ISSN 2799-7316

2023 The 12th international Conference on Smart Media & Applications (SMA2023)

December 13 - 16, 2023
Asia University, Taichung, Taiwan

Final Program

Smart Media
KOREAN INSTITUTE OF SMART MEDIA

Contents

Opening Address

Welcome to the 12th International Conference on SMA2023

It is a great pleasure for us to welcome everybody in the 12th international Smart Media Applications conference. In particular, We would like to express our great gratitude to keynote speaker, Dr. David Camcho and all presenters and attendees who are joining this conference from a variety of oversea countries

SMA 2023 concentrates on innovative solutions to complex problems in all areas of industry and sciences using advanced techniques in Smart Media and Computer Science Applications. It involves Smart Media, Smart Software Applications, Smart Information, AI convergence smart service, and so on. All authors are invited to present original ideas and implementation results in all areas related to the Smart Media and Applications. We think the papers published in SMA2023 are excellent research results that can change the world.

We would like to express my special thanks to the Program Chairs, Dr. Chang Choi, and Dr. Hsing-Chung Chen, Program Vice Chairs, Dr. O-Joun Lee and Dr. Yu-Lin Song, Posters Chair, Dr. Christian Esposito, Workshop Chair, Dr. Ya-Shu Chen, Tutorial Chair, Dr. Junyoung Heo, Financial Chair, Dr. Hong Mon, and many sponsoring companies. Finally, We wish all the participants here have a great time in Taichung, Taiwan and wish you all the best of luck.

Fang-Yie Leu, and Taekeun Wangbo, Conference Chairs of the 12th International Conference on SMA

Keynote

Title

Tackling Disinformation and Fake News with AI Technology: Strategies for Combatting Information Disorders

Speaker

David Camacho | Universidad Politécnica de Madrid (UPM)

Abstract

Disinformation, fake news, and other forms of misleading information have
become a pervasive problem in our modern world, causing significant harm to individuals, communities, and even entire countries. This toxic information spreads instantly through online social networks, creating a breeding ground for falsehoods, rumours (hoaxes), propaganda, and other forms of deceit. Unfortunately, we have seen how disinformation has significantly impacted our economy, politics, and health in recent decades. Addressing these issues requires a multifaceted and multimodal approach involving various actors and stakeholders, such as individuals, media organizations, governments, technology companies, and active researchers. This talk aims to provide insight into the main challenges and problems associated with disinformation and explore how artificial intelligence and machine learning techniques are being leveraged to combat this harmful information. The keynote will focus on the fact-check architecture, a solution that combines ensembles, deep learning (specifically under the Transformers technology), and natural language processing (NLP) using a multilingual approach. This solution is designed to detect and counteract the spread of disinformation effectively.

Speaker's Bio

David Camacho is Full Professor at Computer Systems Engineering Department of Universidad Politécnica de Madrid (UPM), he is the head of the Applied Intelligence and Data Analysis research group (AIDA: https://aida.etsisi.uam.es), the Director of the PhD program in Computer Science and Technologies of Smart Cities, and the Director of the Master program in Machine Learning and Big Data at UPM. He holds a Ph.D. in Computer Science from Universidad Carlos III de Madrid in 2001 with honors (best thesis award in Computer Science). He has published more than 300 journals, books, and conference papers (https://scholar.google.es/citations?hl=en&user=fpf6EDAAAAA). His research interests include Machine Learning (Clustering/Deep Learning), Computational Intelligence (Evolutionary Computation, Swarm Intelligence), Social Network Analysis, Fake News and Disinformation Analysis. He has participated/led more than 50 AI-based

R&D projects (National and International: H2020, MCSA ITN-ETN, DG Justice, ISFP, NRF Korea), applied to real-world problems in areas as aeronautics, aerospace engineering, ybercrime/cyber intelligence, social networks applications, disinformation countering, or video games among others. He serves as Editor in Chief of Expert Systems from 2023, and sits on the Editorial Board of several journals including Information Fusion, IEEE Transactions on Emerging Topics in Computational Intelligence (IEEE TETCI), Human-centric Computing and Information Sciences (HCIS), and Cognitive Computation among others. Contact at: David.Camacho@upm.es

Google Scholar: https://scholar.google.com/citations?hl=es&user=fpf6EDAAAAAJ#
ResearchGate: https://www.researchgate.net/profile/David-Camacho-12

At a glance

Wednesday (Dec. 13)		
10:00~17:00	Special Workshop (Future ICBT)	
17:00~18:00	SMA Annual Business Meeting	
Thursday (Dec. 14)		
09:00~	Registration	Registration Desk
10:30~12:00	Breakout Session I	A115
12:00~14:00	Luncheon Time	
14:00~15:30	Breakout Session II	A115
	Posters Session I	A116
15:30~16:00	Coffee Break	
16:00~17:30	Opening Session Keynote Speech & Invited Talk Session	A115
	Special Workshop (SAES)	A116
18:30~20:00	Welcome Reception	Assembly Affairs Park
Friday (Dec. 15)		
10:30~12:00	Posters Session II	A116
	Special Workshop (SAES)	A115
12:00~14:00	Luncheon Time	
14:00~15:30	Breakout Session III	A115
	Special Workshop (SAES)	A116
15:30~16:00	Coffee Break	
16:00~17:30	Breakout Session IV	A115
	Posters Session III	A116
18:30~21:00	Banquet	National Hotel, Taichung
Saturday (Dec. 16)		
10:00~11:00	Session Chairs / Program Committee Meeting	
11:00~12:30	KISM Annual Business Meeting & Panel Discussion - 4th Industrial Revolution and Smart Media	
Conference Ends at 13:30		

Session Rooms & Chairs

■ **Program on December 13** **(Asia University, Taiwan)**

10:00~17:00	Special Workshop (Future ICBT)
17:00~18:00	SMA Annual Business Meeting

■ **Program on December 14** **(Administration Building, Asia University)**

	A115	A116
09:00~10:20	Registration (Registration Desk)	
10:30~12:00	Breakout Session I	
12:00~14:00	Lunch Time	
14:00~15:30	Breakout Session II	Posters Session I
15:30~16:00	Coffee Break	
16:00~17:30	Opening Session Keynote Speech & Invited Talk Session	Special Workshop (SAES)
18:30~20:00	Welcome Reception (Assembly Affairs Park)	

■ **Program on December 15** **(Administration Building, Asia University)**

	A115	A116
10:30~12:00	Special Workshop (SAES)	Posters Session II
12:00:14:00	Lunch Time	
14:00~15:30	Breakout Session III	Special Workshop (SAES)
15:30~16:00	Coffee Break	
16:00~17:30	Breakout Session IV	Posters Session III
18:30~21:00	Banquet (National Hotel, Taichung)	

■ **Program on December 16** **(Asia University, Taiwan)**

10:00~11:00	Session Chairs / Program Committee Meeting
11:00~12:30	KISM Annual Business Meeting & Panel Discussion - 4th Industrial Revolution and Smart Media

Breakout Sessions

[Breakout Session I]

December 14 Thursday 10:30 ~ 12:00 A115

Session Chair : Hyoungju Kim, Chosun University, Korea

1. (30) Envisioning Futures: The Life Roadmap Framework for Achieving Dreams

Si Cheon You

2. (37) The Concept of danger Level-Specific Information Design Model Centered Around Fear Emotions

Dasol Kim, Si Cheon You

3. (38) The relation between semantic chunking and morphological chunking in information design

Eun Kyung Jeon, Si Cheon You

4. (35) Exploratory Research for Designing a Blockchain Technology Expert Grade Model

Jiwon Moon, Sungyun Bae, Yeji Choi, Hangbae Chang

5. (36) Effective Blockchain-based Privacy Preserving Voice Phishing Model for Utilizing MyData

Woojoo Kwon, Yuna Han, Hangbae Chang

[Breakout Session Ⅱ]

December 14 Thursday 14:00 ~ 15:30 A115

Session Chair : Si Cheon You Chosun University, Korea

1. (14) Preserving Text Characteristics Through Feature Stacking for The Detection of Occluded Scene Text

Minh-Trieu Tran, Guee-Sang Lee

2. (10) Vision-Based Navigation for Urban Air Mobility: A Survey

Asif Mahmud Raivi, Sangman Moh

3. (41) Architectural Strategies for Large-Scale SwiftUI App Development

Chongin Jeong, Jong Seok Choi

4. (42) Efficient Feature Extraction Technique from Video Data in OTT

Minho Park, Kyungeun Oh, Jiman Hong

5. (15) Data Augmentation for Low-Resource Machine Translation using a Generative AI Language Model

Jin-ho Yoon, Deok-jae Choi, Hyuk-ro Park

[Breakout Session Ⅲ]

December 15 Friday 14:00 ~ 15:30 A115

Session Chair : Kyungbaek Kim, Chonnam National University, Korea

1. (1) Transparency in Ensembles: XAI-Based visualisation for Understanding Multilabel Classification from Within

Helena Liz-López, Javier Huertas-Tato, David Camacho

2. (4) Deep Reinforcement Learning-based Image Super Resolution Game Agent for Efficient Image Reconstruction

M. J. Aashik Rasool, Shabir Ahmad, Taeg Keun Whangbo

3. (11) UAV Deployment and User Association for UAV-Assisted Mobile Edge Computing: A Survey

Ahmadun Nabi, Sangman Moh

4. (24) Bot Identity, Identification and Threat Models

Zhixiong Chen

5. (3) An Exploratory Study of Recognizing Canine Beloved Objects by Robotic Dogs

Dingtao Hu, Patrick C. K. Hung, Benjamin C. M. Fung

[Breakout Session IV]

December 15 Friday 16:00~17:30 A115

Session Chair : Myungkwon Hwang, KISTI, Korea

1. (39) Fine-tuning RoBERTa model for Malware Classification with Preprocessed Sysmon Log Data

Kijun Kim, Jongseok Choi

2. (9) Classification of CPR-Contaminated ECG Signals for Defibrillation Decision Support

Hilal Jan, Jae-Young Pyun, Goo-Rak Kwon, NamSik Yoon, Byeongseok Lee

3. (5) Post-TAVR Digital Twin Navigator with Cloud-Native Architecture on Real World Data

MinHyck Jung, Semo Yang, KangYoon Lee

4. (50) Fake Product Review Detection using Logistic Regression and Multinomial Naive Bayes Algorithms with Term-Frequency-Inverse Document Frequency

Keia Joy I. Harder, Regin A. Cabacas, In-Ho Ra

5. (51) A Data-Driven Approach for Determining MSME Success Indicators: Knowledge Extraction from User Generated Content Using Machine Learning

Frank I. Elijorde, Regin A. Cabacas, Ma. Beth S. Concepcion, Shem Durst Elijah D. Sandig, In-Ho Ra

Poster Sessions

[Poster Session I]

December 14 Thursday 14:00 ~ 15:30 A116

Session Chair : Junyoung Heo, Hansung University, Korea

1. (8) Brain-Computer Interface using Fair Federated Learning, Improved over Machine Learning Methods

Do-hyoung Kim, Seok-hwan Kang, Youngho Lee

2. (25) A Design of Mobile SLAM Framework for Spatial Recognition of Android-based XR Glasses

Daewoong Kang, Jungsik Koo, Jiyong Park, Joongjin Kook

3. (32) Pre-processing Method for Improving Voice Emotion Recognition Performance

JinSeong Ahn, MyungJin Lim, JuHyun Shin

4. (33) Android-Based OTT Audience Measurement: Overcoming Playback Capture Limitations

Seongjin Kim, Chanwoo Lee, Junyoung Heo

5. (34) A new OTT data extraction methodology

Chanwoo Lee, Seongjin Kim, Junyoung Heo

6. (44) Scaffolding Strategy by Information Types for Design of Gamification Educational Contents

Ji Ae, Han

7. (48) Generating access control knowledge graphs and predicting policies suitable for smart grid environments

Jun Ho Choi, Hyoungju Kim, Pan Koo Kim

8. (52) MetaEnhancer: A Resource-Aware Image Super Resolution Game Agent to improve QoS in Metaverse-based Telehealth

Shabir Ahmad, M.J. Aashik Rasool, Taegkeun Whangbo

9. (45) Automatic Liver Segmentation on MRI-PDFF Images for NAFLD Diagnosis

Soohyun Kim, Dayoung Hwang, Sunyoung Lee, Jeongjin Lee

[Poster Session II]

December 15 Friday 10:30 ~ 12:00 A116

Session Chair : Jae-Young Pyun, Chosun University, Korea

1. (27) TDTC-IDS: TCN-based transfoemer hybrid intrusion detection model

Longfei Li, Haoyu Chen, Kyungbaek Kim

2. (28) DSARU-Net: A U-Net with Dilated Convolution Spatial Attention Residual Path for Colorectal Polyp Segmentation

Haoyu Chen , Longfei Li, Kyungbaek Kim

3. (46) Full-stack Profiler for BMC Software Developers

Daewoong Hwan, Minho Park, Jiman Hong

4. (47) Fast Booting for the BMC based on Profiling and Hibernation

Kyungeun Oh, Minho Park, Jiman Hong

5. (49) Fileless Malware Detection by Using Similarity between Sysmon logs

Hyeonsu Park, Minho Park, Jiman Hong

6. (2) Improving Video Blind Spot Emergency Bell Control through Short-Term Multi-Class Multi-Label Sound Object Classification for Acoustic Context Awareness

Seon Man Kim, Ju Yeong Park

7. (7) Design of Weather Damage Crop Discrimination Model Using Modified GANomaly

Jun Park, Sung-Wook Park, Se-Hoon Jung

8. (31) Evolving Crop Yield Estimation Utilizing Feature Selection Based on Graph Classification

Ohnmar Khin, Jingwang Koh, Sungkeun Lee

9. (40) An Accuracy Analysis Scheme for UWB-based Indoor Positioning Systems

Kyung-Joon Pi, Hong Min

[Poster Session III]

December 15 Friday 16:00 ~ 17:30 A116

Session Chair : Hyung Tae Ha, Gachon University, Korea

1. (17) Analysis of Demand Response Potential based on Difference in Differences method

Min Young Hong, Min Su Kim, Jin Sung Kim, Hyung Tae Ha, Si Hwa Bae, Sung Young Son

2. (18) DR Potential Estimation through Deep Learning-Based Load Forecasting

Min-Su Kim, Yoo-Shin Park, Keon-Jun Park, Sung-Yong Son

3. (19) Analysis of missing Load Transfer Switch in Distribution power data imputation performance

Dae-Sung Lee, Geon-Woo Kim, Jin-Hyeung Kim, Sung-Yong Son

4. (20) Optimization of Electric Bus Operation with Pantograph-type OppCharge System

Ye-Bin Seo, Jin-Wook Lee, So-Hee Kim, Sang Young Lee, Sung-Yong Son

5. (21) A study on Load Forecasting for Load Transfer Switch in Distribution Line Using Graph Neural Network

Byeong-Wook Jung, Dae-Sung Lee, Sang-Hwan Lee, Sung-Yong Son

6. (22) Analysis of Heat Supply Data Patterns in District Heating Systems

Dae-Sung Lee, Hyun-Wook Jung, Du-Na Kim, Jung-Un Yu, Chang-Ho Rhee, Sung-Yong Son

7. (6) A Study on Emotion Recognition in Conversation Based on Multi-Dimensional CNN and Transfer Learning

KiHoon Lee, Namgyu Jung, Chang Choi

8. (13) Vulnerability analysis of neural networks for signal classification in energy environments

SaeBom Lee, Junho Yoon, Chang Choi

[FUTURE ICBT 2023]

December 13~14 A116

[SAES 2023]

December 14~15 A116

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Venue

Asia Univerity(亞洲大學)

No. 500, Liufeng Rd, Wufeng District, Taichung, Taiwan
- Administration Building

RECEPTION

Congress Hall in Democratic Assembly Affair (民主議政園區內 議蘆會館)
No. 734, Zhongzheng Rd, Wufeng District, Taichung, Taiwan

- It takes about 30 minutes to walk from Asia University to the Congress Hall(議蘆會館), where the reception will be held on Thursday evening, Dec. 14.
- If you take the bus #151 or #200, it takes approximately 15 minutes.

BANQUET

Ballroom, Hotel National Taichung (全國大飯店)
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