

2024年國際無線感測技術與應用研討會暨自動識別亞洲峰會

IEEE International Workshop on Wireless Sensing
Technologies and Applications 2024
AIDC Connect Asia 2024



November 19 - 20, 2024 Regency Art Hotel Macao SAR, China

IEEE IWSA & AIDC Connect Asia 2024 – Program at a Glance

Nov. 18	12:00 – 15:00	AIM Board Meeting (Invited Only) L'Arc Hotel Welcome Reception (Invited Only)		
(Mon.)	18:30 – 20:30			
Nov. 19 (Tue.)	09:00 – 17:00	Registration		
	09:30 – 10:15	Opening Ceremony Ballroom		
	10:15 – 10:50	Exhibition Tour + Tea Break Ballroom / Foyer		
	10:50 – 11:00	MoU Signing Ballroom		
	11:00 – 11:10	AIM Asia Award Presentation Ballroom		
	11:10 – 11:40	Keynote Speech I Ballroom		
	11:40 – 12:20	Business Introductions & Sharing Ballroom		
	12:30 – 14:30	Lunch Chinese Restaurant		
	14:30 – 15:30	Panelist Discussion I Ballroom		
	15:30 – 16:30	Panelist Discussion II Ballroom		
	16:30 – 17:00	Tea Break <i>Foyer</i>		
	17:00 – 17:30	Keynote Speech II Ballroom		
	17:30 – 18:00	Keynote Speech III Ballroom		
	18:30 – 21:30	Banquet Zam Zam Restaurant		
	08:25 – 12:00	Registration		
Nov. 20 (Wed.)	08:25 – 10:40	Technical Paper Session 1 Ballroom		
	10:40 – 11:00	Tea Break Foyer		
	11:00 – 13:15	Technical Paper Session 2 Ballroom		
	13:20 – 15:30	Lunch and Best Paper Award Zam Zam Restaurant		
	16:00 – 17:00	Organization Committee Meeting (Invited Only) Ballroom D of IEEE IWSA & AIDC Connect Asia 2024		

Final Program

2024年國際無線感測技術與應用研討會暨

自動識別亞洲峰會

IEEE International Workshop on Wireless Sensing Technologies and Applications (IWSA 2024)

AIDC Connect Asia 2024

Regency Art Hotel, Macao SAR, China

November 19 - 20, 2024

Organized by

IEEE Macau AP/MTT Joint Chapter

AIM Asia

University of Macau

IEEE Council on RFID Macau Chapter

Shenzhen University

Nanjing Normal University

Soochow University

Foshan University

Jinan University

Guangdong Key Laboratory of Speed-Capability Research

Guangdong-Hong Kong-Macao Joint Laboratory for Millimeter-Wave and Terahertz

Crosstech Innovation Group

Paradise Entertainment Ltd.

Foshan Lambda Technology Co., Ltd.

Shenzhen Internet of Things Industry Association

Ikenna Holdings

Technical Sponsor

IEEE Instrumentation and Measurement Society

IEEE

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Ziyu Pang, University of Macau

Oversea Technical Advisers

Prof Eng Hock Lim, *Universiti Tunku Abdul Rahman* Prof. En Xiao Liu, *A*STAR* Prof. Zhi Ning Chen, *National University of Singapore*

Industry Leaders/VIP Guests:

Thai-International AIOT Association President &HIP Global President Mr. Taveechai Yang

AIM Global Board of Director Ms. Elizabeth Sinclair

Rain Alliance President Ms. Aileen Ryan

LogiMat MD Mr. Peter Kazandar

Digital China CEO Mr. Yan Jun

SML Group Vice President Ms. Lesley Suen

LT Game Founder & CEO Dr. Jay Chun

Hong Kong Communications, Chairman, JP. Dr. Hubert Chan

Tessellation International Associate Director Benedict Chan

Mapxus Technologies Founder & CEO Dr. John Chan

Aeroprint Hong Kong Founder & CEO Mr. Eric Au

Cherson Technologies Founder & CEO Mr. Eric Lee

Urovo Vice President Helen Ha

Welcome Messages

Welcome Message from IEEE IWSA 2024 By Prof. Kam-Weng TAM (Ken) General Chair University of Macau

Welcome to the 2024 IWSA and AIDC Connect Asia 2024, hosted in the vibrant city of Macau. This marks an exciting collaboration between the second annual editions of IWSA and AIDC Connect Asia, bringing together academic researchers, industry leaders, and innovators to explore advancements in wireless sensing and automatic identification technologies. IWSA serves as a premier platform for academic and industrial synergy, with a focus on wireless sensing innovations powered by RF and photonic technologies. This year's event highlights include over 30 technical presentations, three keynote sessions by distinguished speakers, and contributions from nine exhibitors showcasing cutting-edge developments.



The partnership with AIM Asia strengthens our global reach, reflecting a shared commitment to advancing these transformative technologies. We are honored to welcome participants from across Asia, Portuguese-speaking countries, Mainland China, Hong Kong, and beyond, fostering a truly international exchange of ideas and expertise.

I extend my sincere gratitude to the organizers, sponsors, exhibitors, and all attendees for making this event possible. Your active participation is key to the success of this gathering, and I encourage you to take full advantage of the opportunities for learning, discussion, and collaboration.

We hope you find this event engaging, inspiring, and impactful. Thank you for joining us, and I wish you a successful conference.

Welcome Message from AIDC Connect Asia 2024 By Dr. Pui Yi LAU (Anna) President of AIM Asia

Welcome to the IWSA & AIDC Connect Asia 2024! This marks our second annual conference, and we are thrilled to host it in the dynamic and captivating city of Macau. As President of AIM Asia, I am delighted to see such a diverse and distinguished group of academic researchers, innovators, industry leaders, and thought pioneers from across Asia and beyond gathered here to explore the vast potential of Automatic Identification and Data Capture (AIDC).

This event symbolizes our collective dedication to advancing AIDC technologies and applications within our region and globally. Our journey is one of collaboration, and events like this are crucial for igniting the ideas and partnerships that will shape our future. From advancements in RFID and barcode technology to IoT integration and AI-driven solutions, the AIDC landscape is constantly evolving, presenting unprecedented opportunities across supply chains, logistics, healthcare, manufacturing, and more.



We look forward to an engaging exchange of knowledge, insights, and experiences. Let us seize this opportunity to share our visions, tackle new challenges, and spark transformative discussions that will elevate AIDC in Asia to new heights.

Exhibition

Date	Time	
19 November (Tuesday)	10:15-18:00	
20 November (Wednesday)	08:25-13:15	

List of Exhibitors

慧倉機器人 HC ROBOTICS	慧仓机器人 =HC ROBOTICS ==
佛山藍譜達科技有限公司 Foshan Lambda Technology Co., Ltd.	LAMBMICROW 蓝谱达
匯彩控股有限公司 Paradise Entertainment Ltd.	彩框彩控股 Paradise entertainment
澳門無境科技 Macau Wujing Technology	澳門無境科技 Macau Wujing Technology
愛科信控股 Ikenna Holdings	(Kenna
流形科技有限公司 Manifold Tech Ltd.	Manifold Tech Limited
	Manifold Tech Limited 華盛創建
Manifold Tech Ltd.	
Manifold Tech Ltd. 華盛創建 易識有限公司	

Detailed Program – 19 November (Tuesday)

Opening Ceremony

Time/Date 09:30 – 10:15 / 19 November 2024 (Tuesday)

Venue Ballroom

Ribbon Cutting Ceremony

Presentation of Souvenirs

Sponsors

- 澳門山東社團總會
- Paradise Entertainment Limited
- General Manager of Regency Art Hotel

AIM Asia VIPs:

- Digital China Group
- Ikenna Holdings
- SML Group
- AIM Global
- RAIN Alliance
- LogiMAT
- HIP Global
- HKIOT

Exhibitor

- LT Game
- HC Robotics
- EHang Intelligent Technology
- Manifold Tech Ltd.
- Crosstech Innovation Group
- Ikenna Holdings
- Macau Wujing Technology
- Foshan Lambda Technology
- Tomorrow Technology
- ESIX Limited
- 華盛創建(澳門)有限公司

Welcome Speech by IEEE IWSA 2024 General Chair

Prof. Kam Weng Tam, University of Macau

Welcome Speech by AIDC Connect Asia 2024

Dr. Pui Yi LAU (Anna), President of AIM Asia

END OF OPENING CEREMONY

10:15 – 10:50 **Exhibition Tour + Tea Break**

MoU Signing

Time/Date 10:50 – 11:00 / 19 November 2024 (Tuesday)

Event Overview:

Signing of two Memorandum of Understanding (MoU)

1. AIM Asia and Thai-International AIOT Association

MoU Signing by:

- Dr. Pui Yi LAU (Anna), AIM Asia President
- Taveechai Yang, Thai-International AIOT Association President
- 2. AIM Asia, Logistics Exhibitions GmbH for LogiMAT China, LogiMAT Southeast Asia and LogiMAT India and IEEE Macau AP/MTT Joint Chapter

MoU Signing by:

- Dr. Pui Yi LAU (Anna), AIM Asia, President
- Prof. Kam-Weng Tam, IEEE Macau AP/MTT Joint Chapter, Chairman
- Mr. Peter Kazander, Logistics Exhibitions GmbH representing Landesmesse Stuttgart GmbH & Co. KG, Managing Director

AIM Asia Award Presentation

Time/Date 11:00 – 11:10 / 19 November 2024 (Tuesday)

Venue Ballroom

Event Overview:

AIM Asia Award Presentation to new members:

(Presented by Anna Lau, AIM Asia President)

- Urovo Helen Ma
- LT Game Dr. Jay Chun
- Tessellation International Mr. Benedict Chan
- DKP Sherolyn Ong
- EM Microelectronic Mr. Yaw Peng Ng
- R&S Mr. Anntat Kuah

Keynote Speech I

Time/Date 11:10 – 11:40 / 19 November 2024 (Tuesday)

Venue Ballroom

Title The enabling Technology for an intelligent Supply Chain Automation – Innovation –

Sustainability

Speaker Mr. Peter Kazander, Managing Director of Logistics Exhibitions GmbH

Chair Dr. Anna Lau (AIM Asia)

Biography

Peter Kazander is the Managing Director of Logistics Exhibitions GmbH, a subsidiary of EUROEXPO Messe- und Kongress-GmbH, Munich and Landesmesse Stuttgart GmbH & Co. KG, Stuttgart. Initiator and developer of LogiMAT, International Trade Fair for Intralogistics Solutions and Process Management in Stuttgart and responsible for LogiMAT China, LogiMAT India and LogiMAT Southeast Asia.

Abstract

Imagine a supply chain, a warehouse management system or a production process without identification and data capture technologies. That would take us decades back in time. AIDC represents a broad range of technologies with specific characteristics, challenges and opportunities to speed up processes and reduce costly human errors. What hurdles have we had to overcome to enable today's logistics processes and what will be the challenges in the near future? AIDC enables intelligent processing and connects markets worldwide through innovation and standardization.

Peter Kazander was born in 1955 in one of the most important European logistics locations, Rotterdam. His career began practically right outside the city – in the Deep-Sea sector. This was followed by ten years as a short sea transport manager in Rotterdam. In the early 1990s he moved to Germany and worked in leading positions in consulting, sales and marketing at a Munich IT provider. From May 2003, he led the team at EUROEXPO Messe- und Kongress GmbH in Munich for over 20 years. Since 2013, Kazander is Managing Director of Logistics Exhibitions GmbH and in this position, he is responsible for the international development of the LogiMAT trade fairs in Asia.

Business Introductions & Sharing

Time/Date 11:40 – 12:20 / 19 November 2024 (Tuesday)

Venue Ballroom

Host Ngai Kong, Nelson (Crosstech Innovation Group Ltd)

Introductions by:

eSIX Limited

eSIX Limited is a leader in technological innovation, dedicated to developing impactful solutions across various industries. Our IPfiber technology establishes a seamless 5G Metro Ethernet infrastructure, enhancing service coverage and mobility while providing businesses with the flexibility and reliability needed for optimal network performance.

Manifold

Manifold Tech is a high-tech 3D scanning and modeling, robotics, and algorithm company founded in October 2021, originating from the University of Hong Kong's Department of Mechanical Engineering and Robotics Systems (MaRS) laboratory. Manifold Tech is a pioneering high-technology company specializing in 3D photogrammetry and robotics and with our state-of-the-art real-time 3D mapping algorithms and advanced robotics technology, they are reshaping the way Architecture, Engineering, and Construction (AEC) companies operate and empowering ESG (Environmental, Social, and Governance) projects to achieve new heights.

12:30 – 14:30 **Lunch**

Panelist Discussion I

Time 14:30 – 15:30 / 19 November 2024 (Tuesday)

Venue Ballroom

Chair Dr. Anna Lau (AIM Asia)

Panel Discussion I: Building Synergies in AIDC and AIOT for Retail, Logistics, and ESG

Distinguished Panelists:

Dr. Anna Lau Elizabeth Sinclair

AIM Asia AIM Global

President

Alieen Ryan

RAIN Alliance
CEO

Taveechai Yang

Board of Director

Masaki Ehara

AIM Japan

Chairman

Wilson Chong

Thai-International AIOT Association HKIOT
President President

Panelist Discussion II

Time 15:30 – 16:30 / 19 November 2024 (Tuesday)

Venue Ballroom

Chair Yaw Peng Ng (EM Microelectronic)

Panel Discussion II: RFID and its Role in Logistics, Retail, and Consumer Engagement

Distinguished Panelists:

Yaw Peng Ng

EM Microelectronic

SML Group

General Manager VP of Transformation and General Manager

of Greater China

Anntat Kueh Peter Kazander

Rohde & Schwarz LogiMat

Senior Director Managing Director

Dr. Hubert Chan

HKC Chairman

Keynote Speech II

Time/Date 17:00 – 17:30 / 19 November 2024 (Tuesday)

Venue Ballroom

Title The MA Digital Product Passport Enables Global Trade Facilitation

Speaker Ms. Elma Liu, Deputy Director of International Affairs of ZIIOT

Chair Dr. Anna Lau (AIM Asia)

Biography

Elma (Zerong) Liu is the Deputy Director of International Affairs at ZIIOT and serves as the project leader of IEC 63538 ED1: Life-cycle Events: Information Models and Services.

She holds an impressive academic background with three master's degrees from prestigious institutions: Peking University, Xi'an Jiaotong University, and Xidian University.

Keynote Speech III

Time/Date 17:30 – 18:00 / 19 November 2024 (Tuesday)

Venue Ballroom

Title Future of AI in Indoor Positioning Technologies and Their Impact on Enhancing User

Experiences in the Retail Industry

Speaker Dr. John Chuen-Yu Chan, Founder/CEO at Mapxus Technology Limited

Chair Dr. Anna Lau (AIM Asia)

Biography

Dr. John Chuen-Yu Chan is the founder and current CEO of Maphive Technology Limited, a company with operations in Osaka, Singapore, Taichung, Hong Kong, and Foshan City. He is also the founder of Location AI Technology Limited, formerly known as Locision Technology Limited.

From 2006 to 2012, Dr. Chan served as a distinguished professor and held senior management positions at Sun Yat-sen University. In 2011, he was nominated for the prestigious ENI Award (Protection of the Environment Prize). Over the course of his career, Dr. Chan has published more than 100 works, including patents and academic publications, which have earned over 5,783 citations on Google Scholar and an H-Index of 44.

18:30 – 21:30 **Banquet**

Zam Zam Restaurant

Detailed Program – 20 November (Wednesday)

08:25 – 12:00 Registration

Regular Paper Presentation 1

Time 08:25 – 10:40 / 20 November 2024 (Wednesday)

Venue Ballroom

Chairs Gang Zhang (Nanjing Normal University), Wenhai Zhang (Soochow University)

A001 08:25 - 08:40

Surrogate Model Assisted Frequency Selective Surfaces Multifunctional Optimization Hongji Li and Sai-Wai Wong

A002 08:40 - 08:55

Vehicle Networking Automatic Dial-Up Testing System: Deep Integration of Data Accuracy and Application Innovation

Liang Rao

A003 08:55 - 09:10

Thermal Runaway Monitoring in Lithium-Ion Batteries via Advanced Optical Fiber Sensor *Zhengqiang Yan, Tuan Guo, Xile Han*

A004 09:10 - 09:25

Analysis of Square Coaxial Transmission Line With Additive Manufacturing Insulator Support *Xuzhou Yu, Lei Zhu*

A005 09:25 - 09:40

Wideband Out-of-Phase Filtering Power Divider With Arbitrary Power Dividing Ratio and High Selectivity Siyu Li, Junjie Zhang, Mengyu Liu, Wenju Zhang, Tianye Ma, Gang Zhang

A006 09:40 - 09:55

Field Strength Assessment for Underground Wireless Communication at LF Bands Haruto Utsushigawa, Kun Li, Takuma Matsumoto, Shota Yamada, Takeo Fujii

A007 09:55 - 10:10

A Prior-Knowledge-Based Optimization Method for Microwave Sensor Design in Heavy Metals Detection *Peng-Fei Qin, Hao-Xuan Xian, Jing-Xi He, Yi-Min Yu, Guan-Long Huang, Xiaoming Chen, Zi-Yu Pang*

A008 10:10 - 10:25

Half-Mode Gap Waveguide Filtering Power Divider Based on Spoof Surface Plasmon Polariton *Jing Lu, Jingchun Fan, Jidong Liu, Weicheng Yi, Gang Zhang*

A009 10:25 – 10:40

Packaged Wideband Filtering Power Divider With Out-of-Phase on Multilayer Stripline *Qian Han, Zihan Duanmu, Runzhe Huang, Hao Xu, Tianye Ma, Gang Zhang*

10:40 – 11:00 **Tea Break**

Regular Paper Presentation 2

Time 11:00 – 13:15 / 20 November 2024 (Wednesday)

Venue Ballroom

Chairs Sai-Wai Wong (Shenzhen University), Guanlong Huang (Foshan University)

A010 11:00 – 11:15

An Omnidirectional Planar Coaxial Antenna With T-Shaped Slot Structures

Chenglong Liao, Wenhai Zhang, Xueguan Liu, Changrong Liu, Honglong Cao, Yilin Zheng, Haipeng Zhang, Yi Gong, Chi-Hou Chio, Kam-Weng Tam

A011 11:15 – 11:30

Novel Design Approaches to Planar End-Fire Dual-Band Circularly Polarized Antennas *Hai Peng Zhang, Wenhai Zhang, Kam-Weng Tam*

A012 11:30 – 11:45

Low-Loss Dual-Wideband Circularly-Polarized Antenna Using Loading Technology Suchuan Qian, Xuan Li, Jie Tian, Chengji Zhao, Jing-Yi Zhang, Gang Zhang

A013 11:45 – 12:00

A Pattern Reconfigurable Microstrip Patch Antenna With Through Glass via DaoXi Gong, Chanxi Han, Huawei Lin, Yue Zhao, Lei Ge

A014 12:00 – 12:15

A Low-Profile Broadband 2D Array Based on Inverted-E and Π Shaped Shared Structure Elements *Yan Xu, Bin Yuan, Wenchang Wang, Zhen Liu*

A015 12:15 – 12:30

A Novel Circularly-Polarized Microstrip Antenna by Coupled Resonators *Jia-Xiang Hao, Lei Zhu*

A016 12:30 – 12:45

An Ultra-Wideband Antipodal Vivaldi Antenna at 0.8-30.5 GHz

Ming-Feng Xu, Hao-Xuan Xian, Jing-Xi He, Yi-Min Yu, Jing Wu, Hua-Feng Li, Jin-Peng He, Zi-Yu Pang, Guan-Long Huang

A017 12:45 – 13:00

Curvature-Induced Performance Variations in Conformal Antennas of Wireless Sensing of Smart Jewelry Wang Cheong, Yong Yu Huang, Huawei Lin, Chi-Hou Chio, Kam-weng Tam, Rossana Kong

A018 13:00 – 13:15

A Dual-Band and Quadruple-Mode Circular Stacked Patch Antenna With Dual TM11 and TM12 Modes *Yan Xu, Bin Yuan, Wenchang Wang, Zhen Liu*

13:20 – 15:30 Lunch and Best Paper Award

Zam Zam Restaurant

Conference Venue and Travel Information



Regency Art Hotel 澳門麗景灣藝術酒店

2 Estrada Almirante Marques Esparteiro, Taipa, Macau T. 853 2883 1234 http://www.regencyarthotel.com.mo/

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Fire	2857 2222
Conde S.Januario Hospital	2831 3731
Kiang Wu Hospital	2837 1333
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