Paper Title: ECG Heartbeat Segmentation with Bidirectional LSTM Deep Learning Neural Network

Author(s): Jhe-Yu Jiang, Hui Yu Shen, and Chao-Hsing Hsu

### **Paper ID: IIHMSP-2022-IS01-37**

Paper Title: Representing Scenes as Compositional Generative Neural Feature Fields based on GIRAFFE for 3D Reconstruction of Classroom Scenes

Author(s): Tianlin Fu, Renyu Deng, Yue Gao, and Fuquan Zhang

### **Paper ID: IIHMSP-2022-IS01-38**

Paper Title: Pipe Attitude Recognition and Control System based on Machine Vision

Author(s): Gang Ke, Jianjun Xu, and Jun Yang

### **Paper ID: IIHMSP-2022-IS01-39**

Paper Title: Short-term Forecast based on Generalized Maximum Correntropy Criterion and Kernel Extreme Learning Machine

Author(s): Mi Zhou, Renli Cheng, Bin Qian, Yuxiang Chu, and Fusheng Li

### **Paper ID: IIHMSP-2022-IS01-40**

Paper Title: A Document Management System with Multi-biometric Watermarking for Educational Purpose

Author(s): Kuo-Kun Tseng, Qi Na, and Regina Fang-Ying Lin



## **Session B01: Information Hiding and Security**

December 16 (Friday), 10:50-12:10

VooV Meeting ID: 299-362-728

Chair: Shaowei Weng, Fujian University of Technology, China

### **Paper ID: IIHMSP-2022-0020**

Paper Title: Power Quality Disturbance Identification in High Noise Environment Based on Feature Fusion

Author(s): Shizhe Chen, Yiling Lv, and Hao Wang

### **Paper ID: IIHMSP-2022-0023**

Paper Title: Binary Tumbleweed Algorithm for Application of Feature Selection

Author(s): Xu Yuan, Jeng-Shyang Pan, Shu-Chuan Chu, and Václav Snášel

### **Paper ID: IIHMSP-2022-0026**

Paper Title: New Optimization Method Based on Binary Tumbleweed Algorithm

Author(s): Jeng-Shyang Pan, Gui-Ling Wang, Dongqiang Yang, and Shu-Chuan Chu

### **Paper ID: IIHMSP-2022-0032**

Paper Title: Chaos Rafflesia Optimization Algorithm

Author(s): Xiao Wang, Shu-Chuan Chu, Lingping Kong, and Dongqiang Yang

### **Paper ID: IIHMSP-2022-0035**

Paper Title: A Brief Overview of Recent Energy Saving Researches in Smart Homes

Author(s): Tien-Wen Sung, Qiaoxin Liang, Zeming Huang, and Chuanbo Hong

### **Paper ID: IIHMSP-2022-0040**

Paper Title: An Overview of Recent Research on IoT-based Energy Management System in Smart Homes

Author(s): Tien-Wen Sung, Zeming Huang, and Qiaoxin Liang

### **Paper ID: IIHMSP-2022-0077**

Paper Title: Data Masking Analysis based on Masked Autoencoders Architecture for Leaf Diseases Classification

Author(s): Li-Hua Li and Radius Tanone

## **Session B02: Information Hiding and Security**

December 17 (Saturday), 10:40-12:00

VooV Meeting ID: 783-218-746

Chair: Wu Tsu-Yang, Shandong University of Science and Technology, China

### **Paper ID: IIHMSP-2022-0083**

Paper Title: Chinese Named Entity Recognition Based BERT-Decoder-CRF in Turbine Generator Set Fault Diagnosis

Author(s): Ruimin Wang, Changfeng Yan, Jiawei Lu, Jiang Wang, and Yongming Zhang

### **Paper ID: IIHMSP-2022-0092**

Paper Title: Comparison of Different Part-of-Speech Tagging Techniques for Mongolian Language

Author(s): Ganchimeg Lkhagvasuren, Javkhlan Rentsendorj, Enkhtuul Bukhsuren, and Oyun-Erdene Namsrai

### **Paper ID: IIHMSP-2022-0095**

Paper Title: Parallel Binary QUasi-Affine TRansformation Evolution (QUATRE) Algorithm

Author(s): Zhongjie Zhuang, Shu-Chuan Chu, Jeng-Shyang Pan, and V'aclav Sn'a'sel

### **Paper ID: IIHMSP-2022-0104**

Paper Title: Acceleration Intention Recognition of Pure Electric Vehicle based on SVM and Optimization Algorithm

Author(s): Zi-Hao Long, Ding Chen, Guang-Ji Song, and Zhong-De Zou

### **Paper ID: IIHMSP-2022-0110**

Paper Title: Quantitative Analysis of Coordination between Intercity Rail Transit and Urban Planning based on Fractal Theory

Author(s): Xian-Yu Yang, Ding Chen, Xin Song, and Pei-Zhou Jiang

### **Paper ID: IIHMSP-2022-0115**

Paper Title: Modeling and Simulation of Continuous Damping Control Shock Absorber

Author(s): Fei-Fan Zhang, Ding Chen, Jing Sheng, and Yang-Jian Li

### **Paper ID: IIHMSP-2022-0121**

Paper Title: Multi-group Adaptive Fish Migration Optimization Algorithm

Author(s): Lin-dong Xu, Qing-Wei Chai, Jeng-Shyang Pan, Pei Hu, and Wei-Min Zheng

## **Session B03: Information Hiding and Security**

December 17 (Saturday), 13:50-15:10

VooV Meeting ID: 352-991-338

Chair: Tao Liu, Shandong University of Science and Technology, China

### **Paper ID: IIHMSP-2022-0125**

Paper Title: A Solution to Reactive Distributed Power Optimization based on Enhancing Particle Swarms Optimization

Author(s): Truong-Giang Ngo, Thi-Thanh-Tan Nguyen, Jun-Jie Shang, Trong-The Nguyen, and Trinh-Dong Nguyen

### **Paper ID: IIHMSP-2022-0137**

Paper Title: Optimize Convolutional Neural Network for Facial Expression Recognition

Author(s): Chayanon Sub-r-pa and Rung-Ching Chen

### **Paper ID: IIHMSP-2022-0155**

Paper Title: Improved SlowFast Network with Spatial-Temporal Attention Module for Action Recognition

Author(s): Zhonghua Sun, Yu Zhang, Ziwen Yi, Kebin Jia, and Jinchao Feng

Corresponding Author:

### **Paper ID: IIHMSP-2022-0166**

Paper Title: State Detection System for Cam Lock Using YOLOv5

Author(s): Pengwei Ma and Jishi Zheng

### **Paper ID: IIHMSP-2022-0169**

Paper Title: Learning a Detail-oriented Transformer for Image Denoising

Author(s): Xuan Long, Mei-Qin Liu, Chao Yao, Shuo Jin, Chun-Yu Lin, and Yao Zhao

### **Paper ID: IIHMSP-2022-0178**

Paper Title: Research on Process Optimization of University Website Resources Construction Based on RPA

Author(s): Bo Yuan, Chao Deng, Zhuang Jin, and Yeh-Cheng Chen

### **Paper ID: IIHMSP-2022-0186**

Paper Title: Visualization Analysis of Stock Data based on Tableau

Author(s): Chao Deng, Jiao Peng, and Yeh-Cheng Chen

### **Paper ID: IIHMSP-2022-0190**

Paper Title: Application of ARIMA Time Series Model in Stock Data Prediction

Author(s): Jiao Peng, Chao Deng, and Yeh-Cheng Chen

## **Session C01: Multimedia Signal Processing and Networking**

December 16 (Friday), 13:50-15:10

VooV Meeting ID: 329-397-491

Chair: Mong-Fong Horng, National Kaohsiung University of Science and Technology, Taiwan

### **Paper ID: IIHMSP-2022-IS04-01**

Paper Title: Brainwave Analysis of the Correlation between Listening to the Rain/Water Sounds and Reducing Human-perceived Temperature

Author(s): Fu Jie Tey, Tin-Yu Wu, Mei-Yin Liu, and Yi-Kai Chen

### **Paper ID: IIHMSP-2022-IS04-02**

Paper Title: Detection of Unknown DDoS Attack using Modified Dynamic High-Resolution Network

Author(s): Chin-Shiuh Shieh, Thanh-Tuan Nguyen, Chun-Yueh Chen, Thanh-Vinh Nguyen, Mong-Fong Horng, and Ying-Chieh Chao

### **Paper ID: IIHMSP-2022-IS04-03**

Paper Title: A Saliva Fern Recognition with Image Tone Equalization and Detection Method

Author(s): Jian-Yu Chen, Hui-Yu Chuang, Mong-Fong Horng, and Chin-Shiuh Shieh

### **Paper ID: IIHMSP-2022-IS04-04**

Paper Title: Data Augmentation Based on Topic Relevance to Enhance Text Classification in Scarcity of Training Data

Author(s): Ming-Xian Zou, Chun-Chih Lo, Chih-Hsueh Lin, Chin-Shiuh Shieh, and Mong-Fong Horng

### **Paper ID: IIHMSP-2022-IS04-05**

Paper Title: Dam Control System's Cybersecurity Testbed

Author(s): I-Hsien Liu, Jie-Shin Chen, Kuan-Ming Su, and Jung-Shian Li

### **Paper ID: IIHMSP-2022-IS04-06**

Paper Title: Multiple-Threshold Erasable Mining under the Tightest Constraint

Author(s): Tzung-Pei Hong

### **Paper ID: IIHMSP-2022-IS04-07**

Paper Title: Computational Intelligence & AI-FML Experience Model for Pre-University Student Learning and Practice

Author(s): Chang-Shing Lee, Mei-Hui Wang, Rin-Pin Chang, Hsiao-Chi Liu, Szu-Chi Chiu, Yu-Cheng Chang, Lu-An Lin, and Shen-Chien Chen

## **Session C02: Multimedia Signal Processing and Networking**

December 17 (Saturday), 15:30-17:00

VooV Meeting ID: 448-786-414

Chair: Akinori Ito, Tohoku University, Japan

### **Paper ID: IIHMSP-2022-IS02-01**

Paper Title: Radar Waveform Gaming Configurable Framework Based on Deep Reinforcement Learning

Author(s): Feng Xie, Ying Kang, and Huanyu Liu

### **Paper ID: IIHMSP-2022-IS02-02**

Paper Title: Super Resolution of Unpaired MR Images based on Domain Migration

Author(s): Xiaodong Liu, Haipeng Guo, and Huanyu Liu

### **Paper ID: IIHMSP-2022-IS02-03**

Paper Title: Optical Stealth Algorithm Under Photoelectric Countermeasures and Its Effectiveness Evaluation

Author(s): Zhonglin Yang, Yutong Jiang, Junbao Li, and Qiong Li

### **Paper ID: IIHMSP-2022-IS05-01**

Paper Title: Spoken Dialogue System Development without Speech Recognition Towards Language Revitalization

Author(s): Akinori Ito

### **Paper ID: IIHMSP-2022-IS05-02**

Paper Title: Effect of Data Size and Machine Translation on the Accuracy of Automatic Personality Classification

Author(s): Yuki Fukazawa, Akinori Ito, and Takashi Nose

### **Paper ID: IIHMSP-2022-IS05-03**

Paper Title: Psychoacoustic Study of Japanese Mimetics for Food Textures

Author(s): Alexander Raevskiy, Shuichi Sakamoto, and Nobuyuki Sakai

### **Paper ID: IIHMSP-2022-IS05-04**

Paper Title: Prediction of Engagement from Facial Expressions: Effect of Dynamic Factors

Author(s): Haruka Kato, Koki Takahashi, Yasuhiro Hatori, Yoshiyuki Sato, and Satoshi Shioiri