ICCR 2023

2023 International Conference on Communication and Computer Research

October 23-24, 2023 | Hotel InterCiti, Daejeon, Korea

Program Book

Organized by

KICS (The Korean Institute of Communications and Information Sciences), Korea
ETRI (Electronics & Telecommunications Research Institute), Korea
UCSY (University of Computer Studies, Yangon), Myanmar

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  Prof. Han shin Cho (Hanbat National University, Korea)
  Prof. Mie Mie Tin (University of Technology, Yatanarpon Cyber City, Myanmar)
  Prof. Thin Lai Lai Thein (University of Computer Studies, Yangon, Myanmar)

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Message from Chairs

We are pleased to extend a warm welcome to you for the International Conference on Communication and Computer Research (ICCR) 2023, taking place in Daejeon, Korea. Daejeon is Korea's leading science city, home to many excellent research institutes. ICCR 2023 is an international academic conference that shares the latest research findings in communication and computer-related fields, including artificial intelligence, cloud computing, wireless communication, and computer vision while exploring industry collaboration.

This conference has been jointly organized by The Korean Institute of Communications and Information Sciences (KICS), Korea, Electronics & Telecommunications Research Institute (ETRI), Korea, and University of Computer Studies, Yangon (UCSY), Myanmar.

Artificial intelligence, which significantly impacts various aspects of our daily lives, is rapidly advancing through the fusion of communication and computing technologies. ICCR 2023 has been thoughtfully structured with 14 paper presentation sessions and three keynote speeches. Notably, there are two industrial sessions where researchers from the industry will present practical technologies that result from the integration of communication and computer technologies. Sharing the latest research findings in these areas will help us understand the future directions of artificial intelligence research and industrialization.

In particular, ICCR 2023, with approximately 50% of papers submitted from overseas, will mark the beginning of its internationalization as an academic conference. Initially, we considered hosting this conference in a fully face-to-face format, but given the advantages of the online form that we have experienced, we have decided to hold it in a hybrid online/offline format.

We want to express our deep gratitude to Dr. Okgee Min (Senior Vice President of ETRI), Dr. Een-Kee Hong (President of KICS), and Dr. Mie Mie Khin (Rector of the University of Computer Studies, Yangon, Myanmar) for their dedicated efforts in ensuring the successful organization of this conference. Additionally, members of the International Advisory Group, including Dr. Sunggi Baik (former President of POSTECH, Korea), Dr. Soe Soe Aye (Prorector of University of Computer Studies, Yangon, Myanmar), and Dr. Khaing Khaing Wai (Professor, University of Computer Studies, Yangon, Myanmar), have provided valuable advice to internationalize this conference.

We also extend our heartfelt thanks to the Organizing Committee and Technical & Program Committee Members for their dedication in preparing for this conference.

This conference will be a valuable and enriching experience for all interested in communication, computers, and artificial intelligence.

Organizing Committee Chairs
Prof. Dong Seog Han (Kyungpook National University, Korea)
Prof. Khin Mar Soe (University of Computer Studies, Yangon, Myanmar)

Technical & Program Committee Chairs
Prof. Insoo Sohn (Dongguk University, Korea)
Prof. Yujin Lim (Sookmyung Women's University, Korea)
Prof. Win Pa Pa (University of Computer Studies, Yangon, Myanmar)

Program at Glance

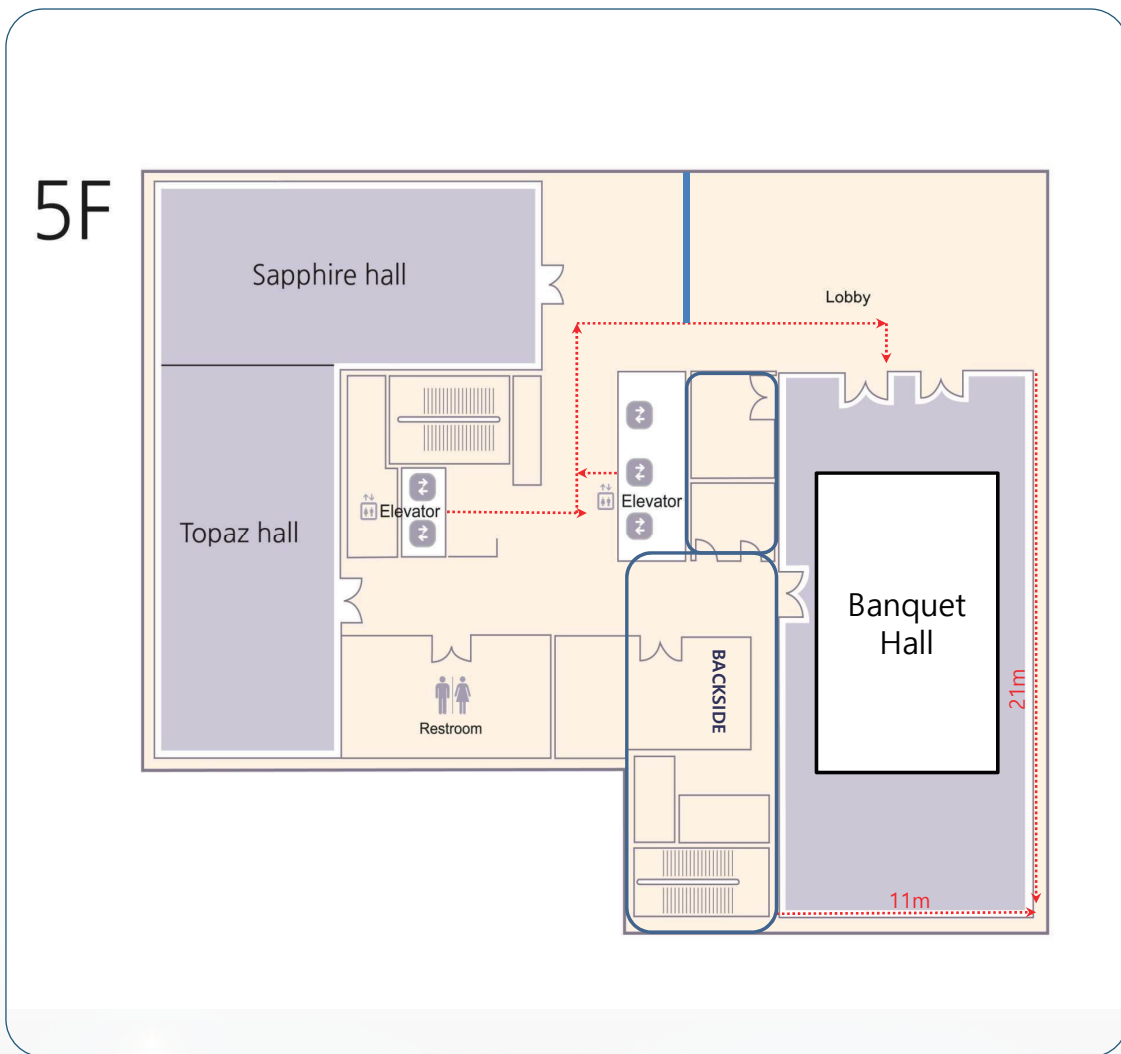| October 22, 2023 (Sunday)	
16:40-17:40 (60")	Steering Committee Meeting
18:00	Welcome Reception

October 23, 2023 (Monday)		
	Sapphire hall	**Topaz hall**
08:30-09:00	Registration	
09:00-09:50 (50")	Keynote Speech 1: Danger of Digital Crime and the Response with ICT Speaker: Kwang-ho Jang, SuperIntendent , National Police Agency, Korea Chair: Dong Seog Han (Kyungpook National University, Korea)	
09:50-10:50 (60")	Session A1 Machine Learning Applications 1 Chair : Prof. Youn-Hee Han (Korea Science & Technology Education University, Korea)	Session B1 Future Internet and Metaverse Chair : Dr. Wooyoung Lee (Electronics and Telecommunications Research Institute, Korea)
10:50-11:00 (10")	Session Break	
11:00-12:00 (60")	Industrial Session 1	
12:00-12:20 (20")	Opening Ceremony	
12:20-13:30 (70")	Lunch	
13:30-14:30 (60")	Session A2 Security and Applications Chair : Prof. Hosung Park (Chonnam National University, Korea)	Session B2 Wireless and Mobility Networks Chair : Prof. Bhang chul Chung (ChungNam National University, Korea)
14:30-15:30 (60")	Industrial Session 2	
15:30-15:40 (10")	Session Break	
15:40-16:40 (60")	Session A3 Cloud and Distributed Computing Chair : Prof. Dong Myung Lee (Tongmyong University, Korea)	Session B3 Computer Vision Applications 1 Chair : Prof. Thin Lai Lai Thein (University of Computer Studies, Yangon, Myanmar)
16:40-17:40 (60")	Session A4 Intelligent Industrial Applications 1 Chair : Prof. Jae-Min Lee (Kumoh National Institute of Technology, Korea)	Session B4 Medical Informatics and Applications Chair : Prof. Insoo Sohn (Dongguk University, Korea)
18:00	Banquet	

Program at Glance

October 24, 2023 (Tuesday)		
	Sapphire hall	**Topaz hall**
08:30-09:00	Registration	
09:00-09:50 (50")	Keynote Speech 2: Evolution of AI-based O&M for Telecommunication Network Speaker: Dr. Seongbok Baik, KT, Korea Chair: Kyu Man Lee (Konyang University, Korea)	
09:50-10:40 (50")	Keynote Speech 3: Digital technologies for smart agriculture Speaker: Dr. Seng-Kyoun Jo, Electronics and Telecommunication Research Institute (ETRI), Korea Chair : Prof. Insoo Sohn (Dongguk University, Korea)	
10:40-10:50 (10")	Session Break	
10:50-11:40 (50")	Keynote Speech 4: Collaborative Researches in UCSY Speaker: Professor Khin Mar Soe, (University of Computer Studies, Yangon, Myanmar) Chair: Dr. Jae Young Ahn (Electronics and Telecommunications Research Institute, Korea)	
11:40-12:30 (50")	Session Break	
12:30-13:30 (60")	Session A5 Machine Learning Applications 2 Chair : Prof. Khin Mar Soe (University of Computer Studies, Yangon, Myanmar)	Session B5 Computer Vision Applications 2 Chair : Prof. Mie Mie Tin (University of Technology, Yatanarpon Cyber City Myanmar)
13:30-14:30 (60")	Session A6 Intelligent Industrial Applications 2 Chair : Prof. Khaing Khaing Wai (University of Computer Studies, Yangon, Myanmar)	Session B6 Intelligent Language Processing Chair : Prof. Win Pa Pa (University of Computer Studies, Yangon, Myanmar)

Conference Room Map

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Sapphire hall

Topaz hall

Elevator

Elevator

Lobby

BACKSIDE

Banquet Hall

Restroom

21m

11m

Keynote Speech

Keynote Speech 1: Danger of Digital Crime and the Response with ICT

09:00~09:50, October 23, 2023 (Monday)
Speaker: Kwang-ho Jang, SuperIntendent , National Police Agency, Korea
Chair: Dong Seog Han (Kyungpook National University, Korea)

Abstract

In Korea, the crime phenomenon is rapidly becoming digitalized. It includes such as voice phishing, smishing, body cam phishing, internet fraud, romance scam, and digital sexual violence, etc. Technology converges on where desire and capital converge. The transition speed of crime converting to digital crime is faster than that of police responding to digital crime.

Digital crimes occur in Internet space. Their traits contain many victims, flexibility among methods, and the use of the latest technology. In addition to catching the criminal, the case of digital crimes should also deal with recovering communications, bank accounts, and Internet accounts. To sum up, the account itself must be protected. However, the current police measures are mainly focused on region patrol, and then investigation of crimes afterwards. To deal with the current trend of crime, the collaboration among telecommunications, financial public institutions, and private platform companies is crucial.

ICT must be adopted to respond to digital crime.

Linking and collaboration among police-public-private data is not easy. Data sharing, establishing standards, and role collaboration require complex decision-making and distribution of responsibilities. To deal with this, technology can contribute to solving these problems. AI and big data technology can find pre-processing data, analyzation, prediction, and crime clues.

Biography

Director of Smart Policing Intelligence Center, 2018-Present
- Investigation Department, Investigation Planning Department, National Police Agency Investigation Department(2008~2010,)
- Financial Information Analysis Institute, Financial Services Commission, Analyst(2012~2013)
- Crime Analysis Officer, Crime Analysis Planning Section Chief, Forensic Investigation Management Office, National Police Agency(2016~2017)
- Ph.D., Public Administration, Myongji University, 2015

Keynote Speech

Keynote Speech 2: Evolution of AI-based O&M for Telecommunication Network
09:00~09:50, October 24, 2023 (Tuesday)
Speaker: Dr. Seongbok Baik, KT, Korea
Chair: Kyu Man Lee (Konyang University, Korea)

Abstract
In this talk, we categorize the evolutionary stages of communication network operation management systems into generations and examine the characteristics of each generation and the dynamics of transition between generations. Furthermore, we discuss how the introduction of artificial intelligence technology has reshaped the direction of evolution in operation management systems. We also provide conceptual requirements to prepare for the implementation of 6th generation operation management systems along the trajectory of evolutionary progress.

Biography
Seongbok Baik is a seasoned research scientist at the Network Infra R&D Laboratory of KT, a position he has held since 1995. He earned his Ph.D. from the Illinois Institute of Technology, and his research interests encompass a wide spectrum, including deep learning, network management, parallel processing, and human-computer interactions, covering the entire spectrum from theoretical concepts to practical design and implementation.
Notably, he holds the distinction of being the first to pioneer the use of AI technologies to enhance telco's OSS systems within his organization. Additionally, he has conducted research on fault management methods for non-blocking networks within computing cloud systems and has played a pivotal role in unifying large-scale network management systems

Keynote Speech

Keynote Speech 3: Digital technologies for smart agriculture

09:50~10:40, October 24, 2023 (Tuesday)

Speaker: Dr. Seng-Kyoun Jo, Electronics and Telecommunication Research Institute (ETRI), Korea

Chair : Prof. Insoo Sohn (Dongguk University, Korea)

Abstract

The world's population is expected to increase by 2 billion persons in the next 30 years, from 7.7 billion currently to 9.7 billion in 2050. To provide all the people with enough food, agriculture is becoming the most crucial industry and accordingly, agricultural technology with the combination of ICT is evolving rapidly.

This talk introduces several digital technologies including digital twin, AI for future smart agriculture. In addition, we talk about use cases for digital twins for smart livestock farming in more detail.

Biography

Dr. Jo is a director project leader of agriculture, animal and aquaculture intelligence center in ETRI. He had worked as Rapporteur for ITU-T SG13 leading in telecommunication network technology from June 2013 to September 2018. Currently, his research is mainly focused towards ICT convergence technology and service in agriculture and aquaculture industries.

Dr. Jo achieved his Ph.D. degree in computer science at the Technische Universität Darmstadt in Germany. He also got his master degree in electronics & information engineering at KAIST in Korea (Republic of).

Keynote Speech

Keynote Speech 4: Collaborative Researches in UCSY

10:50~11:40, October 24, 2023 (Tuesday)

Speaker: Professor Khin Mar Soe, (University of Computer Studies, Yangon, Myanmar)

Chair: Dr. Jae Young Ahn (Electronics and Telecommunications Research Institute, Korea)

Abstract

University of Computer Studies, Yangon (UCSY) is CSY is to conduct teaching and research in various branches of computer science, computer technology, and information technology. In order to become a university that nurtures the computer professionals in keeping with ethics and continuous learning of up-to-date computer subjects, we need the international collaborations in various research areas. This keynote will share the collaborated researches carrying out in UCSY and invite the future collaborations through this conference.

Biography

Khin Mar Soe received a B.C.Sc. Honour degree in Computer Science in 2000, M.C.Sc. degree in Computer Science in 2002, and Ph.D. degree in Information Technology in 2005 from University of Computer Studies, Yangon (UCSY), Myanmar. She worked for UCSY starting from 2001 till present. Currently she is working as a professor and head of Faculty of Computer Science, in charge of International Relations Department.

Technical Sessions

Session A1 : Machine Learning Applications 1

October 23rd 09:50 – 10:50

Chair : Prof. Yoen-Hee Han (Korea Science & Technology Education University, Korea)

A-1-1. Ensemble Learning-based Transmission Line Fault Classification for Smart Grid
Paul Michael Custodio*, Made Adi Paramartha Putra, Jaemin Lee, Dong-Seong Kim (Kumoh National Institute of Technology)

A-1-2. A Design and Implementation of a Platform for Generating On-Demand Training Datasets
Jooyoung Lee*, Chunglae Cho, Hongseok Jeon, Seunghyun Yoon (Electronics and Telecommunications Research Institute)

A-1-3. Investigation on Complex Network Theory based ANN Optimization
Insoo Sohn* (Dongguk University)

A-1-4. Comparative Analysis for Mango Leaf Disease Recognition using Deep Learning Models
May Thu Myint , Aung Nway Oo (University of Information Technology)

A-1-5. Aspect Based Sentiment Analysis for Myanmar Language
Yadanar Oo, Khin Mar Soe (University of Computer Studies Yangon)

Session B1 : Future Internet and Metaverse

October 23rd 09:50 – 10:50

Chair : Dr. Wooyoung Lee (Electronics and Telecommunications Research Institute, Korea)

B-1-1. Challenges and Potential Solutions for Network Slicing Mobility Management
Muhammad Ashar Tariq, Malik Muhammad Saad, Dongkyun Kim* (Kyungpook National University)

B-1-2. Position Estimation Method based on Object Detection of 3D Reconstructed Map
Sukwoo Jung*, Youn-Sung Lee, Kyung-Taek Lee (Korea Electronics Technology Institute

B-1-3. Resource Allocation for H2M Applications over Optical Mobile Fronthaul Networks
Elaiyasuriyan Ganesan, Ho-shin Cho* (Kyungpook National University)

B-1-4. The necessity of F-NDMS based on Digital Twin
Min Seon Ahn* (Sookmyung Women's University)

B-1-5. Computer Network Simulators for Education Purpose
Hnin Cherry, Khaing Khaing Wai (University of Computer Studies Yangon)

Technical Sessions

Session A2 : Security and Applications

October 23rd 13:30 – 14:30

Chair : Prof. Hosung Park (Chonnam National University, Korea)

A-2-1. Implementation of Blockchain in Maritime Logistics Platform
Millati Pratiwi*, Jeoungkyu Lim, Yoon-Ho Choi (Pusan National University)

A-2-2. Unlocking Data Potential with DMChain: Blockchain Framework for Sharing Datasets
Mohamed Abubakar Dini*(Kumoh National Institute of Technology), Simeon Ajakwe (Hanyang University), Saviour Igboanusi, Dong-Seong KIm, Jaemin Lee, Tae Soo Jun* (Kumoh National Institute of Technology)

A-2-3. Period and autocorrelation of some pseudo chaotic sequences with LSB extension by m-sequences
Hyojeong Choi*, Sangwon Chae, Daekyeong Kim, Hong-Yeop Song* (Yonsei University), Yundong Lee, Sangung Shin, Hongjun Noh (LIG Nex1)

A-2-4. Crime Risk Score Calculation Technique of Emergency Calls for Police Dispatch
Myung-Sun Baek* (Electronics and Telecommunications Research Institute)

A-2-5. Secured Myanmar Text Using Symmetric Key Cryptography and BlockChain
Tin Thein Thwel, May Theingi Kyaw, Myat Min Khant (University of Computer Studies Yangon)

Session B2 : Wireless and Mobility Networks

October 23rd 13:30 – 14:30

Chair : Prof. Bhang chul Chung (ChungNam National University, Korea)

A-2-1. Secrecy Rate Improvement Algorithm for Multiple UAV-RISs enabled Systems
YunA Sim*, Seungseok Sin, Jina Ma (Chonnam National University), Gyunam Kim (Alps Electric Korea Co., Ltd.), Huaping Liu (Oregon State University), Sangmi Moon (Korea Nazarene University), Intae Hwang (Chonnam National University)

A-2-2. Load Balancing Beam Selection Algorithm using Location-based Fingerprints according to RSRQ
Seungseok Sin*, YunA Sim, Jina Ma (Chonnam National University), Gyunam Kim (Alps Electric Korea Co., Ltd.), Huaping Liu (Oregon State University), Sangmi Moon (Korea Nazarene University), Intae Hwang (Chonnam National University)

A-2-3. AUV-Assisted Cut-Vertex-Aware Data Collection for Underwater Wireless Sensor Networks
Chandra Sukanya Nandyala*, Ho-shin Cho (Kyungpook National University)

A-2-4. Road Surface Anomaly Detection Using YOLOv4 Tiny Model with Potential Embedded Framework
Mst Ayesha Khatun*, Md Facklasur Rahaman, Dong-Seong Kim, Jaemin Lee, Jung-Hyeon Kim (Kumoh National Institute of Technology)

A-2-5. Bidirectional LSTM Approach based Intrusion Detection for IoT Network
Yee Mon Thant, Zin Thu Thu Myint, Chaw Su Htwe (University of Computer Studies Yangon)

Technical Sessions

Session A3 : Cloud and Distributed Computing

October 23rd 15:40 – 16:40

Chair : Prof. Dong Myung Lee (Tongmyong University, Korea)

A-3-1.   Concurrent Workload Scheduling for Cloud Microservices using Multi-Instance GPU Utilization
Jong Hwan Park*, Jeagi Son, Dongmin Kim (Korea Electronics Technology Institute)

A-3-2.   Resource Allocation and Migration in High Speed Railway Using Mobile Edge Computing Technology
Seolwon Koo*, Yujin Lim (Sookmyung Women's University)

A-3-3.   Datacenter Selection Policy in Cloud Computing
Nan Kham Mon (University of Computer Studies)

A-3-4.   Deep Learning based Weather Forecasting
July Lwin, Khin Mar Soe (University of Computer Studies)

A-3-5.   Comparative Analysis of Coordinated Checkpoint Protocol in Real-time Messaging System
Thandar Aung, Hnin Thiri Zaw, Aung Htein Maw (University of Information Technology)

Session B3 : Computer Vision Applications 1

October 23rd 15:40 – 16:40

Chair : Prof. Thin Lai Lai Thein (University of Computer Studies, Yangon, Myanmar)

B-3-1.   A Study on the Geometry and Color Calibration Method of Tongue Imaging Device for Health Care
Keun Ho Kim (Korea Institute of Oriental Medicine)

B-3-2.   Optimizing Digital Human Movement: Waist-Centric Rotation and 3D Pose Estimation
Myeongsoep Kim, Kyung-Taek Lee (Korea Electronics Technology Institute)

B-3-3.   Visual Object Tracking with Hybrid Filter
Khin Ohnmar Maung, Theingi Myint (Mandalay Technological University)

B-3-4.   Developing a Segmenter for Hyperspectral wood images with Encoder-Decoder Architecture of Convolutional Neural Network
Phyu Phyu Htun, Ah Nge Htwe (University of Computer Studies Yangon), Tammam Tillo (Indraprastha Institute of Information Technology Delhi)

B-3-5.   Analysis of Web Log Clustering based on Customer's Behavior
Tin Nilar Win (University of Computer Studies Thaton), Khine Zar Lwin (University of Technology Yadanarbon Cyber City)

Technical Sessions

Session A4 : Intelligent Industrial Applications 1

October 23rd 16:40 – 17:40

Chair : Prof. Jae-Min Lee (Kumoh National Institute of Technology, Korea)

A-4-1. Analysis of Process Energy Measurement in Steam Intensive Use Factory
Jihyun Lee* (Electronics and Telecommunications Research Institute)

A-4-2. Smart Contract for a Smarter Drug Supply Chain: Blockchain Integration from Manufacturer to Pharmacy
Md Facklasur Rahaman*, Golam Mohatsin, Ikechi Saviour Igboanusi, Dong-Seong Kim, Jaemin Lee (Kumoh National Institute of Technology)

A-4-3. Enhancing Water Distribution Systems through Ant Colony Optimization (ACO)
Phyu Phyu Thant* (University of Computer Studies Yangon)

A-4-4. Detection and Removal of Cracks in Digitized Frescoes using Neighboring Transfer Technique
Khant Khant Win Tint, Mie Mie Tin (University of Technology Yadanarbon Cyber City)

A-4-5. Kinematics and Control A Three-wheel Mobile Robot with Omni-directional Wheels
Soe Soe Htay, Khaing Win Phyu, Su Yadanar, Wut Yi Win (Mandalay Technological University)

Session B4 : Medical Informatics and Applications

October 23rd 16:40 – 17:40

Chair : Prof. Insoo Sohn (Dongguk University, Korea)

B-4-1. Performance Analysis of Logistic Regression Using Term Frequency-Inverse Document Frequency For Sentiment Analysis
Khin Than Nyunt, Naw Thiri Wai Khin (Naypyitaw Technological University)

B-4-2. Comparing Performances Analysis On Multiple Diseases Prediction Systems Using Multiple Machine Learning Classifiers Algorithms
Nang Seint Seint Soe, Nan Saw Kalayar (University of Computer Studies Taunggyi)

B-4-3. Comparative Study of Deep Features for Lung Disease Classification in Chest X-ray Image
Ei Ei Khaing (Universtiy of Computer Studies Taungoo), Thu Zar Aung (University of Technologies Yatarpon Cyber City)

B-4-4. Covid-19 Vaccine Tweets Sentiment Analysis Using Apache Spark and Mongo DB
Hlaing Hlaing Win, Kyawt Kyawt San, Aung Khant Myat, Tun Ye Min, Khin Nyo Nyo Thein (University of Information Technology)

B-4-5. Blockchain for Interoperability in Healthcare
Zay Soe, Win Lelt Lelt Phyu (University of Computer Studies Yangon)

Technical Sessions

Session A5 : Machine Learning Applications 2

October 24th 12:30 – 13:30

Chair : Prof. Khin Mar Soe (University of Computer Studies, Yangon, Myanmar)

A-5-1.   Client Selection Methods for Federated Learning with Deep Reinforcement Learning
Sungwon Moon*, Yujin Lim (Sookmyung Women's University)

A-5-2.   Automatic De-Identification System Using YOLOv7 and E^{2}FGVI in a Shot
Yeon Seung Choo*, Hyun-Sik Kim, Yong-Suk Park (Korea Electronics Technology Institute)

A-5-3.   Speaker Diarization for Multiple Speaker datasets using a neural diarizer
Myat Aye Aye Aung, Win Pa Pa, Hay Mar Soe Naing (University of Computer Studies Yangon)

A-5-4.   Enhancing Myanmar-English Machine Translation Using Transformer Architecture
Nang Zin Min Aye, Khin Mar Soe (University of Computer Studies Yangon)

A-5-5.   Notifying Accidents Detection System with Optimal Route for Rescue Team
Nay Win Aung ,Thin Lai Lai Thein (Myanmar Ministry of Construction)

Session B5 : Computer Vision Applications 2

October 24th 12:30 – 13:30

Chair : Prof. Mie Mie Tin (University of Technology, Yatanarpon Cyber City Myanmar)

B-5-1.   Network Implementation for Real-Time Exercise Behavior Recognition
Junho Kwon, Myeongseop Kim, Seho Park, Kyung-Taek Lee (Korea Electronics Technology Institute)

B-5-2.   Mobilizing Visual Perception: A Strategy for Enhanced Human-Robot Interaction
Taehyeon Kim, Seho Park, Junho Kwon (Korea Electronics Technology Institute)

B-5-3.   Comparison of Transfer Learning Approaches for Image Classification
Ei Phyu Myint, Thin Lai Lai Thein (University of Computer Studies Yangon)

B-5-4.   Plagiarism Detection with Word Embedding Model in Myanmar Unicode Text Documents
Sun Thurain Moe, Khin Mar Soe, Than Than Nwe (University of Computer Studies Yangon)

B-5-5.   Gastric Cancer Detection based on Gastroscopic Images using YOLOv5 model
Phway Phway Aung, Tin Zar Thaw, Yu Mon Zaw (University of Computer Studies Yangon)

Technical Sessions

Session A6 : Intelligent Industrial Applications 2

October 24th 13:30 – 14:30

Chair : Prof. Khaing Khaing Wai (University of Computer Studies, Yangon, Myanmar)

A-6-1.   Cost-Minimizing EV Charging Scheduling under Power Constraints
Hyeonu Lee , Hosung Park (Chonnam National University)*

A-6-2.   Identification and Control of a DC Motor for Four-Wheeled SMP Mobile Robot
Lwin Ma Ma Aung, Aung Myat San, Wai Mar Myint, Wut Yi Win (Mandalay Technological University)

A-6-3.   Evaluation of Environmental Monitoring and Data Visualization
Akari Myint Soe, Shwe Sin Myat Than, Aung Htein Maw (University of Information Technology)

A-6-4.   Flood Risk Reduction of Alert System for Hazard Region
Theint Theint, Thin Lai Lai Thain (University of Computer Studies Yangon)

A-6-5.   A Comparative Analysis of Machine Learning Algorithms for Crop Yield Prediction Utilizing Agricultural Dataset in Myanmar
Aye Thida Win, Thinn Thu Naing (University of Computer Studies Kyaing Tong)

A-6-6.   Drought Prediction by using Normalized Differential Vegetation Index and Long Short-Term Memory Alogrithm
Thiri Maung, Thin Lai Lai Thein (Myanmar Ministry of Social Welfare, Relief and Resettlement)

Session B6 : Intelligent Language Processing

October 24th 13:30 – 14:30

Chair : Prof. Win Pa Pa (University of Computer Studies, Yangon, Myanmar)

B-6-1.   TransLingua: A Transfer Learning Approach to Enhancing Myanmar-Wa Neural Machine Translation
Florance Yune , Khin Mar Soe (University of Computer Studies Yangon)

B-6-2.   Improving a Rakhine ASR with Subspace Gaussian Mixture model (SGMM)
Aye Nyein Mon, Hnin Thida Kyaw, Win Pa Pa (University of Computer Studies Yangon)

B-6-3.   On using DIET Architecture for Users' Comments in Myanmar Language
Sann Su Su Yee, Hsu Myat Mo, Khin Mar Soe (University of Computer Studies Yangon)

B-6-4.   Dependency Annotated Dataset of The Myanmar Language
Nwe Nwe Win, Win Pa Pa (University of Computer Studies Yangon)

B-6-5.   Bidirectional Neural Machine Translation for Myanmar-Korean-English Languages with Attention Mechanism
Yi Mon Shwe Sin1, Hnin Nandar Zaw, Khin Mar Soe (University of Computer Studies Yangon)

Industrial Sessions

Industrial Session 1 : Smart Agriculture
October 23rd 11:00 – 12:00
Chair : Prof. YoungHwa Kim (Namseoul University, Korea)

AI Smart Farm
Dr. Seungho Tak (Super High Touch Co., Ltd)

Challenges and solutions faced by facility horticulture smart farms
CEO Paco H. Lim (Net.O Green)

Eco-friendly smart farm livestock farming/aquaculture/water treatment/water quality improvement plan using NKWater/HND water treatment technology
CEO Gwang-seong Baek (LSN Co.,Ltd.), Hyungsook Kim (LSN Co.,Ltd.)

Smart farm process automation methodology for each crop and MES system linkage plan
CEO Changwoo Lee (ROBOGATES Co., LTD)

Invited Talk 1: AI Smart Farm
Speaker: Dr. Seungho Tak, Korea

Abstract
AI smart farm remotely supports artificial soil from plant formula to cultivation and harvesting, and monitors the growth process of leaves, stems, and fruits in near real time according to the type of plant to optimize sunlight, nutrients, moisture temperature, and acidity, remotely growing and harvesting plants with the maximum cultivating law compared to normal growth by smart learning artificial intelligence, and remotely growing and managing smart farms installed in African countries in Korea to manage a system that manages with an early warning system before a failure occurs in remote diagnosis.

Biography
ISO/IEC JTC1/SC17/WG12 Convener, 2017-Present
Professor, Handong University, 2013-2015
IC Card R&D Center Chair, Seoul National University, 1995-2015
Ph.D Computer Architecture Universite Pierre et Marie Curie Sorbonne France, 1985

Industrial Sessions

Invited Talk 2: Challenges and solutions faced by facility horticulture smart farms
Speaker: CEO Paco H. Lim, Net.O Green, Korea

Abstract

By 2022, smart farms covering 7,000 ha have been distributed in Korea. However, the share of agricultural income among farm household income decreased from 29% in 2013 to 21% in 2022, and *transfer income nearly doubled from 17% in 2013 to 33% in 2022. Although smart farms have been widely distributed across the country, they do not appear to contribute to farm income. What is the reason and what are the ways to solve it?
*Transfer income: Income received free of charge from the government

Biography
CEO, Net.O Green, 2022-Present
Head of Agri-Data Division, Green Labs, 2022

Industrial Sessions

Invited Talk 3: Eco-friendly smart farm livestock farming/aquaculture/water treatment/water quality improvement plan using NKWater/HND water treatment technology

Speaker: CEO Gwang-seong Baek, L&S Co., Ltd., Korea

Abstract

Eco-friendly agricultural technology is an area that requires continuous technological development as consumers' desire for health increases. Our company has developed NK Water livestock farming and NK Water aquaculture technology based on charcoal extraction technology using NK Water, a water treatment technology using plasma nanoceramics. In addition, since water quality is very important for safe agricultural production, we have developed HND water treatment technology and HND water quality improvement technology that can dramatically improve agricultural water quality. Each technology was applied to actual sites and verified to produce good results.

Biography

CEO, L&S Co., Ltd., 2000 - Present
CEO, LSN Japan, Japan Co., Ltd., 2010 - Present
CEO of LSN Korea Korea. , 2014 – Present
Chairman, IO-WGCA World Future Food Committee, 2019 – Present
Advisory Committee Member, KAFSP Korea-U.S. Freedom and Security Policy Center, 2020 – Present
Chairman, Sejongno Government Forum Bio Health Water, 2023 - Present
Won the main prize of the Jang Young-sil Science and Culture Award, 2004.04

Industrial Sessions

Invited Talk 4: Smart farm process automation methodology for each crop and MES system linkage plan

Speaker: CEO Changwoo Lee, ROBOGATES Co., LTD, Korea

Abstract

It is acknowledged by everyone that population decline in Korea is an important issue that will lead to a serious social and industrial crisis. Therefore, research on automation issues using robots in the smart farm field will be an essential response. Through the results of Robogates's many years of research into automation methods for each crop, representative robot automation methods were presented and their pros and cons were analyzed. We also reviewed information processing issues with the MES System, a smart farm operation management system.

Biography

- Disruptive Innovator on AI-IoT and Robotics, Smart Factory & Smart Farm Industry and Specialist on 3D CAE, 3D printer technology and robotics.
- Founder of ROBOGATES Korea and the first inventor of 3d printer in South Korea and Unmanned system and humanoid robot maker.
- Adjunct Professor of Several Universities in Korea
- Consultant, Specialist / Deloitte Consulting & SIEMENS, PLM, ERP, MES system experts and programmer, robotics specialist at KETI on robotic arm and vision system
- SNU MBA and Studied mechanical engineering and management consulting knowledge at SNU, KAIST, HYU in Korea and NYU, HKUST

Industrial Sessions

Industrial Session 2 : Startup
October 23rd 14:30 – 15:30
Chair : Prof. Jong Tae Ihm (Hanbat National University, Korea)

I-2-1. **Tkita Overcomes Hearing Impairments & Language Barriers**
CEO Minho Paek (Airsound Inc.)

I-2-2. **Solving the healthcare's labor shotage with innovative flexible optical biosensor, "Urine Check-it"**
CEO Seung Su Park (D&C Biotechnology Inc.)

I-2-3. **Small ultrasonic pyrolysis device for recycling composite waste plastic**
CEO Duckkwan Bae (Akroneco co.,Ltd.)

I-2-4. **The Fragrance Industry and Technology in the Age of Digital Transformation**
CEO Ilbong Kwon (Deepscent Inc.)

Invited Talk 5: Tkita Overcomes Hearing Impairments & Language Barriers
Speaker: CEO Minho Paek, Airsound Inc. , Korea

Abstract
Tkita is a software that supports real-time subtitle converting speech into closed caption. Its engine utilizes end-to-end speech recognition technology for achieving high accuracy without separate language or acoustic model training. Through continuous optimization efforts, the engine has been able to reduce model size by 80% and improve processing speed by 20%. As a result, Users can run Tkita in various devices not only computers but also mobile devices.In online environment, it supports about 110 languages simultaneously, making it suitable for presentations, lectures, conferences and YouTube, etc. Moreover, it provides high speed and accurate real-time translation.Users can access it by scanning QR code, which is extremely convenient. Especially, Tkita is highly recommended for hearing impaired, people who face digital divide or language barriers.

Biography
CEO of AIRSOUND INC. 2014 ~ Present
ISO/IEC JTC1/SC31 Mirror Committee Member 2003 ~ Present
Hanbat Nat. Univ. Prof. 2012 ~ 2017
Red Dot Award Winner 2021

Industrial Sessions

Invited Talk 6: Solving the healthcare's labor shotage with innovative flexible optical biosensor, "Urine Check-it"

Speaker: CEO Seung Su Park, D&C Biotechnology Inc. , Korea

Abstract

The world is facing a serious problem due to a shortage of medical personnel, leading to disparities in healthcare. Among the various reasons for medical staffing difficulties, the biggest problem is the lack of medical staff due to excessive workload and job stress in the medical field. In reality, the complex and uncomfortable diagnostic tests are causing job stress for medical personnel.

We intend to solve the shortage of medical personnel by relieving the job stress of medical personnel from the most basic urine test among diagnostic tests. Conventional urine tests require a single examiner to perform a complex eight-step process to test a single patient, and have various problems such as contamination, secondary infections, and inconvenience due to frequent cleaning of testing equipment. Our next-generation urine analyzer fundamentally streamlines these complex processes and issues. It offers a seamless 1-step solution – simply insert a Cup Type urine test KIT containing samples into the testing equipment, and the test results are immediately transmitted to electronic charts.

Through this, we would like to introduce an innovative diagnostic device that relieves job stress of medical personnel and solves the shortage of medical personnel by preventing manpower loss.

Biography

Managing Director of Goodmorning Urology, 2010.07~2014.12
CEO of Mplus, 2013.03~Current
Administrative director of Dream Urology, 2015.03~Current
CEO of D&C Biotechnology Inc.,2021.09~Current

Industrial Sessions

Invited Talk 7: Small ultrasonic pyrolysis device for recycling composite waste plastic

Speaker: CEO Duckkwan Bae, Akroneco co.,Ltd. , Korea

Abstract

In this paper we introduce smal sized ultrasonic pyrolysis device for recycling composite waste plastic which is a problem internationally, and this device may be applicable international market.

Continuous ultrasonic pyrolysis technology that generates ultrasonic waves in the pyrolysis environment is proper to promote molecular dissociation and also it can increase pyrolysis yield.

This device can be placed in an area where waste plastic is generated and be producing pyrolysis oil. Pyrolysis oil is recognized as a recycled raw material, which has the effect of improving the use ratio of recycled raw materials.

Biography

05.05 ~ 21.05
- Construction and maintenance of Korea Nuclear Power Plant
- Gori Nuclear Power Plant Emergency Generator Installation Work
- Shin-Gori nuclear power plant main equipment installation work
- Hanul Nuclear Power Plant Units 3, 4, and 6 Reactor Coolant Pump Maintenance Work
- Shin-Gori Nuclear Power Plant Steam Turbine Maintenance Work
- Cheongju polymer pyrolysis power plant pretreatment facility management
- Participated in the pyrolysis facility replacement project at the Yeoncheon polymer pyrolysis power plant.
- PM of polymer pyrolysis power plant in Da Nang, Vietnam

21.08 - Current
CEO of Akron Eco Co., Ltd.
- APR1400 nuclear reactor coolant pump ultrasonic radiation removal equipment technology development
- Development of ultrasonic cleaning technology for discarded fishing nets
- Development of waste plastic ultrasonic continuous pyrolysis device

Technical Sessions

Invited Talk 8: The Fragrance Industry and Technology in the Age of Digital Transformation
Speaker: CEO Ilbong Kwon, Deepscent Inc. , Korea

Abstract

The fragrance market is an area that consumes related products and services made by combining or processing fragrances, and the market has expanded significantly in recent years as the public's exposure to fragrances has increased due to the impact of the pandemic.

In particular, as digital transformation has been applied to all industries in recent years, the fragrance market is also showing a trend of expanding its scope of application by converging various scientific technologies such as transmission, reception, detection, combination, and analysis, not only for the simple control of fragrance, but also for other fields such as medical diagnosis, beyond the digitalization of the existing fragrance market.

In this article, we will explore the fragrance industry and technologies in this era of digital transformation and highlight some examples of how they are being integrated into products and services.

Biography

Founder & CEO, DeepScentInc., 2017 ~ Present
CSO, Daily Aroma Inc., 2015 ~ 2017
Team Leader, Philip Morris International, 2014
Consultant, Getronics Singapore, 2008 ~ 2014
Network Engineer, POSCO DX, 2007 ~ 2008

〈AWARDS〉
2020 Minister of Science and ICT Award
2021 Awarded the Daejeon Metropolitan Mayor's Meritorious Commendation
2022 Minister of SMEs and Startups Award
        Minister of Science and ICT Award

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