



# **The 20th International Conference on Intelligent Information Hiding and Multimedia Signal Processing (IIHMSP 2024)**

**October 4-6, 2024, Matsue, Japan**

**(IIHMSP 2024 will be held in conjunction with the ISME 2024)**

## **Conference Program**

**(Onsite/Online Hybrid)**

**Time Zone for the Conference Program: GMT +09:00 (Japan)**

**Please visit <https://voovmeeting.com/> for VooV Meeting clients**

**ISME 2024 Official Website: <http://www.wcicme.com/Intconference/ISME2024/>**

**IIHMSP 2024 Official Website: <https://iihmsp24.github.io/>**

# IIHMSP 2024 will be held in conjunction with the ISME 2024

## ISME 2024 / IIHMSP 2024 Time Table

	<b>October 3, 2024 (Thursday)</b>		
09:00   10:15	ISME Workshop - Session 1 (Large Conference Room)		
10:45   12:00	ISME Workshop - Session 2 (Large Conference Room)		
12:00   13:00	Lunch		
13:00   14:15	ISME Workshop - Session 3 (Large Conference Room)		
14:45   16:00	ISME Workshop - Session 4 (Large Conference Room)		
16:00   18:00	Welcome Reception (Workshop Room 1)		
	<b>October 4, 2024 (Friday)</b>		
13:00   13:30	Opening Ceremony (Large Conference Room)		
13:30   14:30	Keynote Speech 1 <i>Speaker: Jeng-Shyang Pan, Professor, Nanjing University of Information Science and Technology</i> <i>Professor, Shandong University of Science and Technology</i> Title: Surrogate Assisted Approaches for Metaheuristic Optimization Algorithms (Large Conference Room)		
14:30   15:00	Coffee Break		
15:00   16:00	ISME General Track 1-1 (Middle Conference Room)	IIHMSP General Track 2-1 (Large Conference Room)	IIHMSP General Track 3-1 (Training Room 2)
16:15   17:15	ISME General Track 1-2 (Middle Conference Room)	IIHMSP General Track 2-2 (Large Conference Room)	IIHMSP General Track 3-2 (Training Room 2)
17:30   18:30	ISME General Track 1-3 (Middle Conference Room)	IIHMSP General Track 2-3 (Large Conference Room)	

	<b>October 5, 2024 (Saturday)</b>		
09:00   10:00	Keynote Speech 2 <i>Speaker: Peter Baranyi, Professor, Corvinus University of Budapest</i> Title: Crips vs Soft Computing in AI Driven Control Systems (Large Conference Room)		
10:00   10:30	Coffee Break		
10:30   11:30	ISME General Track 1-4 (Middle Conference Room)	IIHMSP General Track 2-4 (Large Conference Room)	IIHMSP <b>Online</b> Track A (VooV Meeting: 908-081-455)
11:30   12:40	Lunch		
12:40   18:00	Social Trip (Excursion in Matsue City)		
18:00   20:00	Banquet (Yushien Garden)		
	<b>October 6, 2024 (Sunday)</b>		
09:00   10:00	Keynote Speech 3 <i>Speaker: Aman Agarwal, Professor, Dean (IR) &amp; Director (Rektor), Indian Institute of Finance</i> Title: Trust as a Financial Value (Large Conference Room)		
10:00   10:30	Coffee Break		
10:30   11:30	ISME General Track 1-5 (Middle Conference Room)	IIHMSP <b>Online</b> Track B (VooV Meeting: 665-044-276)	IIHMSP <b>Online</b> Track E (VooV Meeting: 344-971-446)
11:30   13:00	Lunch		
13:00   14:00	ISME General Track 1-6 (Middle Conference Room)	IIHMSP <b>Online</b> Track C (VooV Meeting: 665-044-276)	IIHMSP <b>Online</b> Track F (VooV Meeting: 344-971-446)
14:15   15:15	ISME General Track 1-7 (Middle Conference Room)	IIHMSP <b>Online</b> Track D (VooV Meeting: 665-044-276)	IIHMSP <b>Online</b> Track G (VooV Meeting: 344-971-446)
15:20   15:50	Closing Ceremony (Large Conference Room)		

## IIHMSP General Tracks - Paper Presentation

### IIHMSP General Track 2-1

**Date:** October 4, 2024 (Friday)

**Time:** 15:00-16:00

**Room:** Large Conference Room

**Session Chair:** Prof. Shi-Huang Chen, Shu-Te University, Taiwan

**(1) Paper ID: IIHMSP-2024-A39**

Paper Title: A Study on the Using Blockchain to Compress the Driving Data for the Internet of Vehicle Application

Author(s): Chuan-Sheng Hung, Shi-Huang Chen, and Chun-Hung Richard Lin

**(2) Paper ID: IIHMSP-2024-A40**

Paper Title: Development of a Bus Driver Driving Hours Management System Based on Blockchain and the Internet of Vehicles (IoV)

Author(s): Chuan-Sheng Hung, Shi-Huang Chen, and Chun-Hung Richard Lin

**(3) Paper ID: IIHMSP-2024-A33**

Paper Title: A Novel Image Compression Scheme Based on Decision Tree Structure

Author(s): Chun-Hsiu Yeh, Hui-Ching Chang, Yi-Teng Lin, and Yung-Chen Chou

### IIHMSP General Track 2-2

**Date:** October 4, 2024 (Friday)

**Time:** 16:15-17:15

**Room:** Large Conference Room

**Session Chair:** Prof. Ruo-Wei Hung, Chaoyang University of Technology, Taiwan

**(1) Paper ID: IIHMSP-2024-A14**

Paper Title: The 1-Fair Domination Problem on Extended Supergrid Graphs

Author(s): De-Yu Wang, Ruo-Wei Hung, Jong-Shin Chen, and Fu-Hsing Wang

**(2) Paper ID: IIHMSP-2024-A15**

Paper Title: A Privacy-Preserving E-ticketing Protocol using Blockchain Technology

Author(s): Sue-Chen Hsueh and Shuang-Chiao Wan

**(3) Paper ID: IIHMSP-2024-A16**

Paper Title: A Ticketing System with Non-Fungible Token-Enabled Social Sharing

Author(s): Sue-Chen Hsueh and Pin-Yun Yeh

### **IIHMSP General Track 2-3**

**Date:** October 4, 2024 (Friday)

**Time:** 17:30-18:30

**Room:** Large Conference Room

**Session Chair:** Prof. Ruo-Wei Hung, Chaoyang University of Technology, Taiwan

**(1) Paper ID: IIHMSP-2024-A17**

Paper Title: Construction of Course Intelligence Feature Matrix Based on Multiple Intelligences and LLM and Its Application in Cluster Analysis

Author(s): Tzu-Chuen Lu and Yu-Che Chien

**(2) Paper ID: IIHMSP-2024-A19**

Paper Title: Review of the Reversible Data Hiding in Encrypted Image

Author(s): Chin-Feng Lee and Zi-Yi Huang

**(3) Paper ID: IIHMSP-2024-A20**

Paper Title: A Deep Learning Sentiment Analysis for Depression Detection Using Chinese Social Media Comments

Author(s): Li-Hua Li and Yung-Cheng Chuang

### **IIHMSP General Track 3-1**

**Date:** October 4, 2024 (Friday)

**Time:** 15:00-16:00

**Room:** Training Room 2

**Session Chair:** Dr. Xiaopeng Wang, VSB-Technical University of Ostrava, Czech Republic

**(1) Paper ID: IIHMSP-2024-A26**

Paper Title: An Enhanced Five Phases Algorithm Based on Fitness-Distance Balance Selection

Author(s): Xiaopeng Wang, Vaclav Snasel, Seyedali Mirjalili, Shu-Chuan Chu, and Rizk M. Rizk-Allah

**(2) Paper ID: IIHMSP-2024-A38**

Paper Title: Music Genre Classification Using Orthogonal Feature Fusion and Orthogonal Projection Loss

Author(s): Pei-Chun Chang, Yong-Sheng Chen, and Chang-Hsing Lee

### **IIHMSP General Track 3-2**

**Date:** October 4, 2024 (Friday)

**Time:** 16:15-17:15

**Room:** Training Room 2

**Session Chair:** Dr. Xiaopeng Wang, VSB-Technical University of Ostrava, Czech Republic

**(1) Paper ID: IIHMSP-2024-A06**

Paper Title: Efficient Architecture Search for Super-Resolution Residual Dense Networks via Heuristic Optimization

Author(s): Shu-Chuan Chu, Ruhai You, Jeng-Shyang Pan, and Pei Hu

**(2) Paper ID: IIHMSP-2024-A07**

Paper Title: Discriminate the Authenticity of High-Resolution Videos Based on Deep Learning

Author(s): Jeng-Shyang Pan, Wei Wang, Shu-Chuan Chu, and Bin Yan

**(3) Paper ID: IIHMSP-2024-A09**

Paper Title: Improved Compact Gannet Optimization Algorithm with Auxiliary Particles

Author(s): Bing Sun, Shu-Chuan Chu, Li Zhang, and Jeng-Shyang Pan

### **IIHMSP General Track 2-4**

**Date:** October 5, 2024 (Saturday)

**Time:** 10:30-11:30

**Room:** Large Conference Room

**Session Chair:** Prof. Shih-Hung Wu, Chaoyang University of Technology, Taiwan

**(1) Paper ID: IIHMSP-2024-A18**

Paper Title: Integration of Conversational AI and Voice Synthesis for Enhanced Interactive Virtual Characters

Author(s): Shih-Hung Wu, Ping-Hsuan Lee, Wen-Kai Shen, and Chi-Min Chou

**(2) Paper ID: IIHMSP-2024-A21**

Paper Title: Impact of Fragile Watermarking on Object Detection Accuracy under Image Tampering A YOLOv7-Based Study

Author(s): Chin-Feng Lee, Tong-Ming Li, and Iuon-Chang Lin

**(3) Paper ID: IIHMSP-2024-A22**

Paper Title: Real-time Detection of Rear Moving Objects in a Traffic Scene Using Yolo Models

Author(s): Ibrahim Yahaya Garta and Rung-Ching Chen

**(4) Paper ID: IIHMSP-2024-A23**

Paper Title: Embedding Digital Signature into CSV Files Using Data Hiding

Author(s): Akinori Ito

## IIHMSP Online Tracks - Paper Presentation

### IIHMSP Online Track A

**Date:** October 5, 2024 (Saturday)

**Time:** 10:30-11:30 (Japan Time Zone: GMT +09:00)

**Room:** VooV Meeting ID: 908-081-455 (or <https://voovmeeting.com/dm/3AgBOSt74Dnh> )

**Session Chair:** Prof. Chin-Shiuh Shieh, National Kaohsiung University of Science and Technology, Taiwan

**(1) Paper ID: IIHMSP-2024-A51**

Paper Title: Intrusion Detection in IEC-61850 with LSTM and Focal Loss Regulation

Author(s): Yu-Xiang Lin, Chin-Shiuh Shieh, Mong-Fong Horng, Lawton Liao, and Prasun Chakrabarti

**(2) Paper ID: IIHMSP-2024-A27**

Paper Title: Design and Analysis of Voltage Source Inverters with Robust and Intelligent Tracking Scheme

Author(s): En-Chih Chang, Yeong-Jeu Sun, and Chun-An Cheng

**(3) Paper ID: IIHMSP-2024-A45**

Paper Title: Depth-Guided Multimodal Fusion Network for Enhanced Light Field Saliency Detection

Author(s): Jiaxin Han, Tao Zhang, Huihui Bai, and Yao Zhao

**(4) Paper ID: IIHMSP-2024-A50**

Paper Title: Parallel Compact Dandelion Optimizer Algorithm

Author(s): Weimin Zheng, Liying Zhang, Ning Liu

## **IIHMSP Online Track B**

**Date:** October 6, 2024 (Sunday)

**Time:** 10:30-11:30 (Japan Time Zone: GMT +09:00)

**Room:** VooV Meeting ID: 665-044-276 (or <https://voovmeeting.com/dm/bKCDvQVlkhC2> )

**Session Chair:** Prof. Liang-Cheng Shiu, National Pingtung University, Taiwan

**(1) Paper ID: IIHMSP-2024-A25**

Paper Title: No-Reference Quality Assessment of Light Field Images using Four-stream Convolutional Neural Network

Author(s): Junbo Wang, Jian Ma, Cheng Jin, Ping An, and Deyang Liu

**(2) Paper ID: IIHMSP-2024-A28**

Paper Title: Design A TCP/AQM Controller Using An Improved Red-tailed Hawk Algorithm

Author(s): Weimin Zheng, Jia Li, and Yanxin Li

**(3) Paper ID: IIHMSP-2024-A29**

Paper Title: The Tracker Based on Informer

Author(s): Chunyu Chen, Kaiyang Xing, Yulong Qiao, and Wantong Sun

**(4) Paper ID: IIHMSP-2024-A30**

Paper Title: SwinAGI: Advancing SwinIR's Global Information Modeling for Enhanced Image Super-Resolution Representation

Author(s): Lianguo Liu, Jian Ma, Sheng Chen, and Guoming Xu



## **IIHMSP Online Track C**

**Date:** October 6, 2024 (Sunday)

**Time:** 13:00-14:00 (Japan Time Zone: GMT +09:00)

**Room:** VooV Meeting ID: 665-044-276 (or <https://voovmeeting.com/dm/bKCDvQVlkhC2> )

**Session Chair:** Dr. Lingping Kong, VSB-Technical University of Ostrava, Czech Republic

**(1) Paper ID: IIHMSP-2024-A24**

Paper Title: A Topological Gradient Induced Sorting Approach for Multi-objective Optimization

Author(s): Vaclav Snasel, Shu-Chuan Chu, Lingping Kong

**(2) Paper ID: IIHMSP-2024-A08**

Paper Title: Fitness-distance Balance Based Tumbleweed Algorithm

Author(s): Jeng-Shyang Pan, Yingying Wang, Shu-Chuan Chu, and Junzo Watada

**(3) Paper ID: IIHMSP-2024-A46**

Paper Title: Application of Binary Adaptive Fish Migration Optimization Algorithm to Identify Parkinson's Disease

Author(s): Yan Xia, Qing-Wei Chai, Shi-Lei Xu, and Wei-Min Zheng

**(4) Paper ID: IIHMSP-2024-A47**

Paper Title: A Compact Black Hole Algorithm for Localization of Mobile Sensor Network

Author(s): Yan Xia, Qing-Wei Chai, Shi-Lei Xu, and Wei-Min Zheng

## **IIHMSP Online Track D**

**Date:** October 6, 2024 (Sunday)

**Time:** 14:15-15:15 (Japan Time Zone: GMT +09:00)

**Room:** VooV Meeting ID: 665-044-276 (or <https://voovmeeting.com/dm/bKCDvQVIkhC2> )

**Session Chair:** Dr. Usman Ahmad Usmani, Universiti Pendidikan Sultan Idris (UPSI), Malaysia

**(1) Paper ID: IIHMSP-2024-A12**

Paper Title: AI-Driven Strategies for Effective Disaster Management and Mitigation: Innovations, Challenges, and Resilience Building

Author(s): Usman Ahmad Usmani, Junzo Watada, and Abdullah Yousuf Usmani

**(2) Paper ID: IIHMSP-2024-A13**

Paper Title: Harmonizing Sustainability and Efficiency: Innovations in Energy Management and Green Engineering for a Greener Tomorrow

Author(s): Usman Ahmad Usmani, Junzo Watada, and Abdullah Yousuf Usmani

**(3) Paper ID: IIHMSP-2024-A02**

Paper Title: DustGAN: Unpaired Learning for Dust Image Simulation Based on ASM with GANs

Author(s): Yuxin Guo, Pengfei Cao, Yang Chen, Fuquan Zhang, Zhuoli He, Manying Shen, Jiayan Huang, and Chuansheng Wang

**(4) Paper ID: IIHMSP-2024-A03**

Paper Title: Benchmarking Single Image Dedusting

Author(s): Tianlin Fu, Fuquan Zhang, Pengfei Cao, Yang Chen, Zhuoli He, Jiayan Huang, and Xinxin Xu

**(5) Paper ID: IIHMSP-2024-A04**

Paper Title: Deep Learning Application for Egg Quality Detection in *Ephestia kuehniella*

Author(s): Dong-Wei He and Chao-Huang She

## **IIHMSP Online Track E**

**Date:** October 6, 2024 (Sunday)

**Time:** 10:30-11:30 (Japan Time Zone: GMT +09:00)

**Room:** VooV Meeting ID: 344-971-446 (or <https://meeting.tencent.com/dm/dORhvReAh6pH> )

**Session Chair:** Prof. Chao-Yang Lee, National Yunlin University of Science and Technology, Taiwan

**(1) Paper ID: IIHMSP-2024-A31**

Paper Title: A Coupled SVM-CEEMDAN-BiLSTM Model for Improving Daily Precipitation Prediction: The Case Study in Poyang Lake Basin, China

Author(s): Liying Xiao, Yongcheng Guo, Pinggen Wang, Ming Ling, Yuxiang Chen, and Yinying Tang

**(2) Paper ID: IIHMSP-2024-A34**

Paper Title: Ship Detection in SAR Images Using DETR With Feature Pyramid Network

Author(s): Chao Wang, Jianglei Gong, and Baolong Guo

**(3) Paper ID: IIHMSP-2024-A35**

Paper Title: Research on Small Face Detection Algorithm Based on Lightweight Intra-group Attention Mechanism and Multi-scale Feature Fusion

Author(s): Zhe Yuan, Jianglei Gong, Baolong Guo, and Jiawei Song

**(4) Paper ID: IIHMSP-2024-A41**

Paper Title: Research on the Knowledge Graph of Synthetic Biology Industry Development in Changzhou City

Author(s): Ning He, Xiaohua Zou, and Xinghua Meng

## **IIHMSP Online Track F**

**Date:** October 6, 2024 (Sunday)

**Time:** 13:00-14:00 (Japan Time Zone: GMT +09:00)

**Room:** VooV Meeting ID: 344-971-446 (or <https://meeting.tencent.com/dm/dORhvReAh6pH> )

**Session Chair:** Prof. Trong-The Nguyen, University of Information Technology, Vietnam

**(1) Paper ID: IIHMSP-2024-A10**

Paper Title: Optimizing the Drug Discovery Pipeline: A Multi-Objective Approach with Genetic Algorithms

Author(s): Thi-Kien Dao, Li Ting, Shaowei Weng, Thi-Xuan-Huong Nguyen, and Trong-The Nguyen

**(2) Paper ID: IIHMSP-2024-A11**

Paper Title: An Impact of Watermarking Technology on Digital Forensics and Copyright Enforcement

Author(s): Trong-The Nguyen, Longcun Wang, Shaowei Weng, Tiancong Zhang, Thi-Xuan-Huong Nguyen, and Thi-Thu-Thuy Nguyen

**(3) Paper ID: IIHMSP-2024-A36**

Paper Title: Research on Classification and Recognition of the She Ethnic Group Clothing Pattern Based on Convolutional Neural Network

Author(s): Ming-Yue Chen and Ke-Ke Sun

**(4) Paper ID: IIHMSP-2024-A37**

Paper Title: Design and Analysis of Intelligent Wheelchair Structure with Climbing and Obstacle Crossing Function

Author(s): Kai Li and Yi-Jui Chiu

## **IIHMSP Online Track G**

**Date:** October 6, 2024 (Sunday)

**Time:** 14:15-15:15 (Japan Time Zone: GMT +09:00)

**Room:** VooV Meeting ID: 344-971-446 (or <https://meeting.tencent.com/dm/dORhvReAh6pH> )

**Session Chair:** Prof. Muhammad Al-Zafar Khan, Zayed University, UAE

**(1) Paper ID: IIHMSP-2024-A52**

Paper Title: Deep Learning Under Siege: Identifying Security Vulnerabilities and Risk Mitigation Strategies

Author(s): Jamal Al-Karaki, Muhammad Al-Zafar Khan, Mostafa Mohamad, Dababrata Chowdhury

**(2) Paper ID: IIHMSP-2024-A42**

Paper Title: Method for Generating Deceptive Bait in Industrial Control Systems Based on Software Simulation

Author(s): Fanghui Sun, Shuo Zhang, Zuofu Liu, Tingyue Yu, Zihong Chen, and Shen Wang

**(3) Paper ID: IIHMSP-2024-A43**

Paper Title: A Generalized Fuzzing Framework for Unknown Network Protocols

Author(s): Fanghui Sun, Boyu Zhang, Tingyue Yu, Zihong Chen, and Shen Wang

**(4) Paper ID: IIHMSP-2024-A44**

Paper Title: ArchInfer: An Automatic Protocol Format Inference Algorithm Based on Dynamic Program Analysis

Author(s): Kehan Wang, Fanghui Sun, Tingyue Yu, Zihong Chen, Zhengze Wu, and Shen Wang