

PROGRAM GUIDE



CISIS-2021

The 15-th International Conference on
Complex, Intelligent, and Software Intensive Systems

and



IMIS-2021

The 15-th International Conference on
Innovative Mobile and Internet Services in Ubiquitous Computing

Virtual Conference (Online Presentation)

July 1st - July 3rd, 2021

Technically Co-Sponsored by:



Contents

CISIS-2021 Organizing Committee	3
Welcome Message of CISIS-2021 International Conference Organizers	4
IMIS-2021 Conference Organizing Committee	5
Welcome Message of IMIS-2021 International Conference Organizers	6
CISIS-2021 & IMIS-2021 Keynote I	7
CISIS-2021 & IMIS-2021 Keynote II	8
CISIS-2021 Main Conference and Workshops Program	9
Thursday, July 1, 2021	9
CISIS-2021 Keynote I	9
Parallel Sessions	10
CISIS-S1: Artificial Intelligence and Intelligent Computing	10
FCISIS-S1: Knowledge Management and Transfer	10
VENOA-S1: Multimedia and Web-based Applications I	10
Parallel Sessions	11
CISIS-S2: Data Management and Multimedia Applications	11
IKIDW-S1: Knowledge Sharing and Modeling I	11
VENOA-S2: Multimedia and Web-based Applications II	11
Parallel Sessions	12
CISIS-S3: Next Generation Wireless Networks	12
IKIDW-S2: Knowledge Sharing and Modeling II	12
Thursday, July 2, 2021	13
Parallel Sessions	13
CISIS-S4: Network Algorithms and Architectures	13
IKIDW-S3: Knowledge Sharing and Modeling III	13
Parallel Sessions	13
CISIS-S5: IoT-based Systems and Applications	13
IKIDW-S4: Knowledge Sharing and Modeling IV	14
SWISM-S1: Semantic Computing	14
Parallel Sessions	14
IINIC-S1: Intelligent and Smart Systems	14
ECDS-S1: Data Management and Modeling	15
SWISM-S2: Intelligent Systems and Semantic Techniques	15
CISIS-2021 Keynote II	16
Saturday, July 3, 2021	16
CISIS-2021 Organizing Committee Meeting and Discussion	16
IMIS-2021 Main Conference and Workshops Program	17
Thursday, July 1, 2021	17
IMIS-2021 Keynote I	17
Parallel Sessions	17
IMIS-S1: Intelligent Computing and Deep Learning	17
ITUC-S1: E-Learning Systems and Network Applications	18
Parallel Sessions	18
IMIS-S2: Security and Privacy	18
SMEUCE-S1: Ubiquitous Commerce and Operation Management	19
Parallel Sessions	19
IMIS-S3: Wireless and Mobile Networks	19
SMEUCE-S2: Sustainability Management of e-Business	19
Friday, July 2, 2021	20

Parallel Sessions	20
IMIS-S4: Big Data and Multimedia Applications	20
BDITS-S1: Fuzzifying and IoT Security	20
Parallel Sessions	20
IMIS-S5: Service Computing and Smart Grid	20
MCNCS-S1: Data Management and Intelligent Algorithms	21
Parallel Sessions	21
WAIS-S1: Information Security	21
IMIS-2021 Keynote II	22
Saturday, July 3, 2021	22
IMIS-2021 Organizing Committee Meeting and Discussion	22
Additional information	23

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Welcome Message of CISIS-2021 International Conference Organizers

Welcome to the 15th International Conference on Complex, Intelligent and Software Intensive Systems (CISIS-2021), which will be held from July 1st to July 3rd, 2021 at Soon Chun Hyang (SCH) University, Asan, Korea in conjunction with the 15th International Conference on Innovative Mobile and Internet Services in Ubiquitous Computing (IMIS-2021).

The aim of the conference is to deliver a platform of scientific interaction between the three interwoven challenging areas of research and development of future ICT-enabled applications: Software Intensive Systems, Complex systems and Intelligent Systems.

Software Intensive Systems are systems, which heavily interact with other systems, sensors, actuators, devices, other software systems and users. More and more domains are involved with software intensive systems, e.g. automotive, telecommunication systems, embedded systems in general, industrial automation systems and business applications. Moreover, the outcome of web services delivers a new platform for enabling software intensive systems. The conference is thus focused on tools, practically relevant and theoretical foundations for engineering software intensive systems.

Complex Systems research is focused on the overall understanding of systems rather than its components. Complex Systems are very much characterized by the changing environments in which they act by their multiple internal and external interactions. They evolve and adapt through internal and external dynamic interactions.

The development of Intelligent Systems and agents, which is each time more characterized by the use of ontologies and their logical foundations build a fruitful impulse for both Software Intensive Systems and Complex Systems. Recent research in the field of intelligent systems, robotics, neuroscience, artificial intelligence, and cognitive sciences are very important factor for the future development and innovation of software intensive and complex systems.

The CISIS-2021 is aiming at delivering a forum for in-depth scientific discussions amongst the three communities. The papers included in the proceedings cover all aspects of theory, design and application of complex systems, intelligent systems and software intensive systems.

We are very proud and honored to have 2 distinguished keynote talks by Dr. Jayh (Hyun-hee) Park, Myongji University, Korea and Dr. Antonio Esposito, University of Campania "Luigi Vanvitelli", Italy, who will present their recent work and will give new insights and ideas to the conference participants.

The organization of an International Conference requires the support and help of many people. A lot of people have helped and worked hard to produce a successful CISIS-2021 technical program and conference proceedings. First, we would like to thank all the authors for submitting their papers, the Program Committee Members, and the reviewers who carried out the most difficult work by carefully evaluating the submitted papers. We are grateful to Honorary Co-Chairs Kyoil Suh, Soon Chun Hyang (SCH) University, Korea and Prof. Makoto Takizawa, Hosei University, Japan for their guidance and advices.

Finally, we would like to thank Web Administrator Co-Chairs for their excellent and timely work.

We hope you will enjoy the conference proceedings.

CISIS-2021 Organizers

CISIS-2021 General Co-Chairs

Kangbin Yim, *Soonchunhyang University, Korea*
Tomoya Enokido, *Rissho University, Japan*
Marek Ogiela, *AGH University of Technology, Poland*

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Jonghyouk Lee, *Sejong University, Korea*
Antonio Esposito, *University of Campania "Luigi Vanvitelli", Italy*
Omar Hussain, *University of New South Wales, Australia*

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Welcome Message of IMIS-2021 International Conference Organizers

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This International Conference focuses on the challenges and solutions for Ubiquitous and Pervasive Computing (UPC) with an emphasis on innovative, mobile and internet services. With the proliferation of wireless technologies and electronic devices, there is a fast growing interest in UPC. UPC enables to create a human-oriented computing environment where computer chips are embedded in everyday objects and interact with physical world. Through UPC, people can get online even while moving around, thus having almost permanent access to their preferred services. With a great potential to revolutionize our lives, UPC also poses new research challenges. The conference provides an opportunity for academic and industry professionals to discuss the latest issues and progress in the area of UPC.

For IMIS-2021, we received many paper submissions from all over the world. The papers included in the proceedings cover important aspects from UPC research domain.

We are very proud and honored to have 2 distinguished keynote talks by Dr. Jayh (Hyunhee) Park, Myongji University, Korea and Dr. Antonio Esposito, University of Campania "Luigi Vanvitelli", Italy, who will present their recent work and will give new insights and ideas to the conference participants.

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Finally, we would like to thank Web Administrator Co-Chairs for their excellent and timely work. We hope that all of you enjoy IMIS-2021 and find this a productive opportunity to learn, exchange ideas and make new contacts.

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Baojiang Cui, *Beijing University of Posts and Telecom, China*

CISIS-2021 & IMIS-2021 Keynote I



Dr. Jayh (Hyunhee) Park, Myongji University, Yongin, Korea

Asking AI Why: Explainable Artificial Intelligence

Abstract: In the early phases of AI adoption, it was okay to not understand what the model predicts in a certain way, as long as it gives the correct outputs. Explaining how they work was not the first priority. Now, the focus is turning to build human interpretable models. In the invited talk, I will explain why eXplainable AI is important. Then, I will explain an AI model. Through this invited talk, I will discuss models such as ensembles and neural networks called black-box models. I will deal with the following questions.

- Why should we trust your model?
- Why did the model take a certain decision?
- What drives model predictions?

CISIS-2021 & IMIS-2021 Keynote II



Dr. Antonio Esposito, University of Campania "Luigi Vanvitelli", Aversa, Italy

Co-evolution of Semantic and Blockchain Technologies

Abstract: Semantic Technologies have demonstrated to have the capability to ease interoperability and portability issues in several application fields such as Cloud Computing and the Internet of Things (IoT). Indeed, the increase in resource representation and the inference capabilities enabled by Semantic technologies represent important components of current distributed software systems, which can rely on better information interoperability and decision autonomy. However, semantics alone cannot solve trust and reliability issues that, in many situations, can still arise within software systems. Blockchain solutions have shown to be effective in this area, creating data sharing infrastructure where information validation can be done without the necessity of third-party services. A co-evolution and integration of Semantic and Blockchain technologies would at the same time enhance data interoperability and ensure data trust and provenance, creating undeniable benefits for distributed software systems. This talk will focus on the current State of the Art regarding the integration of Semantic and Blockchain technologies, looking at the state of their co-evolution, at the available and still needed solutions.



CISIS-2021

Main Conference and Workshops Program

Thursday, July 1, 2021

CISIS-2021 Keynote I

10:00-11:00 (Japan and Korea time zone: UTC+9)

03:00-04:00 (Europe time zone:UTC+2)

CISIS-2021 Keynote Talk I

Dr. Jayh (Hyunhee) Park: Asking AI Why: Explainable Artificial Intelligence

Parallel Sessions

13:00-14:30 (Japan and Korea time zone: UTC+9)

06:00-07:30 (Europe time zone:UTC+2)

CISIS-S1: Artificial Intelligence and Intelligent Computing

Chair: Arjan Durrezi, IUPUI, USA

1. Trustworthy Explainability Acceptance: A New Metric to Measure the Trustworthiness of Interpretable AI Medical Diagnostic Systems
Davinder Kaur, Suleyman Uslu, Arjan Durrezi, Sunil Badve and Murat Dunda
2. A Coverage Construction and Hill Climbing Approach for Mesh Router Placement Optimization: Simulation Results for Different Number of Mesh Routers and Instances Considering Normal Distribution of Mesh Clients
Aoto Hirata, Tetsuya Oda, Nobuki Saito, Yuki Nagai, Masaharu Hirota, Kengo Katayama and Leonard Barolli
3. Time Series Prediction of Wind Speed Based on SARIMA and LSTM
Caiquan Xiong, Congcong Yu, Xiaohui Gu and Shiqiang Xu
4. Dimensionality Reduction on Metagenomic Data with Recursive Feature Elimination
Huong Hoang Luong, Nghia Trong Le Phan, Tin Tri Duong, Thuan Minh Dang, Tong Duc Nguyen, and Hai Thanh Nguyen
5. Application of Distributed Seagull Optimization Improved Algorithm in Sentiment Tendency Prediction
Hongwei Chen, Honglin Zhou, Meiyong Li, Hui Xu and Xun Zhou

FCISIS-S1: Knowledge Management and Transfer

Chair: Olivia Fachrunnisa, Sultan Agung Islamic University, Indonesia

1. Developing Innovation Capability to Improve Marketing Performance in Batik SMEs During the Covid-19 Pandemic
Alifah Ratnawati and Noor Kholis
2. Muthmai ' nnah Adaptive Capability: A Conceptual Review
Asih Niati, Olivia Fachrunnisa and Mohamad Sodikin
3. Interaction Model of Knowledge Management, Green Innovation and Corporate Sustainable Development in Indonesia
Siti Sumiati, Sri Wahyuni Ratnasari and Erni Yuvitasari
4. The Impact of Covid-19 Pandemic on Continuance Adoption of Mobile Payments: A Conceptual Framework
Dian Essa Nugrahini, Ahmad Hijri Alfian
5. An analysis in the Application of the Unified Theory of Acceptance and Use of Technology (UTAUT) Model on Village Fund System (SISKEUDES) with Islamic Work Ethics as a Moderating Effect
Khoirul Fuad, Winarsih, Luluk Muhimatul Ifada, Hendry Setyawan and Retno Tri Handayani
6. MOC Approach and Its Integration with Social Network and ICT: The Role to Improve Knowledge Transfer
Tri Wikaningrum

VENOA-S1: Multimedia and Web-based Applications I

Chair: Yoshihiro Okada, Kyushu University, Japan

1. Research on the development of programming support systems focused on the cooperation between activity diagrams and Scratch
Kazuhiro Kobashi, Kazuaki Yoshihara and Kenzi Watanabe
2. Web-Based Collaborative VR Training System and Its Log Functionality for Radiation Therapy Device Operations
Bai Yu, Wei Shi and Yoshihiro Okada

3. Research on The Development of Keyboard Applications for Reasonable Accommodation
Reika Okuya, Kazuaki Yoshihara and Kenzi Watanabe
4. Development of a Teaching Material for Information Security that Detects an Unsecure Wi-Fi Access Point
Kazuaki Yoshihara, Taisei Iwasaki and Kenzi Watanabe

Parallel Sessions

15:00-16:30 (Japan and Korea time zone: UTC+9)

08:00-09:30 (Europe time zone:UTC+2)

CISIS-S2: Data Management and Multimedia Applications

Chair: Yoshitaka Shibata, Iwate Prefectural University, Japan

1. Four Grade Levels-based Models with Random Forest for Student Performance Prediction at a Multidisciplinary University
Tran Thanh Dien, Le Duy-Anh, Nguyen Hong-Phat, Nguyen Van-Tuan, Trinh Thanh-Chanh, Le Minh-Bang, Nguyen Thanh-Hai and Nguyen Thai-Nghe
2. The Role of Collective Engagement to Strengthen Organizational Identity
Olivia Fachrunnisa, Ardian Adhiatma and Ken Sudarti
3. A Novel Structural and Semantic Similarity in Social Recommender Systems
Imen Ben El Kouni and Wafa Karoui and Lotfi Ben Romdhane
4. Building Social Relationship Skill in Digital Work Design
Yoshitaka Shibata, Akira Sakuraba
5. Related Entity Expansion and Ranking Using Knowledge Graph
Ryuya Akase, Hiroto Kawabata, Akiomi Nishida, Yuki Tanaka and Tamaki Kaminaga

IKIDW-S1: Knowledge Sharing and Modeling I

Chair: Ardian Adhiatma, Sultan Agung Islamic University, Indonesia

1. Religious Value Co-Creation: A Strategy to Strengthen Customer Engagement
Ken Sudarti, Olivia Fachrunnisa and Hendar, Ardian Adhiatma
2. Environmental Performance Announcement and Shareholder Value: The Role of Environmental Disclosure
Luluk Muhimatul Ifada, Munawaroh, Indri Kartika, Khoirul Fuad
3. Integrating Corporate Social Responsibility Disclosure and Environmental Performance for Firm Value: An Indonesia Study
Maya Indriastuti and Anis Chariri
4. Financial Technology and Islamic Mutual Funds Investment
Mutamimah and Rima Yulia Sueztianingrum
5. Towards Spiritual Wellbeing in Organization: Linking Ihsan Achievement Oriented Leadership and Knowledge Sharing Behaviour
Mohamad Sodikin, Olivia Fachrunnisa and Asih Niati

VENOA-S2: Multimedia and Web-based Applications II

Chair: Shinji Sugawara, Chiba Institute of Technology, Japan

1. A Study of Throughput Drop Estimation Model for Concurrently Communicating Links under Coexistence of Channel Bonding and Non-Bonding in IEEE 802.11n WLAN
Kwenga Ismael Munene, Nobuo Funabiki, Hedy Briantoro, Md. Mahbubur Rahman, Sujjan Chandra Roy and Minoru Kuribayashi

2. Dynamic Fog Configuration for Content Sharing with Peer-to-Peer Network Using Mobile Terminals in a City
Takuya Itokazu and Shinji Sugawara
3. Voice Quality Change Due to the Amount of Training Data for Multi- and Target-speaker WaveNet Vocoders
Satoshi Yoshida, Shingo Uenohara, Keisuke Nishijima and Ken'ichi Furuya
4. Web-Based Collaborative VR Training System and Its Log Functionality for Radiation Therapy Device Operations
Yuta Miyahara, Kosuke Kaneko, Toshioh Fujibuchi, Yoshihiro Okada

Parallel Sessions

17:00-18:30 (Japan and Korea time zone: UTC+9)

10:00-11:30 (Europe time zone:UTC+2)

CISIS-S3: Next Generation Wireless Networks

Chair: Leonard Barolli, Fukuoka Institute of Technology, Japan

1. Performance Evaluation of WMNs by WMN-PSOSA-DGA Hybrid Simulation System Considering Stadium Distribution of Mesh Clients and Different Number of Mesh Routers
Admir Barolli, Shinji Sakamoto, Leonard Barolli and Makoto Takizawa
2. A New Scheme for Slice Overloading Cost in 5G Wireless Networks Considering Fuzzy Logic
Phudit Ampririt, Ermioni Qafzezi, Kevin Bylykbashi, Makoto Ikeda, Keita Matsuo and Leonard Barolli
3. COVID-Prevention-Based Parking with Risk Factor Computation
Walter Balzano and Silvia Stranieri
4. Coarse Traffic Classification for High-bandwidth Connections in a Computer Network Using Deep Learning techniques
Marek Bolanowski, Andrzej Paszkiewicz and Bartosz Rumak
5. A Privacy Preserving Hybrid Blockchain based Announcement Scheme for Vehicular Energy Network
Abid Jamal, Sana Amjad, Usman Aziz, Muhammad Usman Gurmani, Saba Awan and Nadeem Javaid

IKIDW-S2: Knowledge Sharing and Modeling II

Chair: Olivia Fachrunnisa, Sultan Agung Islamic University, Indonesia

1. Tax Avoidance and Performance: Initial Public Offering
Kiryanto, Mutoharoh and Zaenudin
2. Knowledge Sharing, Innovation Strategy and Innovation Capability: A Systematic Literature Review
Mufti Agung Wibowo, Widodo, Olivia Fachrunnisa, Ardian Adhiatma, Marno Nugroho, Yulianto Prabowo
3. The Determinant of Sustainable Performance in Indonesian Islamic Microfinance: Role of Accounting Information System and Maqashid Sharia
Provita Wijayanti and Intan Salwani Mohamed
4. The Role of Digital Utilization in Accounting to Enhance MSMEs' Performance during COVID-19 Pandemic: Case Study in Semarang, Central Java, Indonesia
Hani Werdi Apriyanti, Erni Yuvitasari
5. The Role of Confidence in Knowledge and Psychological Safety on Knowledge Sharing Improvement of Human Resources in Organization
Arizqi

Thursday, July 2, 2021**Parallel Sessions****10:00-11:30 (Japan and Korea time zone: UTC+9)****03:00-04:30 (Europe time zone:UTC+2)****CISIS-S4: Network Algorithms and Architectures****Chair: Tomoya Enokido, Risho University, Japan**

1. Zero Trust Security in the Mist Architecture
Minoru Uehara
2. The Redundant Active Time-Based Algorithm with Forcing Meaningless Replica to Terminate
Tomoya Enokido, Dilawaer Duolikun, and Makoto Takizawa
3. A Novel Approach to Network 's Topology Evolution and Robustness Optimization of Scale Free Networks
Muhammad Usman, Nadeem Javaid, Syed Minhal Abbas, Muhammad Mohsin Javed, Muhammad Aqib Waseem and Muhammad Owais
4. Entity Relation Extraction based on Multi-attention Mechanism and BiGRU Network
Lingyun Wang, Caiquan Xiong, Wenxiang Xu, Song Lin
5. The Application of Improved Grasshopper Optimization Algorithm to Flight Delay Prediction–Based on Spark
Hongwei Chen, Shenghong Tu and Hui Xu

IKIDW-S3: Knowledge Sharing and Modeling III**Chair: Ardian Adhiatma, Sultan Agung Islamic University, Indonesia**

1. A Model of Agency Theory-Based Firm Value Improvement through Cash Holding With Firm Size and Profitability as Control Variable
Ibnu Khajar and Ayu Rakhmawati Kusumaningtyas
2. The Model of Tax Compliance Assessment in MSMEs
Devi Permatasari, Naila Najihah, Mutoharoh
3. Survival and Sustainability Strategies of Small and Medium Enterprises (SMEs) During and After Covid-19 Pandemic: A Conceptual Framework
Naila Najihah, Devi Permatasari, Mutoharoh
4. Bridging the Semantic Gap in Continuous Auditing Knowledge Representation
Sri Sulistyowati, Indri Kartika, Imam Setijawan and Maya Indriastuti
5. Comparison of Financing Resources to Support Micro and Small Business Sustainability
Mutoharoh, Devi Permatasari and Naila Najihah

Parallel Sessions**13:00-14:30 (Japan and Korea time zone: UTC+9)****06:00-07:30 (Europe time zone:UTC+2)****CISIS-S5: IoT-based Systems and Applications****Chair: Keita Matsuo, Fukuoka Institute of Technology, Japan**

1. Implementation of an Indoor Position Detecting System Using Mean BLE RSSI for Moving Omnidirectional Access Point Robot
Atushi Toyama, Kenshiro Mitsugi, Keita Matsuo, Elis Kulla and Leonard Barolli

2. Blockchain based Authentication for End-nodes and Efficient Cluster Head Selection in Wireless Sensor Networks
Sana Amjad, Usman Aziz, Muhammad Usman Gurmani, Saba Awan, Maimoona Bint E Sajid, and Nadeem Javaid
3. A Survey on Internet of Things in Telehealth
Komal Marwah and Farshid Hajati
4. Alexnet-Adaboost-ABC based Hybrid Neural Network for Electricity Theft Detection in Smart Grids
Muhammad Asif, Ashraf Ullah, Shoaib Munawar, Benish Kabir, Pamir, Adil Khan, and Nadeem Javaid
5. Blockchain and IPFS based Service Model for the Internet of Things
Hajra Zareen, Saba Awan, Maimoona Bint E Sajid, Shakira Musa Baig, Muhammad Faisal and Nadeem Javaid

IKIDW-S4: Knowledge Sharing and Modeling IV

Chair: Olivia Fachrunnisa, Sultan Agung Islamic University, Indonesia

1. The Mediating of Green Product Innovation on the Effect of Accounting Capability and Performance Financial of MSMEs in the New Normal Era
Winarsih, Khoirul Fuad and Hendri Setyawan
2. Supply Chain Management Quality Improvement Model with Adaptive and Generative Relationship Learning
Lutfi Nurcholis and Ardian Adhiatma
3. Company ' s Characteristics and Intellectual Capital Disclosure: Empirical Study at Technology Companies of Singapore
Dista Amalia Arifah, Anis Chariri and Pujiharto
4. The Influence of Sustainability Report on Islamic Banking Performance in Indonesia
Muhammad Jafar Shodiq
5. The Antecedent and Consequences of Commitment to the Environment in Environmentally Friendly Automotive Products
Tanti Handriana, Praptini Yulianti and Decman Praharsa

SWISM-S1: Semantic Computing

Chair: Beniamino Di Martino, University of Campania "Luigi Vanvitelli", Italy

1. Towards a Trustworthy Semantic-aware Marketplace for Interoperable Cloud Service
Emanuele Bellini, Stelvio Cimato, Ernesto Damiani, Beniamino Di Martino and Antonio Esposito
2. Semantic Representation and Rule based Patterns discovery and Verification in eProcurement Business Processes for eGovernment
Beniamino Di Martino, Datiana Cascone, Luigi Colucci Cante, and Antonio Esposito
3. Semantic Techniques for Automated Recognition of Building types in Cultural Heritage doma
Beniamino Di Martino, Mariangela Graziano and Nicla Cerullo

Parallel Sessions

15:00-16:30 (Japan and Korea time zone: UTC+9)

08:00-09:30 (Europe time zone:UTC+2)

IINIC-S1: Intelligent and Smart Systems

Chair: Makoto Ikeda, Fukuoka Institute of Technology, Japan

1. An Integrated System for Actor Node Selection in WSNs Considering Fuzzy Logic and NS-3 and Its Performance Evaluation
Yi Liu, Shinji Sakamoto and Leonard Barolli
2. Design of an Intelligent Driving Support System for Detecting Distracted Driving
Masahiro Miwata, Mitsuki Tsuneyoshi, Yoshiki Tada, Makoto Ikeda and Leonard Barolli
3. Detection of Non-Technical Losses using MLP-GRU based Neural Network to Secure Smart Grids
Benish Kabir, Pamiir, Ashraf Ullah, Shoaib Munawar, Muhammad Asif and Nadeem Javaid
4. Synthetic Theft Attacks Implementation for Data Balancing and a Gated Recurrent Unit based Electricity Theft Detection in Smart Grids
Pamiir, Ashraf Ullah, Shoaib Munawar, Muhammad Asif, Benish Kabir and Nadeem Javaid
5. Blockchain Enabled Secure and Efficient Reputation Management for Vehicular Energy Network
Abid Jamal, Muhammad Usman Gurmani, Saba Awan, Maimoona Bint E Sajid, Sana Amjad and Nadeem Javaid

ECDS-S1: Data Management and Modeling

Chair: Giuseppe Caragnano, LINKS Foundation, Italy

1. Building Social Relationship Skill in Digital Work Design
Ardian Adhiatma and Umi Kuswatun Hasanah
2. How to Push Digital Ecosystem to Explore Digital Humanities and Collaboration of SMEs
Marno Nugroho and Budhi Cahyono
3. IOTA-based Mobile Application for Environmental Sensor Data Visualization
Francesco Lubrano, Fabrizio Bertone, Giuseppe Caragnano and Olivier Terzo
4. Electricity Theft Detection in Smart Meters using a Hybrid Bi-directional GRU Bi-directional LSTM Model
Shoaib Munawar, Muhammad Asif, Benish Kabir, Pamiir, Ashraf Ullah and Nadeem Javaid

SWISM-S2: Intelligent Systems and Semantic Techniques

Chair: Antonio Esposito, University of Campania "Luigi Vanvitelli", Italy

1. Toward ECListener: an Unsupervised Intelligent System to Monitor Energy Communities
Gregorio D' Agostino, Alberto Tofani, Beniamino Di Martino, Fiammetta Marulli
2. Semantic Techniques for IoT Sensing and eHealth Training Recommendations
Beniamino Di Martino and Serena Angela Gracco
3. PrettyTags: An Open-source Tool for Easy and Customizable Textual MultiLevel Semantic Annotations
Beniamino Di Martino, Fiammetta Marulli, Mariangela Graziano, and Pietro Lupi
4. Supporting the Optimization of Temporal Key Performance Indicators of Italian Courts of Justice with OLAP techniques
Beniamino Di Martino

CISIS-2021 Keynote II

17:00-18:00 (Japan and Korea time zone: UTC+9)

10:00-11:00 (Europe time zone:UTC+2)

CISIS-2021 Keynote Talk II

Dr. Antonio Esposito: Co-evolution of Semantic and Blockchain Technologies

Saturday, July 3, 2021

CISIS-2021 Organizing Committee Meeting and Discussion



IMIS-2021

Main Conference and Workshops Program

Thursday, July 1, 2021

IMIS-2021 Keynote I

10:00-11:00 (Japan and Korea time zone: UTC+9)

03:00-04:00 (Europe time zone:UTC+2)

IMIS-2021 Keynote Talk I

Dr. Jayh (Hyunhee) Park: Asking AI Why: Explainable Artificial Intelligence

Parallel Sessions

13:00-14:30 (Japan and Korea time zone: UTC+9)

06:00-07:30 (Europe time zone:UTC+2)

IMIS-S1: Intelligent Computing and Deep Learning

Chair: Hyunhee Park, Myongji University, Korea

1. Web Page Classification based on Graph Neural Network
Tao Guo, Baojiang Cui

2. Malicious Encrypted Traffic Identification based on Four-tuple Feature and Deep Learning
Kunlin Li, Baojiang Cui
3. Improved Optimal Reciprocal Collision Avoidance Algorithm in Racing Games
Wenyu Zhang, Tianhan Gao
4. An Intelligent Travel Application using CNN-based Deep Learning Technologies
Kyungmin Lee, Mincheol Shin, Yongho Kim, Hae-Duck J. Jeong
5. Reduced CNN model for face image detection with GAN oversampling
Jiha Kim, Hyunhee Park

ITAUC-S1: E-Learning Systems and Network Applications

Chair: Hsing-Chung Chen, Asia University, Taiwan

1. On the Neighborhood-connectivity of Locally Twisted Cube Networks
Tzu-Liang Kung, Cheng-Kuan Lin, Chun-Nan Hung
2. Assessing the Super P k-connectedness of Crossed Cubes
Yuan-Hsiang Teng, Tzu-Liang Kung
3. Learning Performance Prediction with Imbalanced Virtual Learning Environment Students ' Interactions Data
Hsing-Chung Chen, Eko Prasetyo, Prayitno, Sri Suning Kusumawardani, Shian-Shyong Tseng, Tzu-Liang Kung, Kuei-Yuan Wang
4. An APP-based E-Learning Platform for Artificial Intelligence Cross-domain Application Practices
Anthony Y. H. Liao
5. Automatic Control System for Venetian Blind in Home Based on Fuzzy Sugeno Method
Hsing-Chung Chen, Galang Wicaksana, Agung Mulyo Widodo, Andika Wisnujati, Tzu-Liang Kung, Wen-Yen Lin

Parallel Sessions

15:00-16:30 (Japan and Korea time zone: UTC+9)

08:00-09:30 (Europe time zone:UTC+2)

IMIS-S2: Security and Privacy

Chair: Tianhan Gao, Northeastern University of China, China

1. VANETs Road Condition Warning and Vehicle Incentive Mechanism Based on Blockchain
Shuai Zhou, Tianhan Gao
2. An Authentication Scheme for Car-Home Connectivity Services in Vehicular Ad-hoc Networks
Cong Zhao, Nan Guo, Tianhan Gao, Jiayu Qi, Xinyang Deng
3. Vulnerability Analysis of Software piracy and reverse engineering: Based on Software C
Jaehyuk Lee, Kangbin Yim, and Kyungroul Lee
4. PtPeach: Improved design and implementation of Peach fuzzing test for file format
Hua Yang, Jingling Zhao, Baojiang Cui
5. A Blockchain based Secure Authentication and Routing Mechanism for Wireless Sensor Networks
Usman Aziz, Muhammad Usman Gurmani, Saba Awan, Maimoona Bint E Sajid, Sana Amjad, Nadeem Javaid
6. Blockchain based Authentication and Trust Evaluation Mechanism for Secure Routing in Wireless Sensor Networks
Saba Awan, Maimoona Bint E Sajid, Sana Amjad, Usman Aziz, Usman Gurmani, Nadeem Javaid

SMEUCE-S1: Ubiquitous Commerce and Operation Management**Chair: Mei-Hua Huang, Asia University, Taiwan**

1. Study on the Relationship Between Dividend, Business Cycle, Institutional Investor and Stock Risk
Yung-Shun Tsai, Chun-Ping Chang, Shyh-Weir Tzang
2. Macroeconomic Variables and Investor Sentiment
Mei-Hua Liao, Chun-Mi Wang, Ya-Lan Chan
3. The Choice Between FDI and Selling Out with Externality and Exchange Rate
Chun-Ping Chang, Yung-Shun Tsai, Batjargal Khunshagai, Nguyen Hong Nhung, Shyh-Weir Tzang
4. Performance of the Initial Public Offering in the Taiwan Stock Market
Shyh-Weir Tzang, Chun-Ping Chang, Tsatsral Ochirbal, Bolor Sukhbaatar, Yung-Shun Tsai

Parallel Sessions**17:00-18:30 (Japan and Korea time zone: UTC+9)****10:00-11:30 (Europe time zone:UTC+2)****IMIS-S3: Wireless and Mobile Networks****Chair: Shinji Sakamoto, Seikei University, Japan**

1. Routing Strategy for Avoiding Obstacles During Message Forwarding in Mobile Ad-hoc Network
Qiang Gao, Tetsuya Shigeyasu, Chunxiang Chen
2. Fuzzing Method based on Selection Mutation of Partition Weight Table for 5G Core Network NGAP Protocol
Yang Hu, Wenchuan Yang, Baojiang Cui, Xiaohui Zhou, Zhijie Mao, Ying Wang
3. Simulation Results of a DQN based AAV Testbed in Corner Environment: A Comparison Study for Normal DQN and TLS-DQN
Nobuki Saito, Tetsuya Oda, Aoto Hirata, Kyohei Toyoshima, Masaharu Hirota, Leonard Barolli
4. Stochastic Geometric Analysis of IRS-aided Wireless Networks using Mixture Gamma Model
Yunli Li, Young Jin Chun
5. Performance Evaluation of CM and RIWM Router Replacement Methods for WMNs by WMN-PSOHC Hybrid Intelligent Simulation System Considering Chi-square Distribution of Mesh Clients
Shinji Sakamoto, Yi Liu, Leonard Barolli, Shusuke Okamoto

SMEUCE-S2: Sustainability Management of e-Business**Chair: Kuei-Yuan Wang, Asia University, Taiwan**

1. Analysis of the Causal Relationship among Diversification Strategies, Financial Performance and Market Values by the Three-stage Least Squares (3SLS)
Ying-Li Lin, Kuei-Yuan Wang, Jia-Yu Chen
2. College Students' Learning Motivation and Learning Effectiveness by Integrating Knowledge Sharing, Action Research and Cooperative Learning in Statistics
Tin-Chang Chang, I-Tien Chu, Pei-Shih Chen
3. A Feasibility Study of the Introduction of Service Apartment Operation Model on Long-term Care Institutions
Kuei-Yuan Wang, Ying-Li Lin, Chien-Kuo Han, Shu-Tzu Shih
4. Research on the Integration of Information Technology into Aesthetic Teaching in Kindergartens
Ya-Lan Chan, Pei-Fang Lu, Sue-Ming Hsu, Mei-Hua Liao

Friday, July 2, 2021**Parallel Sessions****10:00-11:30 (Japan and Korea time zone: UTC+9)****03:00-04:30 (Europe time zone:UTC+2)****IMIS-S4: Big Data and Multimedia Applications****Chair: Tomoyuki Ishida, Fukuoka Institute of Technology, Japan**

1. Implementation of a VR Preview Simulation System by Capturing the Human Body Movements
Tomoyuki Ishida Kyosuke Sakuma
2. Projection Region Detection Model Based on BASNet
Yukang Zhao, Nan Guo, Xinbei Jiang
3. Analysis of Epidemic Events Based on Event Evolutionary Graph
Kang Xie, Tao Yang, Rourong Fan, Guoqing Jiang
4. Proposal and Development of Anonymization Dictionary using Public Information disclosed by Anonymously Processed Information Handling Business Operators
Masahiro Fujita, Yasuoki Iida, Mitsuhiro Hattori, Tadakazu Yamanaka, Nori Matsuda, Satoshi Ito, Hiroaki Kikuchi
5. An Efficient Approach to Enhance the Robustness of Scale-Free Networks
Syed Minhal Abbas, Nadeem Javaid, Muhammad Usman, Shakira Musa Baig, Arsalan Malik, and Anees Ur Rehman

BDITS-S1: Fuzzying and IoT Security**Chair: Baojiang Cui, Beijing University of Posts and Telecommunications, China**

1. Fuzzing with Multi-dimensional Control of Mutation Strategy
Han Xu, Baojiang Cui, Chen Chen
2. An ELF Recovery Method for Linux Malicious Process Detection
Zheng Wang, Baojiang Cui, Yang Zhang
3. A High Efficiency and Accuracy Method for x86 Undocumented Instruction Detection and Classification
Jiatong Wu, Baojiang Cui, Chen Chen, Xiang Long
4. Simulation-based Fuzzing for Smart IoT Devices
Fanglei Zhang, Baojiang Cui, Chen Chen, Yiqi Sun, Kairui Gong, Jinxin Mad

Parallel Sessions**13:00-14:30 (Japan and Korea time zone: UTC+9)****06:00-07:30 (Europe time zone:UTC+2)****IMIS-S5: Service Computing and Smart Grid****Chair: Nadeem Javaid, COMSATS University Islamabad, Pakistan**

1. Power Meter Software Quality Analysis based on Dynamic Binary Instrumentation
Zhai Feng, Kong Lingda, Xu Yongjin, Ye Xin
2. DClu: A Direction-based Clustering Algorithm for VANETs Management
Marco Lapegna, Silvia Stranieri

3. ComPass: Proximity Aware Common Passphrase Agreement Protocol for Wi-Fi devices Using Physical Layer Security
Khan Reaz, Gerhard Wunder
4. Towards Energy Efficient Smart Grids: Data Augmentation through BiWGAN, Feature Extraction and Classification using Hybrid 2DCNN and BiLSTM
Muhammad Asif, Benish Kabir, Pamiir, Ashraf Ullah, Shoaib Munawar, Nadeem Javaid
5. Comparative Study of Data Driven Approaches Towards Efficient Electricity Theft Detection in Micro Grids
Faisal Shehzad, Muhammad Asif, Zeeshan Aslam, Shahzaib Anwar, Hamza Rashid, Muhammad Ilyas, Nadeem Javaid

MCNCS-S1: Data Management and Intelligent Algorithms

Chair: Fang-Yie Leu, Tunghai University, Taiwan

1. Combining Pipeline Quality with Automation to CI/CD Process for Improving Quality and Efficiency of Software Maintenance
Sen-Tarnng Lai, Heru Susanto, Fang-Yie Leu
2. Efficient Adaptive Resource Management for Spot Workers in Cloud Computing Environment
Lung-Pin Chen, Fang-Yie Leu, Hsin-Ta Chiao, Hung-Jr Shiu
3. You Draft We Complete: A BERT-based Article Generation by Keyword Supplement
Li-Gang Jiang, Yi-Hong Chan, Yao-Chung Fan, Fang-Yie Leu
4. A Q-learning based Downlink Scheduling Algorithm for Multiple Traffics in 5G NR Systems
Zhi-Qian Hong, Heru Susanto, Fang-Yie Leu

Parallel Sessions

15:00-16:30 (Japan and Korea time zone: UTC+9)

08:00-09:30 (Europe time zone: UTC+2)

WAIS-S1: Information Security

Chair: Hiroaki Kikuchi, Meiji University, Japan

1. A Simulation System for Analyzing Attack Methods in Controller Area Network Using Fuzzing Methods
Mitsuki Tsuneyoshi, Masahiro Miwata, Daisuke Nishii, Makoto Ikeda, Leonard Barolli
2. Combination of Pseudonym Changing with Blockchain-based Data Credibility for Verifying Accuracy of Latest Vehicle Information in VANETs
Lei Zhao, Tianhan Gao
3. Vulnerability Analysis of Intellectual Property Rights using Reverse Engineering: Based on Software D
Wontae Jung, Kangbin Yim, Kyungroul Lee
4. Web Crawler for an Anonymously Processed Information Database
Hiroaki Kikuchi, Atsuki Ono, Satoshi Ito, Masahiro Fujita, Tadakazu Yamanaka
5. A Scheme for Checking Similarity and Its Application in Outsourced Image Processing
Su Yunxuan, Wang Xu An, Ge Yu

IMIS-2021 Keynote II

17:00-18:00 (Japan and Korea time zone: UTC+9)

10:00-11:00 (Europe time zone:UTC+2)

IMIS-2021 Keynote Talk II

Dr. Antonio Esposito: Co-evolution of Semantic and Blockchain Technologies

Saturday, July 3, 2021

IMIS-2021 Organizing Committee Meeting and Discussion

Online Meeting Schedule for CISIS-2021 and IMIS-2021

July 1 – 3, 2021

1 st day: Thursday, 1 July, 2021	Room #1 Meeting ID: 816 3630 2480		Room #2 Meeting ID: 817 4365 8444		Room #3 Meeting ID: 894 0402 9953		Room #4 Meeting ID: 810 2961 2539		Room #5 Meeting ID: 845 4423 2212	
	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair
Slot 1 10:00-11:00(UTC+9) 03:00-04:00(UTC+2)	CISIS-2021 and IMIS-2021 Keynote #1: Dr. Jayh (Hyunhee) Park Meeting ID: 816 3630 2480									
Slot 2 13:00-14:30(UTC+9) 06:00-07:30(UTC+2)	CISIS-S1	Arjan Durrezi, USA	FCISIS-S1	Olivia Fachrunnisa, Indonesia	VENOA-S1	Yoshihiro Okada, Japan	IMIS-S1	Hyunhee Park, Korea	ITAUC-S1	Hsing-Chung Chen, Taiwan
Slot 3 15:00-16:30(UTC+9) 08:00-09:30(UTC+2)	CISIS-S2	Yoshitaka Shibata, Japan	IKIDW-S1	Arrian Adhiantma, Indonesia	VENOA-S2	Shinji Sugawara, Japan	IMIS-S2	Tianhan Gao, China	SMEUCE-S1	Mei-Hua Huang, Taiwan
Slot 4 17:00-18:30(UTC+9) 10:00-11:30(UTC+2)	CISIS-S3	Leonard Barolli, Japan	IKIDW-S2	Olivia Fachrunnisa, Indonesia			IMIS-S3	Shinji Sakamoto, Japan	SMEUCE-S2	Kuei-Yuan Wang, Taiwan
2nd day: Friday, 2 July, 2021	Room #1 Meeting ID: 816 3630 2480		Room #2 Meeting ID: 817 4365 8444		Room #3 Meeting ID: 894 0402 9953		Room #4 Meeting ID: 810 2961 2539		Room #5 Meeting ID: 845 4423 2212	
	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair
Slot 1 10:00-11:30(UTC+9) 03:00-04:30(UTC+2)	CISIS-S4	Tomoya Enokido, Japan	IKIDW-S3	Arrian Adhiantma, Indonesia			IMIS-S4	Tomoyuki Ishida, Japan	BDITS-S1	Baojiang Cui, China
Slot 2 13:00-14:30(UTC+9) 06:00-07:30(UTC+2)	CISIS-S5	Keita Matsuo, Japan	IKIDW-S4	Olivia Fachrunnisa, Indonesia	SWISM-S1	Beniamino Di Martino, Italy	IMIS-S5	Nadeem Javaid, Pakistan	MCNCS-S1	Fang-Yie Le, Taiwan
Slot 3 15:00-16:30(UTC+9) 08:00-09:30(UTC+2)	IINIC-S1	Makoto Ikeda, Japan	ECDS-S1	Giuseppe Caragnano, Italy	SWISM-S2	Antonio Esposito, Italy	WAIS-S1	Hiroaki Kikuchi, Japan		
Slot 4 17:00-18:00(UTC+9) 10:00-11:00(UTC+2)	CISIS-2021 and IMIS-2021 #2: Dr. Antonio Esposito Meeting ID: 816 3630 2480									
3rd day: Saturday, 3 July, 2021	Room #1		Room #2		Room #3		Room #4		Room #4	
	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair
	CISIS-2021 and IMIS-2021 Steering Committee Meeting and Discussion									

Additional information

The session schedules indicated in the program are based on the UTC+09:00 time zone.