

2023 17th International Conference on Ubiquitous Information Management and Communication (IMCOM 2023)

**Seoul, South Korea
3 – 5 January 2023**



**IEEE Catalog Number: CFP23V43-POD
ISBN: 978-1-6654-8968-3**

**Copyright © 2023 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP23V43-POD
ISBN (Print-On-Demand):	978-1-6654-8968-3
ISBN (Online):	978-1-6654-5348-6

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

The 17th International Conference on Ubiquitous Information Management and Communication

Table of Content

| 09:00-09:50, Tuesday, January 03, 2023 |

Regular 1: Towards User Comfort
09:00-09:50, Tuesday, January 03, 2023

Room: 26310
Session Chair: Dr. Junghyun Bum

AACstive Touchpad: An Electronic Augmentative and Alternative Communication Touchpad for Post-Stroke Aphasic Patients Basic Support...1	
R1-1	Kent Bryant Jimenez (<i>Eastern Visayas State University, Philippines</i>), Arnold Cera (<i>Eastern Visayas State University, Philippines</i>), Nicko Ceblano (<i>Eastern Visayas State University, Philippines</i>), Roxcella Reas (<i>Eastern Visayas State University, Philippines</i>), Argel Bandala (<i>De La Salle University, Philippines</i>), Ronnie Concepcion II (<i>De La Salle University, Philippines</i>), Adrian Genevie Janairo (<i>De La Salle University, Philippines</i>), Mike Louie Enriquez (<i>De La Salle University, Philippines</i>), Andres Philip Mayol (<i>De La Salle University, Philippines</i>), Ryan Rhay Vicerra (<i>De La Salle University, Philippines</i>), Elmer P. Dadios (<i>De La Salle University, Philippines</i>)
R1-2	Building a Recommendation System of Consumers' Preferable Choice Using a Collaborative-Filtering Approach...7 Nishanthinee Velloo (<i>Universiti Sains Malaysia</i>), Noor Farizah Ibrahim (<i>Universiti Sains Malaysia</i>), Zuraini Zainol (<i>Universiti Pertahanan Nasional Malaysia</i>)
R1-3	Siamese Neural Networks for Content-based Visual Art Recommendation...12 Ran Li (<i>San Jose State University, United States</i>), Melody Moh (<i>San Jose State University, United States</i>), Teng-Sheng Moh (<i>San Jose State University, United States</i>)
R1-4	A Development of an Early Detection System of Pre-frailty in Senior Citizens Living Inside...20 Tomihiro Utsumi (<i>Akita University, Japan</i>), Masashi Hashimoto (<i>Akita University, Japan</i>)
	Learning Support System using Question Generation to Encourage Critical Thinking in Online Lectures...25
R1-5	Saki Inoue (<i>Kwansei Gakuin University, Japan</i>), Yuanyuan Wang (<i>Yamaguchi University, Japan</i>), Yukiko Kawai (<i>Kyoto Sangyo University and Osaka University, Japan</i>), Kazutoshi Sumiya (<i>Kwansei Gakuin University, Japan</i>)

The 17th International Conference on Ubiquitous Information Management and Communication

Table of Content

| 09:00-09:50, Tuesday, January 03, 2023 |

Regular 2: Beyond 5G and More
09:00-09:50, Tuesday, January 03, 2023

Room: 26312
Session Chair: Prof. Syed M. Raza

Caching and Containerization of IP Addresses Allocation in 5G Core Networks for Performance Improvements...33	
R2-1	Anh Tuan Nguyen (<i>Viettel High Technology Corporation, Vietnam</i>), Quoc Hung To (<i>Viettel High Technology Corporation, Vietnam</i>), Tai Hung Nguyen (<i>Hanoi University of Science and Technology, Vietnam</i>), Tien Dong Nguyen (<i>Viettel High Technology Corporation, Vietnam</i>), Viet Quan Dinh (<i>Viettel High Technology Corporation, Vietnam</i>)
R2-2	Asynchronous traffic handling in time-sensitive in-vehicle network...41 MinHo Kim (<i>Sungkyunkwan University, Korea</i>), YoungSoo Do (<i>Sungkyunkwan University, Korea</i>), Jonghun Kim (<i>Sungkyunkwan University, Korea</i>), Jaewook Jeon (<i>Sungkyunkwan University, Korea</i>)
R2-3	Software-Defined Networking Integrated with Cloud Native and Proxy Mechanism: Detection and Mitigation System for TCP SYN Flooding Attack...47 Chun-I Fan (<i>National Sun Yat-sen University, Taiwan</i>), Jun-Huei Wang (<i>National Sun Yat-sen University, Taiwan</i>), Cheng-Han Shie (<i>National Sun Yat-sen University, Taiwan</i>), Yu-Lung Tsai (<i>Chunghwa Telecom, Taiwan</i>)
R2-4	Traffic-Adaptive Scheme for SDN Control Plane with Containerized Architecture...55 Anh Khoa Dang (<i>Hanoi University of Science and Technology, Vietnam</i>), Trung Kiem Nguyen (<i>Hanoi University of Science and Technology, Vietnam</i>), Trung Kien Nguyen (<i>University of Wurzburg, Germany</i>), Ngoc Tuan Nguyen (<i>Hanoi University of Science and Technology, Vietnam</i>), Huu Thanh Nguyen (<i>Hanoi University of Science and Technology, Vietnam</i>)
R2-5	A Network Scheduling Method for Convergence of Industrial Wireless Network and TSN...61 Min Wei (<i>Chongqing University of Posts and Telecommunications, China</i>), Shujie Yang (<i>Chongqing University of Posts and Telecommunications, China</i>)

The 17th International Conference on Ubiquitous Information Management and Communication

Table of Content

| 11:45-12:45, Tuesday, January 03, 2023 |

Short Presentation 1: Advance Network Applications and Security 11:45-12:45, Tuesday, January 03, 2023		Room: 26310 Session Chair: Prof. Syed M. Raza
S1-1	A Load Balancing Protocol for Improved Video on Demand in SDN-Based Clouds...67 Taleni Shirley Andjamba (<i>Namibia University of Science and Technology, Namibia</i>), Guy-Alain Lusilao Zodi (<i>Namibia University of Science and Technology, Namibia</i>)	
S1-2	Lightweight energy-efficient offloading framework for mobile edge/cloud computing...73 Akhmed Sakip (<i>Nazarbayev University, Kazakhstan</i>), Ramazan Yersainov (<i>Nazarbayev University, Kazakhstan</i>), Mokhira Atashikova (<i>Nazarbayev University, Kazakhstan</i>), Timur Rakhimzhan (<i>Nazarbayev University, Kazakhstan</i>), Dinh-Mao Bui (<i>Nazarbayev University, Kazakhstan</i>), Eui-Nam Huh (<i>Kyung Hee University, Korea</i>), Sungyoung Lee (<i>Kyung Hee University, Korea</i>)	
S1-3	An Improved Reverse Distillation Model for Unsupervised Anomaly Detection...81 Nguyen Van Duc (<i>Ho Chi Minh City University of Technology, Vietnam</i>), Hoang Huu Bach (<i>Ho Chi Minh City University of Technology, Vietnam</i>), Le Hong Trang (<i>Ho Chi Minh City University of Technology, Vietnam</i>)	
S1-4	Boundary-Seeking GAN Approach to Improve Classification of Intrusion Detection Systems Based on Machine Learning Model...87 Ramli Ahmad (<i>Chaoyang University of Technology, Taiwan</i>), Li-Hua Li (<i>Chaoyang University of Technology, Taiwan</i>), Alok Kumar Sharma (<i>Chaoyang University of Technology, Taiwan</i>), Radius Tanone (<i>Chaoyang University of Technology, Taiwan</i>)	
S1-5	A two-stage detection system of DDoS attacks in SDN using a trigger with multiple features and self-adaptive thresholds...92 Muyuan Niu (<i>Kyushu University, Japan</i>), Yaokai Feng (<i>Kyushu University, Japan</i>), Kouichi Sakurai (<i>Kyushu University, Japan</i>)	
S1-6	UAV-Integrated IoT System for Handling Widespread Events...100 Tien Pham Van (<i>Hanoi University of Science and Technology, Vietnam</i>), Van-Nguyen Pham (<i>Sungkyunkwan University, Korea</i>)	
S1-7	Method and Analysis for the Improvement of Preemption Performance in IEEE 802.1 TSN...108 YoungSoo Do (<i>Sungkyunkwan University, Korea</i>), MinHo Kim (<i>Sungkyunkwan University, Korea</i>), JongHun Kim (<i>Sungkyunkwan University, Korea</i>), JaeWook Jeon (<i>Sungkyunkwan University, Korea</i>)	
S1-8	A Multi-Stage Method for Time Synchronization in Acoustic Underwater Communications...116 Van Duc Nguyen (<i>Hanoi University of Science and Technology, Vietnam</i>), Van Huy Nguyen (<i>Hanoi University of Science and Technology, Vietnam</i>), Quoc Khuong Nguyen (<i>Hanoi University of Science and Technology, Vietnam</i>), Tien-Dung Nguyen (<i>Hanoi University of Science and Technology, Vietnam</i>)	
S1-9	Efficient Data Communication Automotive Gateway System for CAN-Ethernet Networks...121 Sung Bhin Oh (<i>Sungkyunkwan University, Korea</i>), Min Jeong Lee (<i>Sungkyunkwan University, Korea</i>), Jae Wook Jeon (<i>Sungkyunkwan University, Korea</i>)	
S1-10	Data Exchange Protocol for Weak Links with Hybrid-RIS in Wireless Networks...126 Jung-Min Yoon (<i>Sungkyunkwan University, Korea</i>), Kyoung Min Kim (<i>Sungkyunkwan University, Korea</i>), Tae-Jin Lee (<i>Sungkyunkwan University, Korea</i>)	

The 17th International Conference on Ubiquitous Information Management and Communication

Table of Content

| 11:45-12:45, Tuesday, January 03, 2023 |

Short Presentation 2: Ethological Analytics 11:45-12:45, Tuesday, January 03, 2023		Room: 26312 Session Chair: Prof. Tran Khanh Dang
S2-1	A bibliometric analysis of Metaverse research using VOSviewer...130 Dongyan Nan (<i>Sungkyunkwan University, Korea and Nanyang Technological University, Singapore</i>), Seungjong Sun (<i>Sungkyunkwan University, Korea</i>), Shreya Gopi (<i>Nanyang Technological University, Singapore</i>), Kwan Min Lee (<i>Nanyang Technological University, Singapore</i>), Jang Hyun Kim (<i>Sungkyunkwan University, Korea</i>)	
S2-2	CIA based Analysis for E-Learning Systems Threats and Countermeasures in Malaysian Higher Education: Review Paper...134 Abdulaziz Aborujilah (<i>Universiti Kuala Lumpur, Malaysia</i>), Jibril Adamu (<i>Universiti Kuala Lumpur, Malaysia</i>), Abdulaleem Z. Al-Othmani (<i>Montfort University Leicester, United Kingdom</i>), Elham Yahya Al-alwi (<i>International Islamic University Malaysia, Malaysia</i>), Dawood Abdulmalek Yahya Al-Hidabi (<i>International Islamic University Malaysia, Malaysia</i>)	
S2-3	Examining the Most Popular Users in Twitter Covid-19 Conversations...142 Stevanus Wisnu Wijaya (<i>Universitas Prasetiya Mulya, Indonesia</i>), Indria Handoko (<i>Universitas Prasetiya Mulya, Indonesia</i>)	
S2-4	What Makes Rumor Rebuttals Viral on Social Media?...150 Anjan Pal (<i>University of York, United Kingdom</i>), Snehasish Banerjee (<i>University of York, United Kingdom</i>), Avneet Kaur (<i>University of St Andrews, United Kingdom</i>)	
S2-5	Process mining to discover online learning behaviour...156 Husna Sarirah Husin (<i>Universiti Kuala Lumpur, Malaysia</i>), Muhammad Sufiyan Abdul Wahid (<i>Universiti Kuala Lumpur, Malaysia</i>), Megat F. Zuhairi (<i>Universiti Kuala Lumpur, Malaysia</i>), Zuraini Zainol (<i>Universiti Pertahanan Malaysia, Malaysia</i>)	
S2-6	Social Media Benefit for Advancing Language Ability in E-learning Environment: A Systematic Literature Review...163 Arti Prihatini (<i>Universitas Muhammadiyah Malang, Indonesia</i>), Gamal Kusuma Zamahsari (<i>BINUS University, Indonesia</i>), Fida Pangesti (<i>Universitas Muhammadiyah Malang, Indonesia</i>)	
S2-7	Topical Analysis of Depressive Mood Changes in Youth during the COVID-19 Pandemic...168 Ziyue Zhu (<i>Yamaguchi University, Japan</i>), Yuanyuan Wang (<i>Yamaguchi University, Japan</i>)	
S2-8	Dramatism of A Video Conferencing Class: Student's Behavior and Expectations...174 Ferane Aristrivani Sofian (<i>Bina Nusantara University, Indonesia</i>)	
S2-9	An Application for Learning Sorting Algorithm using Human Pictograms...179 Taichi Watanabe (<i>Aoyama Gakuin University, Japan</i>), Yuichi Oie (<i>Aoyama Gakuin University, Japan</i>), Kazunari Ito (<i>Aoyama Gakuin University, Japan</i>)	

The 17th International Conference on Ubiquitous Information Management and Communication

Table of Content

| 09:00-09:50, Wednesday, January 04, 2023 |

Regular 3: Image Insight 09:00-09:50, Wednesday, January 04, 2023		Room: 26310 Session Chair: Prof. Taketoshi Ushijima
R3-1	Autonomous Navigation System for Agricultural Vehicles Using Machine Vision Recognition and Localization of Panoramic Landmarks...183 De Yu Hong (<i>National Yang Ming Chiao Tung University, Taiwan</i>), Stone Cheng (<i>National Yang Ming Chiao Tung University, Taiwan</i>), Yan Xiang Ding (<i>National Yang Ming Chiao Tung University, Taiwan</i>)	
R3-2	Detection of Synthesized Satellite Images Using Deep Neural Networks...189 Wen-Hung Liao (<i>National Chengchi University, Taiwan</i>), Yi-Shan Chang (<i>National Chengchi University, Taiwan</i>), Yi-Chieh Wu (<i>National Chengchi University, Taiwan</i>)	
R3-3	Modified Fast and Robust Fuzzy C-means Algorithm for Flood Damage Assessment using Optimal Image Segmentation Cluster Number...194 Marck Herzon C. Barrion (<i>De La Salle University-Manila, Philippines</i>), Argel A. Bandala (<i>De La Salle University-Manila, Philippines</i>)	
R3-4	Real-time human detection and behavior recognition using low-cost hardware...200 Bojun Wang (<i>Sungkyunkwan University, Korea</i>), Sajid Ali (<i>Sungkyunkwan University, Korea</i>), Xinyi Fan (<i>Sungkyunkwan University, Korea</i>), Tamer Abuhmed (<i>Sungkyunkwan University, Korea</i>)	
R3-5	Two-Branch Stacked Transformer for 2D Skeleton-based Action Recognition...208 Yerassyl Zhalgasbayev (<i>Nazarbayev University, Kazakhstan</i>), Anh Tu Nguyen (<i>Nazarbayev University, Kazakhstan</i>)	

The 17th International Conference on Ubiquitous Information Management and Communication

Table of Content

| 09:00-09:50, Wednesday, January 04, 2023 |

Regular 4: Data Analytics 09:00-09:50, Wednesday, January 04, 2023		Room: 26312 Session Chair: Prof. Suriana Ismail
R4-1	Extracting Implicit Twitter Replies to News Topics...212 Riku Takahashi (<i>Kyushu University, Japan</i>) Taketoshi Ushimura (<i>Kyushu University, Japan</i>)	
R4-2	Dual ResNet-based Environmental Sound Classification using GAN...220 Seunghui Jang (<i>Towson University, United States</i>), Yanggon Kim (<i>Towson University, United States</i>)	
R4-3	DeepDLP: Deep Reinforcement Learning based Framework for Dynamic Liner Trade Pricing...226 Xueyan Li (<i>Shanghai JiaoTong University, China</i>), Yongyi Hu (<i>Shanghai JiaoTong University, China</i>), Yumeng Bai (<i>Shanghai JiaoTong University, China</i>), Xiaofeng Gao (<i>Shanghai JiaoTong University, China</i>), Guanghai Chen (<i>Shanghai JiaoTong University, China</i>)	
R4-4	Maximal gSpan: Multi-Document Summarization through Frequent Subgraph Mining...234 Riva Malik (<i>National University of Computer and Emerging Sciences, Pakistan</i>), Kifayat Ullah Khan (<i>National University of Computer and Emerging Sciences, Pakistan</i>), Waqas Nawaz (<i>Islamic University of Madinah, Saudi Arabia</i>)	
R4-5	Risk Management and Innovation: Analytical Mapping of Risk Management in Innovation Using CiteSpace...241 Shaopeng Che (<i>Sungkyunkwan University, Korea</i>), Shunan Zhang (<i>Sungkyunkwan University, Korea</i>), Dongyan Nan (<i>Sungkyunkwan University, Korea</i>), Jang Hyun Kim (<i>Sungkyunkwan University, Korea</i>)	

The 17th International Conference on Ubiquitous Information Management and Communication

Table of Content

| 09:00-09:50, Wednesday, January 04, 2023 |

Short Presentation 3: Intelligent Imaging 11:45-12:45, Wednesday, January 04, 2023

Room: 26310

Session Chair: Prof. Syed M. Raza

S3-1	Disease Identification in Potato Leaves using Swin Transformer...249 Li-Hua Li (<i>Chaoyang University of Technology, Taiwan</i>), Radius Tanone (<i>Chaoyang University of Technology, Taiwan</i>)
S3-2	Extraction of small water body information based on Res2Net-UNet...254 Yong Wang (<i>Hobai University, China</i>), Yaqi Li (<i>Bank of Nanjing Co., China</i>), Dingsheng Wang (<i>Hobai University, China</i>)
S3-3	Machine Learning Model to Evaluate the Appropriateness of Layout for Automatic Generation of Graphic Design Works...259 Kohei Ishiyama (<i>Kyushu University, Japan</i>), Taketoshi Ushijima (<i>Kyushu University, Japan</i>)
S3-4	Detecting multi-class kidney abnormalities using Deep learning...264 Ahmed Affan (<i>National University of Computer and Emerging Sciences, Pakistan</i>), Shujaat Hussain (<i>National University of Computer and Emerging Sciences, Pakistan</i>)
S3-5	End-To-End Training Of Object Segmentation Task And Video Question-Answering Task...271 Hidemoto Nakada (<i>National Institute of Advanced Institute of Science and Technology, Japan</i>), Hideki Asoh (<i>National Institute of Advanced Institute of Science and Technology, Japan</i>)
S3-6	Cassava Disease Detection using MobileNetV3 Algorithm through Augmented Stem and Leaf Images...276 Aaron Ckylo P. Calma (<i>Mapúa University, Philippines</i>), Jabez Daniel M. Guillermo (<i>Mapúa University, Philippines</i>), Engr. Charmaine C. Paglinawan (<i>Mapúa University, Philippines</i>)
S3-7	Classifying Electrical Resistivity Tomography Profiles of Underground Utilities using Convolutional Neural Network...282 Jullian Dominic D. Ducut (<i>De La Salle University, Philippines</i>), Joseph Aristotle De Leon (<i>De La Salle University, Philippines</i>), Mike Louie Enriquez (<i>De La Salle University, Philippines</i>), Ronnie Concepcion II (<i>De La Salle University, Philippines</i>), Argel A. Bandala (<i>De La Salle University, Philippines</i>), Ryan Rhay P. Vicerra (<i>De La Salle University, Philippines</i>), Renann P. Baldovino (<i>De La Salle University, Philippines</i>)
S3-8	Rainy Day Travel Planning System That Combines Tourism Potential Map with Static Characteristics of Spots...289 Eriko Yamano (<i>Onomichi City University, Japan</i>), Tsuyoshi Takayama (<i>Onomichi City University, Japan</i>)
S3-9	Analysing Wireless Capsule Endoscopy Images Using Deep Learning Frameworks to Classify Different GI Tract Diseases...295 Rupesh Kumar Dey (<i>Asia Pacific University of Technology & Innovation, Malaysia</i>), Muhammad Ehsan Rana (<i>Asia Pacific University of Technology & Innovation, Malaysia</i>), Vazeerudeen Abdul Hameed (<i>Asia Pacific University of Technology & Innovation, Malaysia</i>)
S3-10	Self-Supervised Augmentation of Quality Data Based on Classification-Reinforced GAN...302 Seunghwan Kim (<i>Sungkyunkwan University, Korea</i>), Sukhan Lee (<i>Sungkyunkwan University, Korea</i>)

The 17th International Conference on Ubiquitous Information Management and Communication

Table of Content

| 09:00-09:50, Wednesday, January 04, 2023 |

Short Presentation 4: Industrial Applications 11:45-12:45, Wednesday, January 04, 2023		Room: 26312 Session Chair: Prof. Suriana Ismail
S4-1	An Implementation of Web Based Application which Aims at Deepening Understanding of Key Cryptosystem...309 Hiroto Maeda (<i>Aoyama Gakuin University, Japan</i>), Yuichi Oie (<i>Aoyama Gakuin University, Japan</i>), Kazunari Ito (<i>Aoyama Gakuin University, Japan</i>)	
S4-2	Food Safety Block Chain System using Ontology in UHT Milk Factory...313 Priyakorn Hemnin (<i>Chiang Mai University, Thailand</i>), Ekkarat Boonchieng (<i>Chiang Mai University, Thailand</i>), Sukhuntha Osiriphun (<i>Chiang Mai University, Thailand</i>)	
S4-3	Performance Evaluation of Decentralized Social Media on Near Protocol Blockchain...318 Dwynn Tama (<i>Universitas Multimedia Nusantara, Indonesia</i>), Arya Wicaksana (<i>Universitas Multimedia Nusantara, Indonesia</i>)	
S4-4	Finite Element Method for System-in-Package (SiP) Technology: Thermal Analysis Using Chip Cooling Laminate Chip (CCLC)...322 Aziz Oukaira (<i>Université du Québec en Outaouais, Canada</i>), Dhaou Said (<i>Université de Sherbrooke, Canada</i>), Jamal Zbitou (<i>University of Abdelmalek Essaadi, Morocco</i>), Ahmed Lakhssassi (<i>Université du Québec en Outaouais, Canada</i>)	
S4-5	Data Acquisition Platform for The Energy Management of Smart Factories and Buildings...327 Shah M. Mahir (<i>Purdue University, United States</i>), Jared Herne (<i>Indiana University-Purdue University Indianapolis, United States</i>), Graham Koch (<i>Indiana University-Purdue University Indianapolis, United States</i>), John J. Lee (<i>Indiana University-Purdue University Indianapolis, United States</i>)	
S4-6	No Programming, Configurable Z-Wave Node with Multi-Sensor-Protocol Support...334 Graham Koch (<i>Indiana Univ. Purdue Univ. Indianapolis, United States</i>), Shah M. Mahir (<i>Purdue University, United States</i>), Stanley Chien (<i>Indiana Univ. Purdue Univ. Indianapolis, United States</i>), Jared Herne (<i>Indiana Univ. Purdue Univ. Indianapolis, United States</i>), Audrey Cheshire (<i>Indiana Univ. Purdue Univ. Indianapolis, United States</i>), John J. Lee (<i>Indiana Univ. Purdue Univ. Indianapolis, United States</i>)	
S4-7	Dual-Branch Neural Networks for Predicting Shared Bikes...340 Huigyu Yang (<i>Sungkyunkwan University, Korea</i>), Syed M. Raza (<i>Sungkyunkwan University, Korea</i>), Duc-Tai Le (<i>Sungkyunkwan University, Korea</i>), Dongsoo S. Kim (<i>Indiana University-Purdue University, Indianapolis, USA</i>), Hyunseung Choo (<i>Sungkyunkwan University, Korea</i>)	
S4-8	Enhancement of fundamental frequency extraction capabilities for detecting diver carrying SCUBA open-circuit in shallow water...344 Nhat Hoang Bach (<i>Academy of Science and Technology, Vietnam</i>), Van Duc Nguyen (<i>Hanoi University of Science and Technology, Vietnam</i>), Le Ha Vu (<i>Academy of Science and Technology, Vietnam</i>), Duy Phong Pham (<i>Electric Power University, Vietnam</i>),	
S4-9	VNLES: A Reasoning-enable Legal Expert System using Ontology Modeling-based Method: A Case Study of Vietnam Criminal Code...349 Quoc Tuan Dao (<i>Ho Chi Minh University of Technology, VNU-HCM, Vietnam</i>), Tran Khanh Dang (<i>Ho Chi Minh City University of Food Industry, Vietnam</i>), Thi Phuong Hoa Nguyen (<i>Ho Chi Minh City University of Law, Vietnam</i>), Thi Minh Chau Le (<i>Ho Chi Minh City University of Technology and Education, Vietnam</i>)	
S4-10	Intelligent Aeroponic System for Real-time Control and Monitoring of <i>Lactuca sativa</i> Production...356 Cris Ramil Calzita (<i>Eastern Visayas State University, Philippines</i>), Kehndee Ann Jubilo (<i>Eastern Visayas State University, Philippines</i>), Glenn Permejo (<i>Eastern Visayas State University, Philippines</i>), Roxcella Reas (<i>Eastern Visayas State University, Philippines</i>), Jonah Jahara Baun (<i>De La Salle University, Philippines</i>), Ronnie Concepcion II (<i>De La Salle University, Philippines</i>), Joseph Aristotle de Leon (<i>De La Salle University, Philippines</i>), Argel Bandala (<i>De La Salle University, Philippines</i>), Andres Philip Mayol (<i>De La Salle University, Philippines</i>), Ryan Rhay Vicerra (<i>De La Salle University, Philippines</i>), Elmer Dadios (<i>De La Salle University, Philippines</i>)	

The 17th International Conference on Ubiquitous Information Management and Communication

Table of Content

| 09:00-09:25, Thursday, January 05, 2023 |

Online Presentation 1: Data Centric Applications and Security 09:00-09:25, Thursday, January 05, 2023		Room: Whova
P1-1	Picuit - An Application of pictogram content creation using state transition diagram...363 Kazunari Ito (<i>Aoyama Gakuin University, Japan</i>)	
P1-2	Exploring Deep Learning for Detection of Poultry Activities – Towards an Autonomous Health and Welfare Monitoring in Poultry Farms...367 Ivan Roy S. Evangelista (<i>De La Salle University, Phillipines</i>), Lenmar T. Catajay (<i>Sultan Kudarat State University, Phillipines</i>), Argel A. Bandala (<i>De La Salle University, Phillipines</i>), Ronnie S. Concepcion II (<i>De La Salle University, Phillipines</i>), Edwin Sybingco (<i>De La Salle University, Phillipines</i>), Elmer P. Dadios (<i>De La Salle University, Phillipines</i>)	
P1-3	Comparison of Ensemble Models as Solutions for Imbalanced Class Classification of Datasets...372 Yoga Pristyanto (<i>Universitas Amikom Yogyakarta, Indonesia</i>), Anggit Ferdita Nugraha (<i>Universitas Amikom Yogyakarta, Indonesia</i>), Rifda Faticha Alfa Aziza(<i>Universitas Amikom Yogyakarta, Indonesia</i>), Ibnu Hadi Purwanto (<i>Universitas Amikom Yogyakarta, Indonesia</i>), Mulia Sulistiyyono (<i>Universitas Amikom Yogyakarta, Indonesia</i>), Akhmad Dahlan (<i>Universitas Amikom Yogyakarta, Indonesia</i>)	
P1-4	Comparison of Different Political Figures and Evaluation of Twitter Utilization Over Time in The Political Communication Media...376 Irmawan Rahyadi (<i>Bina Nusantara University, Indonesia</i>), Airlangga Muhammad Syahraihan (<i>Bina Nusantara University, Indonesia</i>), Debora Agustina (<i>Bina Nusantara University, Indonesia</i>), Dhea Amelia Irawan (<i>Bina Nusantara University, Indonesia</i>)	
P1-5	HDA-TIP: A framework for Heterogeneous Data Aggregation for Threat Intelligence Platform...383 Afzal Yasmeen (<i>National University of Computer and Emerging Sciences, Pakistan</i>), Khan Kifayat Ullah (<i>National University of Computer and Emerging Sciences, Pakistan</i>), Asim Muhammad (<i>National University of Computer and Emerging Sciences, Pakistan</i>)	
P1-6	GAN vs. LSTM: Network State Prediction...390 Gyurin Byun (<i>Sungkyunkwan University, Korea</i>), Huigyu Yang (<i>Sungkyunkwan University, Korea</i>), Syed M. Raza (<i>Sungkyunkwan University, Korea</i>), Moonseong Kim (<i>Seoul Theological University, Korea</i>), Hyunseung Choo (<i>Sungkyunkwan University, Korea</i>)	
P1-7	A New Technique of Blackboard Architecture in Decision-Making for Timber Harvesting...393 Hana Munira Muhd Mukhtar (<i>Universiti Kuala Lumpur, Malaysia</i>), Roslan Ismail (<i>Universiti Kuala Lumpur, Malaysia</i>)	
P1-8	Travel blogger credibility scoring method for recommendation system...398 Akihiro Kondo (<i>Tokyo Denki University, Japan</i>), Hironobu Abe (<i>Tokyo Denki University, Japan</i>)	
P1-9	Local Hashing and Fake Data for Privacy-Aware Frequency Estimation...402 Gatha Varma (<i>Amity University, India</i>)	
P1-10	A Study on Partially Homomorphic Encryption...406 Jihyeon Ryu (<i>Sungkyunkwan University, Korea</i>), Khan Kifayat Ullah (<i>National University of Computer and Emerging Sciences, Pakistan</i>), Asim Muhammad (<i>National University of Computer and Emerging Sciences, Pakistan</i>)	
P1-11	Feature Pool Exploitation for Disease Detection in Fundus Images...410 Sammy Yap Xiang Bang (<i>Sungkyunkwan University, Korea</i>), Kim-Ngoc Thi Le (<i>Sungkyunkwan University, Korea</i>), Duc-Tai Le (<i>Sungkyunkwan University, Korea</i>), Hyunseung Choo (<i>Sungkyunkwan University, Korea</i>)	

The 17th International Conference on Ubiquitous Information Management and Communication

Table of Content

| 09:30-09:55, Thursday, January 05, 2023 |

Online Presentation 2: Performance Tuning 09:30-09:55, Thursday, January 05, 2023		Room: Whova
	Adaptive Holt-Winters Forecasting Method based on Artificial Intelligence Techniques...414	
P2-1	Noppakun Sangkhiew (<i>Silpakorn University, Thailand</i>), Arnat Watanasungsuit (<i>Hydrocarbon Solutions Company Limited, Thailand</i>), Choat Inthawongse (<i>Muban Chombueng Rajabhat University, Thailand</i>), Peerapop Jomthong (<i>Christian University, Thailand</i>), Kawinthon Saicharoen (<i>Silpakorn University, Thailand</i>), Choosak Pornsing (<i>Silpakorn University, Thailand</i>)	
P2-2	Improved Evolution Performance for Genetic Programming with Method to Search Numbers of Trees...419 Takashi Ito (<i>Aoyama Gakuin University, Japan</i>)	
P2-3	Covert Communication over Federated Learning Channel...425 Sang Wu Kim (<i>Iowa State University, USA</i>)	
P2-4	Multi-Core ECU Load-Reducing Method using Time-Division Processing...428 JongHun Kim (<i>Sungkyunkwan University, Korea</i>), YoungSoo Do (<i>Sungkyunkwan University, Korea</i>), MinHo Kim (<i>Sungkyunkwan University, Korea</i>), JaeWook Jeon (<i>Sungkyunkwan University, Korea</i>)	
P2-5	Improve symbolic music pre-training model using MusicTransformer structure...433 Yingfeng Fu (<i>University of Tsukuba, Japan</i>), Yusuke Tanimura (<i>National Institute of Science and Technology, Japan</i>), Hidemoto Nakada (<i>National Institute of Science and Technology, Japan</i>)	
P2-6	Optimization of VLF Capacitive-Resistive Dipole Electromagnetic Fields for Underground Utility Pipe Detection Using Artificial Bee Colony, Circle-inspired, and Genetic Metaheuristics...439 Mike Louie Enriquez (<i>De La Salle University, Philippines</i>), R-Jay Relano (<i>De La Salle University, Philippines</i>), Kate Francisco (<i>De La Salle University, Philippines</i>), Ronnie Concepcion II (<i>De La Salle University, Philippines</i>), Jonah Jahara Baun (<i>De La Salle University, Philippines</i>), Adrian Genevie Janairo (<i>De La Salle University, Philippines</i>), Joseph Aristotle de Leon (<i>De La Salle University, Philippines</i>), Argel Bandala (<i>De La Salle University, Philippines</i>), Ryan Rhay Vicerra (<i>De La Salle University, Philippines</i>), Elmer Dadios (<i>De La Salle University, Philippines</i>)	
P2-7	Optimizing Low Power Near L-band Capacitive Resistive Antenna Design for in Silico Plant Root Tomography Based on Genetic Big Bang-Big Crunch...446 Ronnie Concepcion II (<i>De La Salle University, Philippines</i>), R-Jay Relano (<i>De La Salle University, Philippines</i>), Kate Francisco (<i>De La Salle University, Philippines</i>), Jonah Jahara Baun (<i>De La Salle University, Philippines</i>), Adrian Genevie Janairo (<i>De La Salle University, Philippines</i>), Joseph Aristotle de Leon (<i>De La Salle University, Philippines</i>), Llewelyn Espiritu (<i>De La Salle University, Philippines</i>), Andres Philip Mayol (<i>De La Salle University, Philippines</i>), Mike Louie Enriquez (<i>De La Salle University, Philippines</i>), Ryan Rhay Vicerra (<i>De La Salle University, Philippines</i>), Argel Bandala (<i>De La Salle University, Philippines</i>)	

The 17th International Conference on Ubiquitous Information Management and Communication

Table of Content

| 09:30-09:55, Thursday, January 05, 2023 |

Online Presentation 2: Performance Tuning 09:30-09:55, Thursday, January 05, 2023		Room: Whova
P2-8	Analytical Hierarchy Process-based Selection of Underground Imaging Antenna Enclosure Material for Optimized Power Transfer...454 Mike Louie Enriquez (<i>De La Salle University, Philippines</i>), Ronnie Concepcion II (<i>De La Salle University, Philippines</i>), R-Jay Relano (<i>De La Salle University, Philippines</i>), Kate Francisco (<i>De La Salle University, Philippines</i>), Adrian Genevie Janairo (<i>De La Salle University, Philippines</i>), Jonah Jahara Baun (<i>De La Salle University, Philippines</i>), Joseph Aristotle de Leon (<i>De La Salle University, Philippines</i>), Ryan Rhay Vicerra (<i>De La Salle University, Philippines</i>), Argel Bandala (<i>De La Salle University, Philippines</i>), Elmer Dadios (<i>De La Salle University, Philippines</i>)	
P2-9	Study of Adam and Adamax Optimizers on AlexNet Architecture for Voice Biometric Authentication System...460 Noor Azwana Mat Ariff (<i>International Islamic University, Malaysia</i>), Amelia Ritahani Ismail (<i>International Islamic University, Malaysia</i>)	
P2-10	Little tricks leading to a significant acceleration of the calculation of the reliability of a random graph...464 Alexey Rodionov (<i>Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Novosibirsk, Russia</i>)	

The 17th International Conference on Ubiquitous Information Management and Communication

Table of Content

| 10:00-10:25, Thursday, January 05, 2023 |

Online Presentation 3: Data Exploration and Exploitation 10:00-10:25, Thursday, January 05, 2023		Room: Whova
P3-1	Systematic Review of Qualitative and Quantitative Studies on Perceived Employability of Graduates...469 Fareed Kaleem Khaiser (<i>Universiti Kuala Lumpur, Malaysia</i>), Amna Saad (<i>Universiti Kuala Lumpur, Malaysia</i>), Cordelia Mason (<i>Universiti Kuala Lumpur, Malaysia</i>)	
P3-2	TK-BERT: Effective Model of Language Representation using Topic-based Knowledge Graphs...477 Chanwook Min (<i>Kwangwoon University, Korea</i>), Jinhyun Ahn (<i>Jeju National University, Korea</i>), Taewhi Lee (<i>Electronics and Telecommunications Research Institute, Korea</i>), Dong-Hyuk Im (<i>Kwangwoon University, Korea</i>)	
P3-3	Korean Language NLP Model Based Emotional Analysis of LGBTQ Social Media Communities...481 Younghyun Chi (<i>Sungkyunkwan University, Korea</i>), Jang Hyun Kim (<i>Sungkyunkwan University, Korea</i>), Seungjong Sun (<i>Sungkyunkwan University, Korea</i>)	
P3-4	Recommender Performance for Users with Interest in Several Fields on Collaborative Topic Regression through Vocabulary Completion...486 Akihiro Nishimura (<i>Osaka University, Japan</i>), Yoshinori Hijikata (<i>Kwansei Gakuin University, Japan</i>), Kosuke Sato (<i>Osaka University, Japan</i>)	
P3-5	An Analytical Approach to Predict the Cardio Vascular Disorder...494 Ritu Chauhan (<i>Amity University, India</i>), Nidhi Gola (<i>Amity University, India</i>), Eiad Yafi (<i>University of Technology Sydney, Australia</i>)	
P3-6	HDFR: A Hydrologic Data and Modeling System with On-Demand Access to Environmental Sensing Data for Decision Making...502 Daniel Luna (<i>University of Pittsburgh, United States</i>), Felipe Hernández (<i>University of Pittsburgh, United States</i>), Yao Liang (<i>University Indianapolis, United States</i>), Xu Liang (<i>University of Pittsburgh, United States</i>)	
P3-7	Localizing and Analyzing the Infographics in Document Using Deep Learning...510 Talha Nazar (<i>National University of Computer and Emerging Sciences, Pakistan</i>), Shuaat Hussain Kausar (<i>National University of Computer and Emerging Sciences, Pakistan</i>), Kifayat Ullah Khan (<i>National University of Computer and Emerging Sciences, Pakistan</i>)	
P3-8	Pictorial Map Generation based on Color Extraction and Sentiment Analysis using SNS Photos...515 Yuanyuan Wang (<i>Yamaguchi University, Japan</i>)	
P3-9	DTW Threshold Determination for English Word Utterances in Filipino Accent using MFCC...523 Christian C. Anabeza (<i>De La Salle University, Philippines</i>), Galvin Brice S. Lim (<i>De La Salle University, Philippines</i>), Mark Lawrence P. Velasco (<i>De La Salle University, Philippines</i>), Edwin Sybingco (<i>De La Salle University, Philippines</i>), Dino Dominic Ligutan (<i>De La Salle University, Philippines</i>)	
P3-10	Distributed Learning of Pure Non-IID data using Latent Codes...530 Anirudh Kasturi (<i>BITS Pilani, Hyderabad, India</i>), Akshat Agrawal (<i>BITS Pilani, Hyderabad, India</i>), Chittaranjan Hota (<i>BITS Pilani, Hyderabad, India</i>)	
P3-11	Chest Radiographs Enhancement with Contrast Limited Adaptive Histogram...536 Hyeri Lee (<i>Sungkyunkwan University, Korea</i>), Duc-Tai Le (<i>Sungkyunkwan University, Korea</i>), Junghyun Bum (<i>Sungkyunkwan University, Korea</i>), Hyunseung Choo (<i>Sungkyunkwan University, Korea</i>)	

The 17th International Conference on Ubiquitous Information Management and Communication

Table of Content

| 10:30-10:55, Thursday, January 05, 2023 |

Online Presentation 4: Social Interaction 10:30-10:55, Thursday, January 05, 2023		Room: Whova
P4-1	Multi-Objective Information Maximization in a Social Network...538 Kundan Kandhway (<i>Indian Institute of Science Education and Research Bhopal, India</i>)	
P4-2	When social networks meet payment: a security perspective...542 Nivedita Singh (<i>Sungkyunkwan University, Korea</i>), Mohsen Ali Alawami (<i>Sungkyunkwan University, Korea</i>), Hyoungshick Kim (<i>Sungkyunkwan University, Korea</i>)	
P4-3	Maximizing Spread of a Message in the Susceptible-Infected-Recovered Process...548 Kundan Kandhway (<i>Indian Institute of Science Education and Research Bhopal, India</i>)	
P4-4	The Effect of Inclusive Design on Easy Accessibility for Disabled E-Commerce Users in Indonesia...552 Chindy Jessika Trielsa (<i>Bina Nusantara University, Indonesia</i>), Mia Angeline (<i>Bina Nusantara University, Indonesia</i>)	
P4-5	Ramadan Spirit: A Digital Game Incorporating Malaysian Culture to Teach Malaysian Muslim Children the Islamic Essence of Ramadan...556 Suhaili Din (<i>Universiti Kuala Lumpur, Malaysia</i>), Maisarah Mohd Ramli (<i>Universiti Kuala Lumpur, Malaysia</i>)	
P4-6	Assistive Technology for Children with Learning Disabilities: A Systematic Literature Review..564 Ahmad Haiqal Abd Khalid (<i>International Islamic University, Malaysia</i>), Nur Nazihah Mohkhlas (<i>International Islamic University, Malaysia</i>), Noor Azura Zakaria (<i>International Islamic University, Malaysia</i>), Mazidah Mat Rejab (<i>Universiti Tun Hossien Onn Malaysia, Malaysia</i>), Ruwinah Abdul Karim (<i>Penawar Special Learning Centre, Malaysia</i>), Suharsiwi (<i>Universitas Muhammadiyah Jakarta, Indonesia</i>)	
P4-7	Cultivating Social Media Utilization by Television Stations: An Analysis of Instagram Practices in Czech Republic...570 Daniel Messele Balcha (<i>Czech Life Science University, Czech Republic</i>), Irmawan Rahyadi (<i>Binus University, Indonesia</i>), Ayu Agung Mirah Krisnawati (<i>Binus University, Indonesia</i>), Rifa Bestari (<i>Binus University, Indonesia</i>)	
P4-8	Pedatren: Educational Administration Applications for Simplifying Paiton Probolinggo's Nurul Jadid Islamic Boarding School's Management...575 Gamal Kusuma Zamahsari (<i>Binus University, Indonesia</i>), Agus Purnomo AP (<i>IAIN Madura, Indonesia</i>), Agus Purnomo AP (<i>IAIN Madura, Indonesia</i>), Agik Nur Efendi (<i>IAIN Madura, Indonesia</i>), Moh Hafid Effendy (<i>IAIN Madura, Indonesia</i>), Ika Cahya Adiebia (<i>IAIN Madura, Indonesia</i>)	
P4-9	An Evaluation of Smartwatch Contribution in Improving Human Health...580 Kok Yin Long (<i>Asia Pacific University of Technology & Innovation, Malaysia</i>), Kamalanathan Shanmugam (<i>Asia Pacific University of Technology & Innovation, Malaysia</i>), Muhammad Ehsan Rana (<i>Asia Pacific University of Technology & Innovation, Malaysia</i>)	
P4-10	The Effect of Portable Laboratory Integrated with Local Wisdom (PL-ILW) for Physics Learning...584 Rudi Susanto (<i>Universiti Kuala Lumpur, Malaysia</i>), Mohd Nizam Husen (<i>Universiti Kuala Lumpur, Malaysia</i>), Adidah Lajis (<i>Universiti Kuala Lumpur, Malaysia</i>),	
P4-11	Space from Line: What can Metaverse Support in Education/Learning Activity?...590 Toyohide Watanabe (<i>Nagoya Industrial Science Research Institute, Japan</i>)	