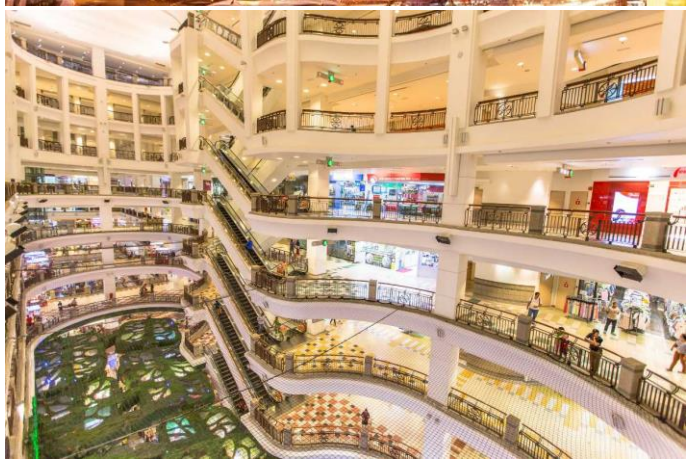

IMCOM 2024, January 3 - 5,

Kuala Lumpur, Malaysia

Conference Program

IEEE

| Hosted by |

Sungkyunkwan University, Korea
Universiti Kuala Lumpur, Malaysia

IEEE SMC
Systems, Man, and Cybernetics Society

초대의 글

IEEE 학술대회로 성균관대가 후원하며 말레이시아 UniKL과 공동 주관하는 제 18회 International Conference on Ubiquitous Information Management and Communication (IMCOM)이 2024년 1월 3일(화)부터 5일(목)까지 온·오프라인 하이브리드로 개최됩니다. 미래사회에서는 인간, 컴퓨터, 사물 간의 상호작용을 위한 새로운 패러다임의 생성, 라이프로그의 활용, AI 컴패니언 디바이스의 역할, 특성, 맞춤 등 그에 따른 변화를 요구합니다. IMCOM 2024에서는 컴패니언 IoT 그리고 인공지능의 시대를 준비하며 새로운 패러다임에 기여하는 학술 교류 및 전문 지식의 전파를 위해서 세계 최고 수준의 전문가들을 모시고 과기부/IITP의 틀 안에서 심도 있는 토론의 장을 마련하고자 합니다.

IMCOM 2024는 SCOPUS와 EI에 등재되어 있어 국제학술대회로서의 높은 권위를 유지하고 있습니다. 금년에는 20개국 이상의 나라에서 참여하였으며, 국내논문 23편, 외국논문 87여 편 정도가 최종 선정되었고, 수준 높은 학술 교류를 위해 다섯 분의 기조강연자를 모셨습니다. 자율 인지 시스템과 로봇 공학 및 컴퓨터 비전 분야의 전문가이신 유타 대학교의 Thomas C. Henderson 교수님, 스페인 MONDRAGON 그룹의 IKERLAN 기업에서 5G 네트워크, IoT 및 IoT 보안, 엣지 컴퓨팅 등의 연구를 이끌고 계신 Josu Bilbao 박사님, 미래의 무선 네트워크를 효율적으로 관리하기 위한 지능형 엣지 컴퓨팅, 네트워크 관리 및 보안 전문가이신 경희대 홍충선 교수님, 뇌파 측정 장치를 이용한 뇌의 기능 및 상태 이해 등 메디컬 분야의 전문가이신 국제 이슬람 말레이시아대 Abdul Wahab Bin Abdul Rahman 교수님과 인간 참여 데이터 시스템의 전문가 이신 일본 쓰쿠바 대학교의 Atsuyuki Morishima 교수님을 초청하였습니다. 열띤 토론과 학술정보의 교환은 물론 폭넓은 친교를 통해 성대한 만남의 장과 성공적인 학술회의가 이루어질 수 있도록 부디 적극 참석하셔서 본 학술회의를 더욱 빛내 주시길 부탁드립니다.

대한민국 성균관대에서 2006년 기획되어 2007년부터 시작된 작은 학술회의가 이제 매년 200편 이상의 논문이 제출되고 서로 아끼며 주목하는 세계수준의 학술회의로 자리 잡았습니다. 많은 분들께서 노력해 주심으로 인해 미국과 유럽 중심의 저명한 국제학술회의와 어깨를 견줄 정도로 발전하고 있음에 진심으로 감사드립니다. 모두의 노력과 희생이 헛되지 않도록 아시아-태평양 지역에서 더욱 성실하게 성장하는 학술회의가 되도록 운영진 모두가 최선의 노력을 다하겠습니다.

여러분의 가정에 항상 평화가 있으시길 기원합니다.

성균관대 정보통신대학장 권기원
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Taketoshi Ushiama
Duc-Tai Le

IMCOM 2024 학회장 이 석 한
Lajos Hanzo
Roslan Ismail

운영위원장 추 현 승

Contents

Message from General Co-Chairs

On behalf of the organizing committee, we welcome you to Kuala Lumpur, Malaysia for the 18th International Conference on Ubiquitous Information Management and Communication (IMCOM 2024). We are very fortunate and honored to have renowned people of their respective fields gathering getting involved in the process of submitting papers, chairing sessions, reviewing papers, and organizing the conference.

Over the years IMCOM has evolved into a distinguished conference in Asia Pacific region. Behind this success, is the hardship of many committee members who have devoted their precious time to promote and advertise IMCOM pole to pole. The conference is an amalgam of high-quality submissions brought forward by thorough research to meet the high standard required, as of in today's world.

On the occasion of 18th conference of the IMCOM series, we proudly present you with terrific technical and social programs. Three days of technical programs are carefully designed to cover encyclopedic diversity, inspiration and technicality. Your active participation in the sessions will be awarded with timely messages and valuable future insight from not only the five high-profile keynote speakers but also other authors.

Again, we would like to express our sincere gratitude to the committee members' and referees' contributions in this event. Our special thanks are due to Prof. Roslan Ismail and Ms. Kim De Silva: the Malaysian Conference Organizers, Profs. Dongsoo S. Kim, Taketoshi Ushiama, and Duc-Tai Le: the Program Committee Co-Chairs, Prof. Samratul Janin Sidal: the Local Arrangement Co-Chairs, Profs. Hyunseung Choo, Hyoungshick Kim, and Syed M. Raza: the Treasurer and Operation Co-Chairs, and all other Chairs. Last but not least, we appreciate the support from international and domestic partnerships for this event, that is, the partnerships between Sungkyunkwan University, Korea, and Universiti Kuala Lumpur, Malaysia.

We wish your participation in IMCOM 2024 being a memorable one with valuable technical exchanges.

Sukhan Lee
Lajos Hanzo
Roslan Ismail
General Co-Chairs
IMCOM 2024

Sukhan Lee
Sungkyunkwan University
Korea

Lajos Hanzo
University of Southampton
United Kingdom

Roslan Ismail
Universiti Kuala Lumpur
Malaysia

Message from Program Co-Chairs

Welcome to the 18th International Conference on Ubiquitous Information Management and Communication (IMCOM) 2024, the first hybrid IMCOM due to ongoing pandemic. It is tremendous to see the great leaps of technology in last two decades making this hybrid conference a possibility.

IMCOM 2024 aims to provide a platform for promoting new visionary approaches and interdisciplinary researches. New evolving technology and futuristic ideas in the areas of information management, interaction management, communication technologies and their implications for social interaction, lays the firm foundation of the conference. The conference has served as a vital platform for researchers to exchange innovative ideas and significant research achievements; and provides a unique opportunity in which both technology and social science meet. Two main tracks for information processing management and communication will be held, covering both research and application works of information management, intelligent information processing, interaction management, networking /telecommunications, and social interaction.

This year's conference contains 5 outstanding speeches from distinguished keynote speakers, 6 regular sessions, 4 short-presentation sessions, and 4 online-poster sessions. This year we received 280 submissions from 20 countries and 83 institutions around the world, resulting in a very competitive and rigorous review process. The program committee has dropped several good papers to deliver a very strong and pivotal conference program. Total 110 papers are accepted based on significance of contribution, relevance to the conference scope, and review scores (39.3% acceptance rate). All the accepted papers not only consist of novel ideas, new results, work in progress, and state-of-the-art techniques, but also provide us with the directions and stimulation for future research activities in the area of information management and communication technologies.

We are grateful to all the authors, reviewers, and members of the program committee for their remarkable efforts and contributions. Without their most valued help and cooperation, the tedious task of submission handling and paper reviewing could not have been successfully accomplished. We also praise the valiant effort by session chairs who accepted our request to virtually manage sessions of the conference, which is a new experience for many of us.

We thank the General Co-Chairs, Sukhan Lee, Lajos Hanzo, and Roslan Ismail for their great support and help. We also thank everyone who has contributed to the program – the authors, the reviewers, the program committee members and other organizing committee members for their splendid work.

We wish you to have a productive and enjoyable experience of this virtual conference and hope that next year we can personally meet again.

Dongsoo S. Kim
Taketoshi Ushiama
Duc-Tai Le
Program Co-Chairs
IMCOM 2024

Dongsoo S. Kim
Indiana University
USA

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Kyushu University
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Program at a Glance

| January 02, 2024 (Tuesday) |

17:00-20:00	**Organizing and Steering Committee Meeting**

| January 03, 2024 (Wednesday) |

	Room 1: Millennium V + VI	Room 2: Millennium III
08:30-09:00	**Registration**	
09:00-09:50	Regular 1: **Towards User Comfort**	Regular 2: **Autonomous X Vehicles**
09:50-10:00	**Opening Remarks**	
10:00-10:40	**Keynote Speech 1: Prof. Thomas C. Henderson (University of Utah, USA)**	
10:40-11:20	**Keynote Speech 2: Prof. Choong Seon Hong (Kyung Hee University, Korea)**	
11:20-11:40	**Break**	
11:40-12:30	Regular 3: **Education Innovation**	Regular 4: **Deep Cognition**
12:30-13:00	Short Presentation 1: **Advanced Network Applications**	Short Presentation 2: **Wellbeing Analytics**
13:00-13:30	**Regrouping for Reception**	
13:30-15:00	**Welcome Reception (Millennium I)**	
17:00-20:00	**Technical Program Committee Review and Consolidation Meeting**	

Program at a Glance

| January 04, 2024 (Thursday) |

	Room 1: Millennium V + VI	Room 2: Millennium III
08:30-09:00	**Registration**	
09:00-09:40	**Keynote Speech 3: Dr. Josu Bilbao (IKERLAN, Spain)**	
09:40-10:20	**Keynote Speech 4: Prof. Abdul Wahab Bin Abdul Rahman (International Islamic University, Malaysia)**	
10:20-11:00	**Keynote Speech 5: Prof. Atsuyuki Morishima (University of Tsukuba, Japan)**	
11:00-11:20	**Break**	
11:20-12:10	Regular 5: **Medical AI Intervention**	Regular 6: **Deep Transformation and Evaluation**
12:10-13:10	Short Presentation 3: **Performance Tuning**	Short Presentation 4: **Industrial Applications**
13:10-13:30	**Regrouping for Banquet**	
13:00-15:00	**Conference Banquet (Millennium I)**	
17:00-20:00	**Steering and Advisory Committees Planning Assembly**	

Program at a Glance

| January 05, 2024 (Friday) |

	Whova
09:00-09:25	Online Presentation 1: **Network and Security**
09:25-09:30	**Break**
09:30-09:55	Online Presentation 2: **User/Enterprise Centric Applications**
09:55-10:00	**Break**
10:00-10:25	Online Presentation 3: **Big Data Analytics**
10:25-10:30	**Break**
10:30-10:55	Online Presentation 4: **Social Interaction**
10:55-11:00	**Break**
11:00-12:00	Workshop: **ICT Creative Consilience Program**
12:00-13:00	**Committee Takeaway Meeting**
13:00-14:30	**Lunch and Wrap-up**

Keynote Speakers

Wednesday, January 03, 2024, 10:00-10:40 (MYT)

Prof. Thomas C. Henderson

Professor
University of Utah, United States

Advisory Committee
IEEE International Conference on Robotics and Systems

Research Interests
Autonomous Cognitive Systems, Robotics and Computer Vision

Lane-Based Large-Scale Unmanned Aircraft Systems Traffic Management

The FAA and NASA are developing an Urban Air Management concept as part of the Advanced Air Mobility (AAM) program defining an Unmanned Aircraft Systems (UAS) Traffic Management (UTM) architecture. The combined scale and density of the expected air traffic, as well as the algorithmic complexity of maintaining safe separation, are driving a consensus that a structured airspace will eventually be required. Against this background, a lane-based airspace structure is proposed here whose motivation is to reduce the computational complexity of strategic deconfliction by providing UAS agents with a set of pre-defined airway corridors called lanes. To achieve complexity reduction, an airspace is defined which is composed of a directed graph where every node has either input or output degree equal to one, and flight plans consist of a scheduled sequence of lane traversals. The major results are: (1) the creation and layout of lane structures, (2) an efficient lane-based strategic deconfliction scheduling algorithm, (3) lane-network performance analysis tools, and (4) a tactical deconfliction protocol to handle dynamic contingencies (e.g., failure to follow the nominal flight plan). In conclusion, this approach provides efficient scheduling of safe flight paths, straightforward analysis of stream properties of the transportation system, an effective contingency handling protocol, and scalability to thousands of flights over urban areas.

Thomas C. Henderson received his BS in Math with Honors from Louisiana State University in 1973 and his PhD in Computer Science from the University of Texas at Austin in 1979. He is currently a full Professor in the School of Computing at the University of Utah. He has been at Utah since 1982 and was a visiting professor at DLR in Germany in 1980, and at INRIA in France in 1981 and 1987, and at the University of Karlsruhe, Germany in 2003 and 2011, and was a Program Director at the National Science Foundation in 2010. Prof. Henderson was chairman of the Department of Computer Science at Utah from 1991-1997 and was the founding Director of the School of Computing from 2000-2003. Prof. Henderson is the author of Discrete Relaxation Techniques (University of Oxford Press, 1990), Computational Sensor Networks (Springer, 2009), Analysis of Engineering Drawings and Raster Map Images (Springer, 2014), and Lane-Based UAS Traffic Management (Springer 2021) and editor of Traditional and Non-Traditional Robotic Sensors (Springer-Verlag, 1990); he has served as Co-Editor-in-Chief of the Journal of Robotics and Autonomous Systems and as an Associate Editor for the IEEE Transactions on Pattern Analysis and Machine Intelligence and IEEE Transactions on Robotics and Automation. His research interests include autonomous cognitive systems, robotics and computer vision, and his ultimate goal is to help realize functional androids. He has produced over 250 scholarly publications and has been principal investigator on over $13M in research funding. Prof. Henderson is a Fellow of the IEEE and received the Governor's Medal for Science and Technology in 2000. He enjoys good dinners with friends, reading, playing basketball and hiking.

Keynote Speakers

Wednesday, January 03, 2024, 10:40-11:20 (MYT)

Prof. Choong Seon Hong

Professor
Kyung Hee University, Korea

Senior member, IEEE

Research Interests
Future Internet, Intelligent Edge Computing, Network Management, Network Security

AI for Management of Future Wireless Networks

This keynote provides a comprehensive overview of recent advancements in AI and generative AI applied to wireless networks, with a specific focus on 6G networks. The key topics covered include network administration, edge computing, non-terrestrial networks (NTNs), content generation, and collective intelligence. We explore how 6G networks aim to achieve global connectivity by integrating terrestrial and NTNs, such as satellite, UAV, HAP and Satellite-based networks. NTNs, operating in spaceborne and airborne environments, present unique challenges in terms of propagation, latency, and mobility. To address these challenges, we introduce AI techniques that adapt to NTN conditions. We start by giving an overview of NTNs in the context of 6G, highlighting their importance. We then discuss the role of AI in enhancing network planning, resource allocation, and interference management. We also examine the challenges and opportunities of AI-powered NTN implementations in 6G networks. Finally, we explore the potential of multi-agent generative AI in wireless networks, emphasizing how it can synergize with large language models (LLMs), edge networks, and multi-agent systems. We envision self-governed networks where on-device LLMs collaborate to achieve network goals and discuss the limitations of cloud-based LLMs from a game-theoretic perspective.

Choong Seon Hong (Fellow of IEEE) received the B.S. and M.S. degrees in electronic engineering from Kyung Hee University, Seoul, South Korea, in 1983 and 1985, respectively, and the Ph.D. degree from Keio University, Tokyo, Japan, in 1997. In 1988, he joined KT, Gyeonggi-do, South Korea, where he was involved in broadband networks as a member of the Technical Staff. Since 1993, he has been with Keio University. He was with the Telecommunications Network Laboratory, KT, as a Senior Member of Technical Staff and as the Director of the Networking Research Team until 1999. Since 1999, he has been a Professor with the Department of Computer Science and Engineering, Kyung Hee University. His research interests include future Internet, intelligent edge computing, network management, and network security. Dr. Hong is a member of the Association for Computing Machinery (ACM), the Institute of Electronics, Information and Communication Engineers (IEICE), the Information Processing Society of Japan (IPSJ), the Korean Institute of Information Scientists and Engineers (KIISE), the Korean Institute of Communications and Information Sciences (KICS), the Korean Information Processing Society (KIPS), and the Open Standards and ICT Association (OSIA). He has served as the General Chair, the TPC Chair/Member, or an Organizing Committee Member of international conferences, such as the Network Operations and Management Symposium (NOMS), International Symposium on Integrated Network Management (IM), Asia-Pacific Network Operations and Management Symposium (APNOMS), End-to-End Monitoring Techniques and Services (E2EMON), IEEE Consumer Communications and Networking Conference (CCNC), Assurance in Distributed Systems and Networks (ADSN), International Conference on Parallel Processing (ICPP), Data Integration and Mining (DIM), World Conference on Information Security Applications (WISA), Broadband Convergence Network (BcN), Telecommunication Information Networking Architecture (TINA), International Symposium on Applications and the Internet (SAINT), and International Conference on Information Networking (ICOIN). He was an Associate Editor of the IEEE TRANSACTIONS ON NETWORK AND SERVICE MANAGEMENT and the IEEE JOURNAL OF COMMUNICATIONS AND NETWORKS and an Associate Editor for the International Journal of Network Management and an Associate Technical Editor of the IEEE Communications Magazine, and guest editor of IEEE Network Magazine. He currently serves as an Associate Editor for the International Journal of Network Management and Future Internet Journal.

Keynote Speakers

Thursday, January 04, 2024, 09:00-09:40 (MYT)

Dr. Josu Bilbao

Director of Electronics, Information and Communication Technologies
IKERLAN, MONDRAGON Corporation, Spain

Technical Committee
IEEE Transactions on Communications
IEEE Communications Magazine
IEEE Globecom

Research Interests
IoT and IIoT Security, Network Coding, Cloud and Fog-based Architectures, Edge Computing, 5G and Quantum Computing

What will digital technologies bring to the Industry? Collaborative Artificial Intelligence: a lever for the technological revolution.

We are facing what could be the greatest revolution of our era. Over the last decade, the proliferation of Industry 5.0 projects and the paradigm of the Industrial Internet of Things have filled the ecosystems of many industries with data about their processess, machines performance, etc. In turn, the democratization of computing power is allowing us to process ML models both at the Edge and on IoT devices. If we add these circumstances to the emergence of new paradigms in Artificial Intelligence, which aim to provide privacy, trustworthiness, and sustainability to the AI, we are facing the "perfect storm" for a new industrial revolution. During the talk, the main concepts and techniques that are enabling the Industry to navigate the path of change towards the aforementioned technological revolution will be reviewed, dealing with new collaborative AI schemes, federated learning, and new data space architectures.

Josu Bilbao obtained the Telecommunication Engineering degree from the Faculty of Engineering of Bilbao (UPV/EHU), the M.Sc. degree in Communications and Control from UPV/EHU, and the Ph.D degree in Computer Science from the University of Navarra. He is the Director of Electronics, Information and Communication Technologies (EICT) at IKERLAN, a private research center leader in technology transference and part of MONDRAGON Corporation (one of the largest Spanish business groups). The EICT unit consists of ~220 full-time researchers and covers the following technological departments: hardware platforms & communication systems, dependable (safety) and real-time embedded systems, industrial cyber-security, information & communication technologies (ICT), including digital platforms (Edge-Cloud), IoT, artificial intelligence and quantum computing. Dr. Bilbao has been responsible for the development of the strategy and development of Digital Platforms for multiple sectors, including Intelligent Transportation, Energy generation-storage and Distribution, Capital Goods, Industry 4.0, and Consumer Electronics. He has led the development of multiple industrial projects, including the design and development of embedded systems with customized connectivity solutions. Dr. Bilbao, IEEE Senior Member, is also member of multiple international technical committees for the evaluation of scientific works and papers (IEEE Trans. on comms., IEEE Comm. Magazine, IMETI, ETFA, IEEE Globecom, JSCI, Smart Grids IoT, etc.), and is the main author of multiple journal and international peer-reviewed papers in the field of reliable communications and fog-to-cloud based architectures. Dr. Bilbao has been a visiting scientist at MIT and received the best paper award at IEEE ISPLC. He plays an active role in different standardization committees (IEEE, HANA, ETG, IETF, etc.), and his current research interests span several fields such as the safety and security areas for the IoT and IIoT, reliable communications, network coding, QoS, real-time CPS integration in the IoT, Cloud and Fog-based architectures, Artificial Intelligence, data analytics, Edge computing, 5G and Quantum Computing among others.

Keynote Speakers

Thursday, January 04, 2024, 09:40-10:20 (MYT)

Prof. Abdul Wahab Bin Abdul Rahman

Professor
International Islamic University Malaysia, Malaysia

Research Interests
Computational Intelligence, Artificial Intelligence, Neuro-physiological Computation

Analysing Mental Health State Based on NeuroPhysiological Interface of Affect

The lack of easily available psychological instruments to perform accurate prediction of mental health state, forces individual not to realize their state of mental health or brain developmental disorder until it is too late. The availability of Electroencephalogram (EEG) devices and its ability to measure and capture brain waves for analysis makes it easier for researchers to use them in understanding the functionality and state of the brain. The mobility and low-cost EEG devices makes it attractive for researchers and managers to profile employees for a more effectives training needs. In the case of brain developmental disorder, it becomes important to have early detection as early intervention can help individual to lead a more normal life. Here we show some of the examples of our researches and analysis in understandings the functionality of the brain through affective psychological understanding. The neuro- physiological interaction of affect framework allow us to analyze and predict behavior through personality traits, which provides new avenue and possibilities of profiling individual effectively. In addition, unknown addiction problem and learning disabilities can also be detected for early intervention.

Abdul Wahab Bin Abdul Rahman received the B.S. degree in electronic engineering from University of Essex, England in 1979. Then, he got the M.S. degree in electronic engineering from National University of Singapore in 1987. He received his Ph.D. degree in computer engineering Nanyang Technological University, Singapore in 2004. He started his career with Hewlett Packard Singapore as a production engineer and was then given the post of R&D Project Manager since 1982. He has worked in Singapore and Colorado, USA prior to joining the faculty member of Nanyang Technological University, Singapore in 1990. In 2009 He joined the Kulliyyah of Information and Communication Technology, International Islamic University, Malaysia. Professor Abdul Wahab had published more than 100 conferences, Journal, patent and book chapters in areas of digital and optical computing, signal processing, Artificial Intelligence, and Neuroscience and computing. He has taught the digital system design courses, computer organizations and architectures, research methodologies, industrial attachment coordinator. His areas of expertise covers digital system design based on reconfigurable logics, speech processing especially in the areas of speech enhancement, speech recognition and speaker identification, and integrating signal processing with Fuzzy neural networks (especially in the areas of cerebellum). His current research are in the areas of understanding and analyzing brain developmental disorder using the EEG and ECG as neuro-cardio physiological data modeling of the brain and the heart. Professor Abdul Wahab is also the board member of Mercy Relief Singapore since 2003 and was also the vice chairman of mercy relief Singapore from 2008 to 2012. In 2008 he received the Friends and goodwill award from the Singapore SOKA Association for humanitarian contribution and a long service award from the Ministry of Community Development and Sports (MCDS) in 2004. He was also the Winner of the Rotary – ITE Alumni Professional Achievement Award in 2003, which was also named as the Paul Harris Fellow of the Rotary Foundation of the Rotary International. In 2006 he was awarded the most popular teacher award in school of computer engineering, NTU. Professor Abdul Wahab was the advisor to the Singapore Malay Chamber of commerce (1989 – 1993). As chairman and supervisor to the IRSYAD School, Singapore, (1996 – 2000), he transform the school to a more English speaking, science educated students. He was also the Council member of Islamic Religious Council of Singapore (MUIS), (1997 – 2004).In 1993 to 1994 Professor Abdul Wahab was the Consultant to OMNI DESIGN Singapore Pte. Ltd, for the design, development and project management of an ergonomic keyboards and a 3D pointing device and in 1994 – 1999, he was the Chairman to Technical Committee review SS337: 1989 – safety of information technology equipment including business equipment (TC 118/4/8R), SISIR, Singapore.

Keynote Speakers

Thursday, January 04, 2024, 10:20-11:00 (MYT)

Prof. Atsuyuki Morishima

Professor
University of Tsukuba, Japan

Steering Committee
iSchools, ICADL, DASFAA and ACM/IEEE JCDL

Research Interests
Human-in-the-loop Data Systems, Data Integration, and Digital Libraries

Open-World Information Management with Earth-Scale Human-ML-Logic Teams

This talk addresses the interaction of humans, AIs and logics through the results of our recent crowdsourcing research projects, in which the closed-world assumption does not hold and workers include not only humans but also "AI workers" that complete tasks in cooperation with them. In the talk, we address several different settings of the open world information management problems and introduce some of the approaches and our findings. The research results were partly implemented on our all-academic crowdsourcing platform Crowd4U, which has been used for a variety of real-world projects in different domains involving many universities and organizations.

Atsuyuki Morishima received the B.S. degree in information science, M.S. and Ph.D. degrees in Engineering from University of Tsukuba, Japan in 1993, 1995, and 1998, respectively. He is now a professor at Institute of Library, Information and Media Science and Center for Artificial Intelligence Research, University of Tsukuba, Japan. He is currently serving as an associate dean of the institute and the Asia-Pacific regional chair of iSchools. His research interests include human-in-the-loop data systems, data integration and digital libraries. He has been involved in many real-world crowdsourcing projects on digital libraries, digital archives, natural disaster responses and smart cities. He served as the leader of JST CREST CyborgCrowd Project and currently, leads the Crowd4U initiative and the "computational division of labor" project. His papers have been listed in the best papers and runner-ups in the ACM SIGMOD (2001), IPSJ Journal (2004), CAiSE (2015), Emerald Journals (2018), DBSJ Journal (2012, 2021), and ACM WebSci (2022) and ICADL (2022). He has been contributing to organizations and programs of conferences and journals in the database, crowdsourcing, digital libraries and information science communities, such as VLDB, HCOMP, ICADL, JCDL and iSchools.

Conference Program

| 09:00-09:50, Wednesday, January 03, 2024 |

Regular 1: Towards User Comfort 09:00-09:50, Wednesday, January 03, 2024	**Room: Millennium V+VI** Session Chair: Duc-Tai Le
1-1	**Integrating Repeat Listening Patterns for Enhanced Music Recommendation** Ryunosuke Shigetomi (*Kyushu University, Japan*) Hiroko Nishida (*Kyushu University, Japan*) Ken-Ichi Sawai (*Kyushu University, Japan*) Taketoshi Ushiama (*Kyushu University, Japan*)
1-2	**Invisible Cloak to AI Recognition from All Horizontal Directions by Adversarial Patch** Takumi Imaeda (*Tokyo University of Technology Graduate School, Japan*) Ryuya Uda (*Tokyo University of Technology Graduate School, Japan*)
1-3	**An Application for Mitigating Carelessness with Concept of Homophones and Look-alike Words** Mikihiro Ishii (*Aoyama Gakuin University, Japan*) Yuga Yoshizaki (*Aoyama Gakuin University, Japan*) Kazunari Ito (*Aoyama Gakuin University, Japan*)
1-4	**The Cart Whisperers: Analyzing How Live Stream Hosts Influence Shopping Carts** Atikah Rahmi (*Sampoerna University, Indonesia*) Christian Haposan Pangaribuan (*Sampoerna University, Indonesia*) Calista Luhur (*Sampoerna University, Indonesia*)
1-5	**E-Sports Recommendation based on Degrees of Popularity and Satisfaction using SNS Data** Yuanyuan Wang (*Yamaguchi University, Japan*)

Regular 2: Autonomous X Vehicles 09:00-09:50, Wednesday, January 03, 2024	**Room: Millennium III** Session Chair: Suriana Ismail
2-1	**Fault Detection of Air Defense Radar Systems Using Machine Learning** Hyungkwon Lee (*Sungkyunkwan University, Korea*) Chulgyu Francis Kim (*Sungkyunkwan University, Korea)* Min-Seop Kim (*Hanwha Systems, Korea*) Young-Ho Kim (*Hanwha Systems, Korea*) Han-Kyoung Park (*Hanwha Systems, Korea*) Jong-Seok Lee (*Sungkyunkwan University, Korea)*
2-2	**Traffic Jam Detection Using Real-Time Bus Operation Data Considering Timetable Information in Various Conditions** Nozomi Hatanaka (*Ochanomizu University, Japan*) Hiroki Aoyagi (*Waseda University, Japan)* Tomoya Fujita (*Waseda University, Japan)* Hayato Yamana (*Waseda University, Japan)* Masato Oguchi (*Ochanomizu University, Japan)*
2-3	**Research on AUVs Parallel Cooperative Navigation and Positioning Technology Based on Factor Graph** Xiaoshuang Ma (*Wuxi University , China*) Chenlong Li (*Beihang University, China*)
2-4	**A Design of Internet of Vehicles System Incorporating Lightweight Roadside Units and Blockchain Strategy** Yiluo Liu (*Kyushu University, Japan*) Yaokai Feng (*Kyushu University, Japan*) Kouichi Sakurai (*Kyushu University, Japan*)
2-5	**Fast Software-Based Real Time Panoramic Image Processing** Matthew Gerlits (*San Jose State University, United States*) Melody Moh (*San Jose State University, United States*) Teng-Sheng Moh (*San Jose State University, United States*)

Conference Program

| 11:40-12:30, Wednesday, January 03, 2024 |

Regular 3: Education Innovation 11:40-12:30, Wednesday, January 03, 2024	**Room: Millennium V+VI** Session Chair: Taketoshi Ushiama
3-1	**Before the Badge: Tackling Initial Hurdles in Integrating Micro-credentials at Institutes of Higher Learning** Amna Saad (*Universiti Kuala Lumpur, Malaysia*) Muhammad Haziq bin Abdul Jamal (*Universiti Kuala Lumpur, Malaysia*) Ahmad Roshidi bin Amran (*Universiti Kuala Lumpur, Malaysia*)
3-2	**Analysis of Classroom Utterances and Visualization Promoting Pedagogical Deep Learning Using Neural Network Dialogue Model** Sakuei Onishi (*Okayama University of Science, Japan*) Tomohiko Yasumori (*Okayama University of Science, Japan*) Hiromitsu Shiina (*Okayama University of Science, Japan*)
3-3	**Improving Peer-Review Score Prediction via Pretrained Model with Intermediate-Task Training** Panitan Muangkammuen (*University of Yamanashi, Japan*) Fumiyo Fukumoto (*University of Yamanashi, Japan*) Jiyi Li (*University of Yamanashi, Japan*) Yoshimi Suzuki (*University of Yamanashi, Japan*)
3-4	**MySIMS: A Hybrid Application of Face Recognition Attendance & Tuition Management System** Muhamad Ashraff Othman (*Universiti Kuala Lumpur, Malaysia*) Husna Sarirah Husin (*Taylor's University, Malaysia*) Suriana Ismail (*Universiti Kuala Lumpur, Malaysia*)
3-5	**Learner Support from Learning Support** Toyohide Watanabe (*Nagoya Industrial Science Research Institute, Japan*)

Regular 4: Deep Cognition 11:40-12:30, Wednesday, January 03, 2024	**Room: Millennium III** Session Chair: Masato Oguchi
4-1	**Money Laundering Detection using A Transaction-based Graph Learning Approach** Huu Huong Xuan Nguyen (*Van Hien University, Vietnam*) Tran Khanh Dang (*Ho Chi Minh City University of Industry and Trade, Vietnam*) Phat T. Tran-Truong (*Ho Chi Minh City University of Industry and Trade, Vietnam*)
4-2	**Deep-RSIv2: An Efficient Content-Free Deep Learning Approach for Radiographs' Manufacturer and Model Identification** Farid Ghareh Mohammadi (*Mayo Clinic, United States*) Ronnie Sebro (*Mayo Clinic, United States*)
4-3	**DItune: A Reinforcement Learning Based Framework for Automated Database Index Selection** Xiuqi Huang (*Shanghai Jiao Tong University, China*) Xiaofeng Gao (*Shanghai Jiao Tong University, China*) Guihai Chen (*Shanghai Jiao Tong University, China*)
4-4	**RZUD: A Novel Hybrid Model for Small Sized Handgun Detection** Arif Warsi (*Universiti Kuala Lumpur, Malaysia*) Munaisyah Abdullah (*Universiti Kuala Lumpur, Malaysia*) Nasreen Jawaid (*Indus Hospital and Health Network, Pakistan*) Sheroz Khan (*Onaizah College of Engineering and Information Technology, Saudi Arabia*) Muhammad Yahya (*University of Galway, Ireland*)
4-5	**A Comprehensive Approach for Denoising and Securing Audio Data with U-Net and Kyber** Linh Nguyen (*Northern Arizona University, United States*) Quoc Bao Phan (*Northern Arizona University, United States*) Tuy Tan Nguyen (*Northern Arizona University, United States*)

Conference Program

| 12:30-13:00, Wednesday, January 03, 2024 |

Short Presentation 1: Advanced Network Applications 12:30-13:00, Wednesday, January 03, 2024	**Room: Millennium V+VI** Session Chair: Husna Osman
S1-1	**Performance Analysis of Traffic Shaping Approaches in Time-Sensitive Networking(TSN)** YoungSoo Do (*Sungkyunkwan University, Korea),* SungBhin Oh (*Sungkyunkwan University, Korea),* JongHun Kim (*Sungkyunkwan University, Korea),* SeJeong Lim (*Sungkyunkwan University, Korea),* JaeWook Jeon (*Sungkyunkwan University, Korea)*
S1-2	**NOMA-Empowered Federated Learning for Enhancing Uplink Efficiency in Wireless Networks** Le Hung Hoang (*Hanoi University of Science and Technology, Vietnam)* Toan Van Nguyen (*Hanoi University of Science and Technology, Vietnam)* Van Tung Dinh (*Hanoi University of Science and Technology, Vietnam)* Tien Hoa Nguyen (*Hanoi University of Science and Technology, Vietnam)* Hyunseung Choo (*Sungkyunkwan University, Korea)*
S1-3	**A Time-Sensitive Networking Traffic Scheduling Method Based on Q-learning Routing Optimization** Jin Li (*Chongqing University of Posts and Telecommunications*) Min Wei (*Chongqing University of Posts and Telecommunications*) Chengjie Huo (*Chongqing University of Posts and Telecommunications*) Keecheon Kim (*Konkuk University, Korea*)
S1-4	**Design and Implementation of Multithreaded CAD-enabled LoRa Simulator for Massive IoT** Jui Mhatre (*Kennesaw State University, United States*) Ahyoung Lee (*Kennesaw State University, United States*) Hoseon Lee (*Kennesaw State University, United States*) Ramazan Aygun (*Kennesaw State University, United States*)
S1-5	**Cloud-based Testbed for Large-scale data Collection System with Network-Edge** Yungzhi Dong (*University of Tsukuba, Japan*) Hidemoto Nakada (*National Institute of Advanced Industrial Science and Technology*, *Japan*) Yusuke Tanimura (*National Institute of Advanced Industrial Science and Technology*, *Japan*)

Short Presentation 2: Wellbeing Analytics 12:30-13:00, Wednesday, January 03, 2024	**Room: Millennium III** Session Chair: Syed M. Raza
S2-1	**Prediction of Autism Spectrum Disorder using AI and Machine Learning** Ritu Chauhan (*Amity University , India*), Khushi Mehta (*Amity University , India*), Eiad Yafi (*University of Technology Sydney, Australia*), Megat Farez Zuhairi (*Universiti Kuala Lumpur, Malaysia*)
S2-2	**A Fast and Simple Method for Sleep Breathing Cycle Segmentation in Time Domain** Rayoung Park (*Chonnam National University, Korea*), Heonzoo Lee (*Chonnam National University, Korea*), Tan Loc Nguyen (AITOMATIC, Inc , United States), Sejin Kim (*Chonnam National University, Korea*), Yonggwan Won (*Chonnam National University, Korea*)
S2-3	**Enhancing Cyclist Safety: Real-time Fallen Cyclist Detection and Emergency Notification System** Sri Banu Munisamy (*Universiti Kuala Lumpur, Malaysia*), Roziyani Rawi (*Universiti Kuala Lumpur, Malaysia*), Hakim bin Mohd Yasim (*Universiti Kuala Lumpur, Malaysia*), Nur Farahwahida Ab Aziz (*Universiti Kuala Lumpur, Malaysia*), Sayed Aziz Sayed Hussin (*Universiti Kuala Lumpur, Malaysia*) Norilawati Md Jali (*Universiti Kuala Lumpur, Malaysia*)
S2-4	**A Comprehensive Review on the Application of Artificial Intelligence in Chronic Obstructive Pulmo nary Disease (COPD) Management** Yiqing Xu (*Universiti Kuala Lumpur, Malaysia*), Zalizah Awang Long (*Universiti Kuala Lumpur, Malaysia*) Djoko Budiyanto Setyohadi (*Universiti Kuala Lumpur, Malaysia*)
S2-5	**Ensemble Learning based on CNN and Transformer Models for Leaf Diseases Classification** Li-Hua Li (*Chaoyang University of Technology, Taiwan*) Radius Tanone (*Chaoyang University of Technology, Taiwan*)

Conference Program

| 11:20-12:10, Thursday, January 04, 2024 |

Regular 5: Medical AI Intervention 11:20-12:10, Thursday, January 04, 2024	**Room: Millennium V+VI** Session Chair: Duc-Tai Le
5-1	**Integrated Empowered AI and IoT Approach for Heart Prediction** Eiad Yafi *(University of Technology Sydney, Australia)*, Ritu Chauhan *(University Noida, India)*, Anushka Sharma *(University Noida UP, India)*, Megat Farez Zuhairi *(Universiti Kuala Lumpur, Malaysia)*
5-2	**Prognosis Prediction of Alzheimer's Disease Based on Multi-modal Diffusion Model** Siwon Hwang *(Sungkyunkwan University, Korea)*, Jitae Shin *(Sungkyunkwan University, Korea)*
5-3	**An Initial Study of Abbreviation Disambiguation in Vietnamese Clinical Texts** Chau Vo *(Ho Chi Minh City University of Technology, Vietnam)*, Phung Nguyen *(Ho Chi Minh City University of Technology, Vietnam)*
5-4	**Arduino Based Smart Walking Aid for Rehabilitation** Mohammed Ibrahim Adam *(Singapore Institute of Technology, Singapore)*, Susanto Rahardja *(Singapore Institute of Technology, Singapore)*
5-5	**User Empowerment on Heart Disease using DTaaS** Jung X. Lee *(Towson University, USA)*, Pouria Tayebi *(Towson University, USA)*, Yeong-Tae Song *(Towson University, USA)*

Regular 6: Deep Transformation and Evaluation 11:20-12:10, Thursday, January 04, 2024	**Room: Millennium III** Session Chair: Suriana Ismail
6-1	**Emotional Subtitles through Speech in Films: A Case Study** Hye-Seon Jeon *(Yeon-Sung University, Korea)*, Seo-Young Kyung *(Yeon-Sung University, Korea)*, Sung-Jae Lee *(Yeon-Sung University, Korea)*, Hye-Yeon Yu *(Yeon-Sung University, Korea)*
6-2	**Efficient Ensemble for Multimodal Punctuation Restoration using Time-Delay Neural Network** Xing Yi Liu *(Columbia University, USA)*, Homayoon Beigi *(Columbia University, USA)*
6-3	**Lyric-Based Image Generation for Individual Songs with Text2Image Model** Shoichi Sasaki *(Kyushu University, Japan)*, Hiroko Nishida *(Kyushu University, Japan)*, Ken-Ichi Sawai *(Kyushu University, Japan)*, Taketoshi Ushiama *(Kyushu University, Japan)*
6-4	**Evaluating the Performance of Federated Learning Across Different Training Sample Distributions** Wen-Hung Liao *(National Chengchi University, Taiwan)*, Su-Yu Lin *(National Chengchi University, Taiwan)*, Yi-Chieh Wu *(National Chengchi University, Taiwan)*
6-5	**NoSimple: Simple Data Bias Evaluation Metrics** Sylwan Rahardja *(University of Eastern Finland, Finland)*, Pasi Franti *(University of Eastern Finland, Finland)*

Conference Program

| 12:10-13:10, Thursday, January 04, 2024 |

Short Presentation 3: Performance Tuning 12:10-13:10, Thursday, January 04, 2024	**Room: Millennium V+VI** Session Chair: Taketoshi Ushiama
S3-1	**Efficient Shortest Paths Tree Construction Based on Graph Convolutional Networks** Jisang Park *(Sungkyunkwan University, Korea)*, Sukmin Kang *(Sungkyunkwan University, Korea)*, Van-Vi Vo *(Sungkyunkwan University, Korea)*, Hyunseung Choo *(Sungkyunkwan University, Korea)*
S3-2	**Task Execution Promotion Method by Automatic Generation of Viewer Comments for Live Commentary of Work Contents** Tappei Horikawa *(Kogakuin University, Japan)*, Daisuke Kitayama *(Kogakuin University, Japan)*
S3-3	**Memory Efficient with Parameter Efficient Fine-Tuning for Code Generation using Quantization** Purnawansyah, Zahrizhal Ali, Herdianti Darwis, Lutfi Budi Ilmawan, Sitti Rahmah Jabir *(Universitas Muslim Indonesia, Indonesia)*, Abdul Rachman Manga *(Universitas Muslim Indonesia, Indonesia)*
S3-4	**Object-Centric Representation Learning with Attention Mechanism** Hidemoto Nakada *(National Institute of Advanced Industrial Science and Technology, Japan)*, Hideki Asoh *(National Institute of Advanced Industrial Science and Technology, Japan)*
S3-5	**Evaluation of Road Network Effectiveness with Rank-based Random Walk** Da-Young Lee *(Pusan National University, Korea)*, Hwan-Gue Cho *(Pusan National University, Korea)*
S3-6	**Unveiling Algorithm Classification Excellence: Exploring Calendula and Coreopsis Flower Datasets with Varied Segmentation Techniques** Huzain Azis, Nirmala, Lukman Syafie, Herman, Farniwati Fattah, Tasrif Hasanuddin *(Universitas Muslim Indonesia, Indonesia)*
S3-7	**Hyperparameter Tuning of Identity Block Uses An Imbalance Dataset With Hyperband Method** Abdul Rachman Manga', Muhammad Acqmal Fadhilla Latief, Andi Widya Mufila Gaffar, Huzain Azis, Ramdan Satra, Yulita Salim *(Universitas Muslim Indonesia, Indonesia)*
S3-8	**Parallelized 0/1 Knapsack Algorithm Optimization in CPU-GPU-Based Heterogeneous System with Algorithm-based Fault Tolerance** Marzan Binte Abid, Shuvo Shaha, Upama Kabir, Md. Fahim Arefin *(University of Dhaka, Bangladesh)*
S3-9	**An Efficient Approach to Learn an Effective Hierarchy of a Set of OOBN Classes** Wakilur Islam, Rezaul Karim, Md Samiullah, Chowdhury Farhan Ahmed *(University of Dhaka, Bangladesh)*, Carson K. Leung, Adam G.M. Pazdorb, Connor C.J. Hryhoruk *(University of Manitoba, Canada)*
S3-10	**Thermal Imaging Body Temperature Estimation Independent of Environmental Conditions and Individual Variations** Olfa Jerbi, Sukhan Lee *(Sungkyunkwan University, Korea)*

Conference Program

| 12:10-13:10, Thursday, January 04, 2024 |

Short Presentation 4: Industrial Applications 12:10-13:10, Thursday, January 04, 2024	**Room: Millennium III** Session Chair: Syed M. Raza
S4-1	**Collision Rate of Hybrid Autonomous/Non-Autonomous Driving Vehicles** Paweł Kołodziejski *(University of Sharjah, UAE)*, Anwar Jarndal *(University of Sharjah, UAE)*, Eqab Almajali *(University of Sharjah, UAE)*
S4-2	**Autonomous drone control for wireless charging using power lines** Pengkai Wang *(Sungkyunkwan University, Korea)*, Jonghoek Kim *(Sungkyunkwan University, Korea)*, Husna Mutahira *(Sungkyunkwan University, Korea)*, Mannan Saeed Muhammad *(Sungkyunkwan University, Korea)*
S4-3	**Entry Merging Method for Load Reduction on SOME/IP Service Discovery** Jonghun Kim *(Sungkyunkwan University, Korea)*, Youngsoo Do *(Sungkyunkwan University, Korea)*, Sungbhin Oh *(Sungkyunkwan University, Korea)*, Jaewook Jeon *(Sungkyunkwan University, Korea)*
S4-4	**Stakeholder Vision: Empowering Project Managers with Software Tools for Success** Jayaprakash Ponnada *(OSRAM Opto Semiconductors(M)Sdn Bhd, Malaysia)*, Dr. Bazilah A. Talip *(Universiti Kuala Lumpur, Malaysia)*, Dr. Farahwahida Bt Mohd @Abu Bakar *(Universiti Kuala Lumpur, Malaysia)*
S4-5	**Aggressive Driver Behavior Detection using Multi-Label Classification** Amira A. Amer, Dina Elreedy *(Cairo University, Egypt)*
S4-6	**Comprehensive Assessment of Perovskite Solar Cell Efficiency through Holistic Edge Detection Analysis of Crystallographic Grain Size** Suniya Mansoor *(Sungkyunkwan University, Korea)*, Mannan Saeed Muhammad *(Sungkyunkwan University, Korea)*
S4-7	**Evaluation of Tourism Object Rating Using Naïve Bayes, Support Vector Machine, and K-Means for Business Intelligence Application in Indonesia Tourism** Sitti Rahmah Jabir *(Universitas Muslim Indonesia, Indonesia)*, Purnawansyah *(Universitas Muslim Indonesia, Indonesia)*, Herdianti Darwis *(Universitas Muslim Indonesia, Indonesia)*, Harlinda Lahuddin *(Universitas Muslim Indonesia, Indonesia),* Amaliah Faradibah *(Universitas Muslim Indonesia, Indonesia)*, Andi Widya Mufila Gaffar *(Universitas Muslim Indonesia, Indonesia)*
S4-8	**The Design of Independent-Uniform Knowledge Sources of Blackboard Architecture in Timber Harvesting Decision-Making** Hana Munira Muhd Mukhtar *(Universiti Kuala Lumpur, Malaysia)*, Roslan Ismail *(Universiti Kuala Lumpur, Malaysia)*
S4-9	**Efficient Thermal Management Strategies for 3D-SiP Architectures** Amrou Zyad Benelehaouare *(University of Québec in Outaouais (UQO), Canada)*, Aziz Oukaira *(University of Québec in Outaouais (UQO), Canada)*, Maroua Oumlaz *(University of Québec in Outaouais (UQO), Canada)*, Ahmed Lakhssassi *(University of Québec in Outaouais (UQO), Canada)*
S4-10	**Review Prediction using Large-scale Language Models for Serendipity-Oriented Tourist Spot Recommendation and its Evaluation** Feng Guan *(Kogakuin University, Japan)*, Daisuke Kitayama *(Kogakuin University, Japan)*

Conference Program

| 09:00-09:25, Friday, January 05, 2024 |

Online Presentation 1: Network and Security 09:00-09:25, Friday, January 05, 2024	**Room: Whova** Session chairs: Duc-Tai Le, Syed M. Raza
P1-1	**Planning of Primary and Alternative Path using Deep Learning Model for Traffic Engineering in Small Networks** Makoto Ito (*Nihon University, Japan*), Taiju Mikoshi (*Nihon University, Japan*), Kouichi Genda (*Nihon University, Japan*)
P1-2	**SREMIC: Spatial Relation Extraction-based Malware Image Classification** Inzamamul AlamMd Samiullah (*University of Dhaka, Bangladesh*), Upama Kabir (*University of Dhaka, Bangladesh*), Simon Woo (*Sungkyunkwan University, Korea*), Carson K. Leung (*University of Manitoba, Canada*), Hoang Hai Nguyen (*University of Manitoba, Canada*)
P1-3	**IRS-Assisted Data and Energy Transfer MAC Protocol** Weiyue Xing (*Sungkyunkwan University, Korea*) Yijun Piao (*Sungkyunkwan University, Korea*) Tae-Jin Lee (*Sungkyunkwan University, Korea*)
P1-4	**CABAC-based ROI Encryption with Mask R-CNN for VVC codec** Sio-Kei Im (*Macao Polytechnic University, China*) Ka-Hou Chan (*Macao Polytechnic University, China*)
P1-5	**A Software-Based Low-Latency Elliptic Curve Cryptography Design over Prime Fields** Tuy Tan Nguyen (*Northern Arizona University, United States*) Tram Thi Bao Nguyen (*Van Hien University, Vietnam*)
P1-6	**Deep Predictive User Path-Inclusive Service Mobility in B5G/6G Edge Clouds** Lusungu Mwasinga (*Sungkyunkwan University, Korea*), Syed Raza (*Sungkyunkwan University, Korea*) Duc-Tai Le (*Sungkyunkwan University, Korea*), Moonseong Kim (*Seoul Theological University, Korea*) Min Young Chung (*Sungkyunkwan University, Korea*), Hyunseung Choo (*Sungkyunkwan University, Korea*)
P1-7	**Task Offloading in Mixed IoT of AUVs and ASVs** Tien Pham Van (*Hanoi University of Science and Technology, Vietnam*)
P1-8	**Using Hybrid Genetic Algorithm for Data Aggregation in Wireless Sensor Networks** Sharmin Sharmin (*Universiti Malaya, Malaysia*), Ismail Ahmedy (*Universiti Malaya, Malaysia*), Rafidah Md Noor (*Universiti Malaya, Malaysia*), Habibah Ismail (*Universiti Malaya, Malaysia*)
P1-9	**Federated Learning-Driven AI in Edge AI for Enhanced Mobile Traffic Prediction** Hyunsung Kim (*Sungkyunkwan University, Korea*), Yeji Choi (*Sungkyunkwan University, Korea*), Jeongjun Park (*Sungkyunkwan University, Korea*), Lusungu Josh Mwasinga (*Sungkyunkwan University, Korea*) and Hyunseung Choo (*Sungkyunkwan University, Korea*)
P1-10	**Movement Attentive Graph Embedding for Improving Next Point of Access Prediction** Honggu Kang (*Sungkyunkwan University, Korea*), Taesoo Kim (*Sungkyunkwan University, Korea*), Huigyu Yang (*Sungkyunkwan University, Korea*) and Hyunseung Choo (*Sungkyunkwan University, Korea*)
P1-11	**AI-Driven Traffic-Aware Dynamic TDD Configuration in B5G Networks** Sanguk Jeong (*Sungkyunkwan University, Korea*), Dahyun Mok (*Sungkyunkwan University, Korea*), Gyurin Byun (*Sungkyunkwan University, Korea*) and Hyunseung Choo (*Sungkyunkwan University, Korea*)

Conference Program

| 09:30-09:55, Friday, January 05, 2024 |

Online Presentation 2: User/Enterprise Centric Applications 09:30-09:55, Friday, January 05, 2024	**Room: Whova** Session chairs: Duc-Tai Le, Syed M. Raza
P2-1	**Examining the Impact of Innovation Capabilities and Transformational Leadership on Competitive Advantage : A Case Study** Desman Hidayat (*Bina Nusantara University, Indonesia*), Elfindah Princes (*Bina Nusantara University, Indonesia*), Yuli Eni (*Bina Nusantara University, Indonesia*), Naufal Fathurrachman Danang (*Bina Nusantara University, Indonesia*)
P2-2	**Rib Segmentation and Sequence Labeling via Biaxial Slicing and 3D Reconstruction** Hyunsung Kim (*Sungkyunkwan University, Korea*), Seonghyeon Ko (*Sungkyunkwan University, Korea*), Junghyun Bum (*Sungkyunkwan University, Korea*), Duc-Tai Le (*Sungkyunkwan University, Korea*), Hyunseung Choo (*Sungkyunkwan University, Korea*)
P2-3	**Comparation of Intellectual Property Rights Protection on Online Shopping Platform in Indonesia, Thailand and The Philipine** Aloysius Bernanda Gunawan (*Bina Nusantara University, Indonesia*), Bambang Pratama (*Bina Nusantara University, Indonesia*), Rido Sarwon (*Bina Nusantara University, Indonesia*), Hans Daniel (*Bina Nusantara University, Indonesia*), Anindito (*Republic of Indonesia Defense University, Indonesia*)
P2-4	**Impression Management in the Workplace: Internship Students' Personal Branding Strategy** Tiffany Nethania Suseno (*Bina Nusantara University, Indonesia*), Anindya Widita (*Bina Nusantara University, Indonesia*), Nisrin Husna (*Bina Nusantara University, Indonesia*), Eflina Nurdini Febrita Mona (*Bina Nusantara University, Indonesia*)
P2-5	**Development of Advance Augmented Reality Based Application on Traditional Music Instrument Book: Gamelan Enhancing Indonesian Culture** Frihandhika Permana (*Bina Nusantara University, Indonesia*), Lailatul Rifah (*Bina Nusantara University, Indonesia*), Satrya Dirgantara (*Bina Nusantara University, Indonesia*)
P2-6	**Visual Field Prediction for Fundus Image with Generative AI** Honggu Kang (*Sungkyunkwan University, Korea*), Seonghyeon Ko (*Sungkyunkwan University, Korea*), Juchan Kim (*Sungkyunkwan University, Korea*), Duc-Tai Le (*Sungkyunkwan University, Korea*), Junghyun Bum(*Sungkyunkwan University, Korea*), Jongchul Han(*Sungkyunkwan University, Korea*), Hyunseung Choo (*Sungkyunkwan University, Korea*)
P2-7	**Efficiency Analysis of Lamp System: A Comparative Study of Domain E/E and Distributed Architectures** Se Jeong Lim (*Sungkyunkwan University, Korea*), Sung Bhin Oh (*Sungkyunkwan University, Korea*), Jae Wook Jeon (*Sungkyunkwan University, Korea*)
P2-8	**Multiplayer Tracking with Diagonal Video to Support Basketball Tactical Learning** Kenji Matsuura (*Tokushima University, Korea*), Hironori Takeuchi (*Tokushima University, Korea*) Kazuki Urushihara (*Tokushima University, Korea*), Hiroki Tanioka (*Tokushima University, Korea*) Stephen Karungaru (*Tokushima University, Korea*), Tomohito Wada (*National Institute of Fitness and Sports in Kanoya, Japan*)
P2-9	**Dynamic Outcome Prediction of an NBA match** Kundan Kandhway (*Indian Institute of Science Education and Research Bhopal, India*)
P2-10	**Real-Time Object Detection with IOT Using a Smart Cart** Muhammad Omer (*Sungkyunkwan University, Korea*), Sardar Jaffar Ali (*Sungkyunkwan University, Korea*), Syed Muhammad Raza (*Sungkyunkwan University, Korea*), Duc-Tai Le (*Sungkyunkwan University, Korea*), Hyunseung Choo (*Sungkyunkwan University, Korea*)

Conference Program

| 10:00-10:25, Friday, January 05, 2024 |

Online Presentation 3: Big Data Analytics — **Room: Whova**
10:00-10:25, Friday, January 05, 2024 — Session chairs: Duc-Tai Le, Syed M. Raza

P3-1	**A Systematic Review In Educational Settings: Numerous Challenges to The Adoption Of Augmented Reality** Gamal Kusuma Zamahsari, Mufidah Nur Amalia, Lailatul Rifah, Frihandhika Permana (*Bina Nusantara University, Indonesia*), Sahrul Romadhon (*Institute of Islamic Religion Madura, Indonesia*), Arti Prihatini (*University of Muhammadiyah Malang, Indonesia*)
P3-2	**A Bibliometric Analysis of The Digital Transformation of Small and Medium Enterprises (SMEs)** Shallu Batra (*Maharshi Dayanand University, India*), Vaibhav Aggarwal (*O P Jindal Global University, India*) Mahender Yadav (*Maharshi Dayanand University, India*), Pankaj Kumar (*Deenbandhu Chhotu Ram University of Science & Technology, Indonesia*)
P3-3	**Differential Privacy Based Federated Learning Techniques in IoMT: A Review** Shaista Ashraf Farooqi (*Bahria University, Pakistan*), Amna Saad (*Universiti Kuala Lumpur, Malaysia*), Aedha Abd Rahman (*Asia e University, Malaysia*)
P3-4	**Unveiling Market Sentiments: A Comprehensive Analysis of Stock Market Responses to Diverse News Events using Data Mining Techniques** Sartaj Solaiman, B.M. Obaydur Rahman, Md. Fahim Arefin, Chowdhury Farhan Ahmed (*University of Dhaka, Bangladesh*), Carson K. Leung, Evan W.R. Madill (*University of Manitoba, Canada*)
P3-5	**A Bibliometric Analysis of The Digital Transformation of Small and Medium Enterprises (SMEs)** Triasesiarta Nur, Prasetya Cahya, Holly Deviarti, Rosinta Ria Panggabean (*Bina Nusantara University*)
P3-6	**Implementation of Artificial Intelligence on Air Traffic Control - A Systematic Literature Review** Risya Emha Abdillah, Henry Moenaf, Luthfi Fadullah Rasyid, Said Achmad, Rhio Sutoyo (*Bina Nusantara University*)
P3-7	**CTHTC: A Hybrid Architecture for Temporal Knowledge Graph Completion** Xinyuan Chen, Mohd Nizam Husen, Zhongmei Zhou (*Universiti Kuala Lumpur, Malaysia*)
P3-8	**Evaluating Machine Learning Algorithms for Predicting Financial Aid Eligibility: A Comparative Study of Random Forest, Gradient Boosting and Neural Network** Mohammad Hafiz Ismail (*Universiti Teknologi MARA, Malaysia*), Tajul Rosli Razak (*Universiti Teknologi MARA, Malaysia*), Noorfaizalfarid Mohd Noor (*Universiti Teknologi MARA, Malaysia*), Azlan Abdul-Aziz (*Universiti Teknologi MARA, Malaysia*)
P3-9	**Impact of Ownership concentration on the liquidity of the Banks in India** Dr. Rahul Sharma (*University of Engineering and Management, India*), Bhakti Agarwal (*Symbiosis International University, India*), Saumya Singh (*Symbiosis International University, India*), Aman Pushp (*Symbiosis International University, India*), Dr.Shailesh Rastogi (*Symbiosis International University, India*), Dr. Prashant Barge (*Symbiosis International University, India*)
P3-10	**E-Commerce Fraud Detection Using Generated Data From BANKSIM Using Machine Learning Approach: A Pilot Study** Nicholas Suardiman, Sudimanto, Dhanny Setiawan, Djajasukma Tjahjadi, Budi Permana, Kurweni Ukar (*STMIK LIKMI, Indonesia*)
P3-11	**Soil and Climate Parameters based Yield Prediction Model for Yandev, Gboko LGA, Benue State** Dekera Kenneth Kwaghtyo, Christopher Ifeanyi Eke, Joshua Abah, Timothy Moses, Jeffery Agushaka (*Federal University of Lafia, Nigeria*) and Faith B Fatokun (*Technology University of Kuala Lumpur, Malaysia*)

Conference Program

| 10:30-10:55, Friday, January 05, 2024 |

Online Presentation 4: Social Interaction 10:30-10:55, Friday, January 05, 2024	**Room: Whova** Session chairs: Duc-Tai Le, Syed M. Raza
P4-1	**Content Analysis Of Social Media Platform Instagram Binus Tv (Period September 2022 – December 2022)** Joshua Immanuel Siahaan (*Bina Nusantara University, Indonesia*), Frederik Masri Gasa (*Bina Nusantara University, Indonesia*)
P4-2	**Detecting Community through User Similarity Analysis on Twitter** Md Ahsan Ul Hasan (*Universiti Kebangsan Malaysia, Malaysia*), Azuraliza Abu Bakar (*Universiti Kebangsan Malaysia, Malaysia*), Mohd Ridzwan Yaakub (*Universiti Kebangsan Malaysia, Malaysia*)
P4-3	**Exploring the acceptance of rumor rebuttals: The mediating influence of utilitarian and hedonic values** Anjan Pal (*University of York, United Kingdom*), Alton Y.K. Chua (*Nanyang Technological University, Singapore*), Dion Hoe-Lian Goh (*Nanyang Technological University, Singapore*)
P4-4	**Navigating Digital Transformation Challenges: An Exploration of Employee Attitudes, Expectations, and Support** Elfindah Princes (*Bina Nusantara University, Indonesia*), Desman Hidayat (*Bina Nusantara University, Indonesia*), Yuli Eni (*Bina Nusantara University, Indonesia*), Adidharma Ekaputra Kesuma (*Bina Nusantara University, Indonesia*)
P4-5	**Designing Digital Media With East Java Local Content** Satrya Dirgantara (*Bina Nusantara University, Indonesia*), Frihandhika Permana (*Bina Nusantara University, Indonesia*), Lailatul Rifah (*Bina Nusantara University, Indonesia*)
P4-6	**Interaction through Online Customer Engagement in Social Media Marketing on Increasing Brand Loyalty** Anggriani Tantri Lauwrence (*Bina Nusantara University, Indonesia*), Sari Ramadanty (*Bina Nusantara University, Indonesia*), Maria Anggia Widyakusumastuti (*Bina Nusantara University, Indonesia*)
P4-7	**Assessing the Effect of Electronic Word of Mouth (eWoM) on Online Buying Decision of The Cosmetic Product** Danang Prihandoko (*Bina Nusantara University, Indonesia*), Nopriadi Saputra (*Bina Nusantara University, Indonesia*), Nayla Nur Alifah (*IPB, Indonesia*)
P4-8	**Breaking Barriers: The Evolution of Sign Language Detection with Artificial Intelligence** Shahidatul Arfah Baharudin (*Universiti Kuala Lumpur, Malaysia*), Muhammad Haziq Najmi Ruslan (*Universiti Kuala Lumpur, Malaysia*), Adidah Lajis (*Universiti Kuala Lumpur, Malaysia*), Sri Banu Munisamy (*Universiti Kuala Lumpur, Malaysia*), Diyana Ab Kadir (*Universiti Kuala Lumpur, Malaysia*) and Nadilah Mohd Ralim (*Universiti Kuala Lumpur, Malaysia*)
P4-9	**Play Bricks IV: Desktop and Web-based Play Bricks App for Architectural Styles** Radwan Walid (*German University in Cairo, Germany*), Toka Ossama (*German University in Cairo, Germany*) and Mohammed Abdel-Megeed Salem (*German University in Cairo, Germany*)
P4-10	**Data Augmentation Framework For Improving Image Recognition Using Cycle GAN Plus** Sangmin Kim (*Sungkyunkwan University, Korea*), Selome Tesfaye Deribe (*Sungkyunkwan University, Korea*), Gyurin Byun (*Sungkyunkwan University, Korea*), Taeyong Kuc (*Sungkyunkwan University, Korea*), Hyunseung Choo (*Sungkyunkwan University, Korea*), Jeongwon Pyo (*Sungkyunkwan University, Korea*) and Kyeongjin Joo (*Sungkyunkwan University, Korea*)

Maps - From the Kuala Lumpur International Airport to the conference venue -

From Kuala Lumpur International Airport to Grand Millennium Kuala Lumpur Hotel

Conference Venue is located approx. 60 kilometers from Kuala Lumpur International Airport. The journey from the airport to the resort takes **approximately 1 hour**. From airport, you can arrive at the conference location by **taxi, train, subway or by bus**. However, it is recommended to take a taxi if you are not familiar with the use of other options.

English address: 160, Jln Bukit Bintang, Bukit Bintang, 55100 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur, Malaysia.

More detail: Visit http://www.imcom.org/

❖ **Regular Taxi (Airport -> Grand Millennium Kuala Lumpur Hotel)**

There are two types of taxi service in Terminal 1, airport taxi and metered city taxi. Airport taxi operates through a coupon system that can be purchased at the respective counters. Metered taxi is available at Terminal 1. For more information check here : https://airports.malaysiaairports.com.my/getting-around/transport/public-transport

❖ **Train (Airport -> Grand Millennium Kuala Lumpur Hotel)**

The fastest way to get from KLIA to the city centre is by taking the KLIA Ekspres. There is a non-stop service to the KL City Air Terminal (KL CAT) located in KL Sentral which will take 28 minutes. For more information check here: https://airports.malaysiaairports.com.my/getting-around/transport/public-transport

❖ **Bus (Airport -> Grand Millennium Kuala Lumpur Hotel)**

KLIA has a variety of bus service that can take you to several destinations in within Peninsula Malaysia. Please note that the information is subject to change by the respective service providers. For booking and information check here: http://theairportbus.com.my/

Welcome Reception

| Grand Millennium Kuala Lumpur Hotel|

Address:
160, Jln Bukit Bintang, Bukit Bintang, 55100 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur, Malaysia
Tel: +60 3 2117 4888
Website: https://www.millenniumhotels.com/

Organization co-chairs: Roslan Ismail and Kim De Silva

AGENDA	
Date: Wednesday, January 03, 2024 **Food: Set menu** **Venue: Millennium I** **Attire: Casual**	
13:00	Regrouping for Reception
13:30	Welcoming Address by Prof. Ts. Dr. Zalizah Awang Long – Advisory Co-Chair of IMCOM 2024
13:35	Lunch begins
14:00	Walking Down Memory Lane: Video Montage of IMCOM 2013 - 2020
14:30	Lunch ends

Conference Banquet

| Grand Millennium Kuala Lumpur Hotel|

Address:
160, Jln Bukit Bintang, Bukit Bintang, 55100 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur, Malaysia
Tel: +60 3 2117 4888
Website: https://www.millenniumhotels.com/

Organization co-chairs: Hyunseung Choo and Duc-Tai Le

AGENDA	
Date: Thursday, January 04, 2024 **Food: Buffet** **Venue: Millennium I** **Attire: Smart Casual**	
13:00	Regrouping for Banquet
13:30	Banquet begins
14:00	Farewell message and announcement of next year IMCOM
14:15	Traditional Dance Performance
14:45	Photo session all together
15:00	Conference Banquet ends

Travel Information - About Conference Venue -

| About Kuala Lumpur |

Malaysia is a Southeast Asian country occupying parts of the Malay Peninsula and the island of Borneo. It is known for its beaches, rainforests and mix of Malay, Chinese, Indian and European cultural influences. The capital, Kuala Lumpur, is home to colonial buildings, busy shopping districts such as Bukit Bintang and skyscrapers such as the iconic, 451m-tall Petronas Twin Towers. The city is also home to British colonial-era landmarks such as the Kuala Lumpur Railway Station and the Sultan Abdul Samad Building. It is one of the fastest-growing cities in Asia and the largest city in Malaysia, covering an area of 243 km2 (94 sq mi) with a census population of 1,982,112 as of 2020. Greater Kuala Lumpur also known as the Klang Valley, is an urban agglomeration of 7.564 million people as of 2018. It is among the fastest growing metropolitan regions in Southeast Asia, both in population and economic development.

| About Conference Venue |

Grand Millennium Kuala Lumpur is located right in the heart of the city's cosmopolitan part of Golden Triangle that amalgamates shopping, business, entertainment, food and cultures. This 5-star upscale international hotel is adjacent to the iconic Pavilion Kuala Lumpur shopping mall, situated right across Starhill Gallery, Fahrenheit88 and Lot 10 shopping malls with 20 minutes walk to the Petronas Twin Tower and KL Convention Centre. Its 468 spacious guestrooms including 16 suites are well-appointed with plush beddings, LCD TV and floor-to-ceiling windows that boast the city's majestic skyline. For meetings and events, Grand Millennium Kuala Lumpur presents 1,500 square meters of atmospheric venues ideal for conferences, meetings, intimate weddings, social gatherings and spectacular celebrations. The hotel conveniently connects guests to all parts of the vibrant metropolis being a short walk (60m) to the MRT Bukit Bintang station. It is 45-minute drive from the Kuala Lumpur International Airport (KLIA and KLIA2).

Travel Information - General Information -

| Accommodation |

Detailed information for the reservation is available on: imcom.org / VENUE / Accommodation

Name	Location	Contact	Price per day (MYR)
Grand Millennium Kuala Lumpur	MRT Bukit Bintang station	+60 3 2117 4888	463
JW Marriott Kuala Lumpur	Kuala Lumpur City Centre	+60 3-2715 9000	840
PARKROYAL COLLECTION Kuala Lumpur	Bukit Bintang	+60 3-2782 8388	654

| Climate |

Malaysia has a tropical climate. Malaysia's mean annual temperature is 25.4°C. There is relatively little seasonal variability in average monthly temperature, ranging on e degree Celsius between a minimum of 24.9°C in Janu ary and maximum of 25.9°C in May. April, May and Jun e are the hottest months of the year.

| Electricity |

For Malaysia the associated plug type is G, which is the plug that has three rectangular pins in a triangular pattern. Malaysia operates on a 240V supply voltage and 50Hz. You can use your electric appliances in Malaysia, if the standard voltage in your country is in between 220 - 240 V (as is in the UK, Europe, Australia and most of Asia and Africa). Manufacturers take these small deviations into account. If the standard voltage in your country is in the range of 100 V - 127 V (as is in the US, Canada and most South American countries), you need a voltage converter in Malaysia. You can find voltage converters at Amazon. You can also consider a combined power plug adapter/voltage converter.

| Language |

The national language of Malaysia is Malay, apart from being one of the two official languages. Also called Malaysian Malay or Malay, it is spoken by over 80% of the population. The second official language of Malaysia is English, which is also one of the most commonly spoken languages. Malay is an Austronesian language that is an official language of Brunei, Indonesia, Malaysia, and Singapore, and that is also spoken in East Timor and parts of Thailand. Altogether, it is spoken by 290 million people across Maritime Southeast Asia.

| Banking Service |

ATMs are plentiful in Malaysia's main cities. You'll find them at the airport, near bank branches, on the main shopping streets, in shopping malls, at petrol stations and at bus stations. Maybank is Malaysia's largest bank, and it has the largest ATM network in the country. Maybank ATMs are instantly recognisable by their distinctive black and yellow colour scheme.
For security reasons, not all ATMs in Malaysia operate 24 hours a day. Maybank's online ATM locator lets you search specifically for 24-hour ATMs.

| Credit Card |

Most Malaysian ATMs accept MasterCard (Cirrus and Maestro) and Visa (Plus) cards. Check whether the ATM displays your card network's logo before using it

| Currency |

The Malaysian ringgit is the currency of Malaysia. It is divided into 100 sen. The ringgit is issued by the Central Bank of Malaysia. Historically, exchange rates between KRW and USD have been around 1MYR = $0.214.

| Currency Exchange |

Banks and foreign exchange offices can be found in major tourist centers. There is no fee to exchange cash – just different rates between exchange offices. Shop around to find the best rate, and make sure you check you've been given the right amount of cash before you walk away from the teller. Malaysians sometimes refer to Malaysian ringgits as dollars, and some prices use the prefix dollar sign. All prices are in ringgits, even if you hear the vendor saying dollars. Banknotes are divided into the following denominations: 1, 5, 10, 50 and 100.

| Business and Office Hours |

Banks: Mon – Fri 9:30 A.M. to 4:00 P.M.
Offices: Mon – Fri 9:00 A.M. to 5:00 P.M.
Post Offices: Mon – Fri 9:00 A.M. to 6:00 P.M.
Museums: Mon – Sun 09:00 A.M. to 5:00 P.M.
Restaurants: Mon-Sun 11:00 AM – 10:00 PM.
Shops, Stores: Mon – Sun 11:00 A.M. to 10:00 P.M.
Pubs and Bars: Mon – Sun 06:00 P.M. to 01:00 A.M.

| Time Zone |

Malaysia Standard Time, GMT/UTC +8h during standard time. Malaysia does not follow the Daylight-saving time.

Travel Information - General Information -

| Tipping & Tax |

Tipping in Malaysia is not expected. Instead, a service charge will normally be added to your bill. The service charge will usually be declared on the menu if you're in a cafe or restaurant, for example, and is paid directly to the company rather than to an individual member of staff. Restaurants in Malaysia will add a 10% government tax to your bill automatically and some even add an additional 5% service tax. Locals normally round up the bill or leave their change; you can use this rule of thumb or leave an additional 10 - 15% if the service is outstanding.

| Medical Service |

The services of Health and Safety at Kuala Lumpur are as follows:

286, 50450 Kuala Lumpur, Malaysia
286, 50450 Kuala Lumpur, Malaysia

Pantai Hospital Kuala Lumpur
8 Jalan Bukit Pantai, 59100 Kuala Lumpur, Malaysia

Sunway Medical Centre
5, Jalan Lagoon Selatan, Bandar Sunway, 47500
Petaling Jaya, Selangor

| Shopping |

Some of the best places to go shopping in Kuala Lumpur are modern malls. It should come as no surprise that the Malaysian capital takes retail therapy seriously, with major malls found within the heart of the city, while the greater Klang Valley area, just 20 minutes away, is home to dozens of shopping centres. Expect big-box retailers, high-street brands, indie labels, local boutiques, and even weekly street markets. Each mall has a collection of different stores, resulting in a different atmosphere at each place, making for a pretty diverse shopping experience. Shoppers will find that the most popular malls in Kuala Lumpur are kept up-to-date with the most glamorous names in the fashion industry right now, from mid-range labels like Topshop and Adidas to the likes of Coach and Louis Vuitton. Shoppers can also combine shopping with great onsite attractions, like bowling, archery, ice skating and laser tag.

| Emergency Numbers |

Medical Emergencies and Fire Department: 999/994
Police Department: 999
Emergency Assistance : 999
Travel information: 1800885050
Country calling code: +60

| Dress Code |

Short shorts, tank tops, crop tops and spaghetti straps aren't culturally appropriate in Malaysia. While women are expected to dress more conservatively than men, men should also cover up from the shoulders to below the knee. The exception is when you're on a beach or by a pool, in which case wearing a bathing suit is fine. And remember: sarongs are not acceptable outside the beach or pool area.
A light fabric like linen is great for the heat as it absorbs moisture (read: sweat) and dries quickly. You might want to avoid cotton as it takes ages to dry — not ideal for places like Borneo where the humidity can be oppressive! Sportswear is also a good option for hot weather.

| Public Transport |

Kuala Lumpur Public Transport has developed into one The most common mode among locals is the MRT, aka the Klang Valley Mass Rapid Transit. Of course, tourists can also utilise this train service that is fast, new, and convenient. There are two MRT lines: the MRT Kajang Line and the MRT Putrajaya Line. The former has been around for around seven years now, while the latter has only been recently introduced.

| To/From the Airport |

The fastest way to get from KLIA to the city centre is by taking the KLIA Ekspres. There is a non-stop service to the KL City Air Terminal (KL CAT) located in in KL Sentral which will take 28 minutes. There is also a transit train service with 3 stops along the journey at Bandar Tasik Selatan, Putrajaya/Cyberjaya, and Salak Tinggi. The transit train service will take 35 minutes. The trains are equipped with comfortable seats, digital entertainment, wheelchair seat restraint, wheelchair-friendly washroom, and luggage racks.

For further information visit the site:

http://www.kliaekspres.com

Airport taxi operates through a coupon system that can be purchased at the respective counters. The airport taxi service provider has a variety of vehicle types in their fleet ranging from family sedans to luxury vehicles. The charges start from a minimum of MYR32.20 and are fixed based on the desired destinations. For more information on rates and bookings, kindly contact Airport Limo (M) Sdn. Bhd. at 1-300-88-8989 or visit their website at

www.airportlimo.my

KLIA has a variety of bus service that can take you to several destinations in within Peninsula Malaysia. You can take the bus service by going to Level 1, Block C, Short-Term Car Park and Level 1, Main Terminal Building.

Travel Information - Foods -

| Nasi lemak |

Infused with pandan leaves, a fragrant mound of coconut-milk-soaked rice forms part of a daily culinary routine – gobbled up by locals for breakfast, lunch or dinner. Classic combinations include meat, seafood or vegetables, which sit alongside a fusion of ginger, nuts, cucumber and anchovies.

| Cendol |

Mung bean flour and vibrantly hued pandan-leaf syrup combine in a glass to form gummy 'worms' that are synonymous with this colourful concoction. Coconut milk, palm sugar syrup and shaved ice top these to add a smooth contrast to the gooey confection found at the bottom of the glass.

| roti canai |

Roti canai is made from dough which is usually composed of fat, flour and water. The dough is repeatedly kneaded, flattened, oiled, and folded before proofing, creating layers. The dough ball is then flattened, spread out until paper thin, and gathered into a long rope-like mass. This "rope" is then wound into a knot or spiral and flattened, so that it consists of thin flakes of dough when cooked.

| Rendang |

A spicy paste mingles with creamy coconut milk and is absorbed into generous chunks of tender beef. Time is of the essence — the more the meat is left to simmer, the more the colour and flavour cling to it. The recipe can be heavier on the spices for a 'dry' version, or coconut-milk-infused to make a gravy-like dressing.

| Wan tan mee |

These generously proportioned dumplings fuse a balance of sweet pork with salty soy sauce. Quick and filling, they sit on top of egg-fried noodles with slices of more pork and a dash of greenery in the form of Chinese kale, kai lan.

| Nasi kandar |

With Indian roots, this curry-like combo has long been a food-stall staple. Always containing fragrant rice, it's paired with your selection of sautéed vegetables, fried chicken, or more daring ingredients like beef spleen, fried squid, or fish roe in a spicy gravy. Meaning 'to flood', banjir curry sauces are added to saturate the dish in flavour.

Travel Information - Beverages -

| Teh tarik |

Many Malaysians consider this their national drink. Teh tarik (which literally means 'pulled tea') is made of strong, locally-sourced black tea combined with either condensed or evaporated milk (usually condensed, because it's sweeter), and maybe some sugar if it's not sweet enough. Once all the ingredients have been mixed together, the tea is then repeatedly poured from one cup/jug to another — from a height — to release heat so that it is drinkable, and most importantly, to create a thick, frothy top.

| Sirap Bandung |

This fun-colored drink (if you love pink, that is) might be mistaken for strawberry-flavored milk. Sirap bandung has a unique flavor that is worth trying. This drink has nothing to do with the Indonesian city of Bandung. The word 'bandung' here means 'mixed', and in this case, it is the mixture of rose syrup and condensed/evaporated milk.

| Barley Water |

In Malaysia, barley juice is a standard beverage. Barley juice is a clear, viscous liquid that tastes good with lime and sugar when served with ice. Whole barley pearls that are soft, thick, and sweetened with sugar are mixed into the juice. Barley grass juice is a great source of energy as it is rich in carbohydrates, iron, and other essential minerals that help boost energy levels. It can help reduce fatigue and increase stamina and endurance.

| Cincau |

Cincau or grass jelly is a sweet dessert made of a type of plant called Mesona Chinensis, which belongs to the mint family. The leafs and stalks of this plant are dried and boiled with a small amount of starch or rice flour. After cooling down, the liquid will firm into a jelly-like consistency. Grass jelly — which was originally from Hong Kong, Taiwan, and Southern China — is often used as a topping for Malaysian desserts, or added to other beverages such as soy milk, iced teh tarik, and sirap bandung.

| Air Mata Kucing |

The main ingredient of this drink is a type of fruit that belongs to the same family as the longan fruit. It is called 'mata kucing', which literally means 'cat's eye'. Please do not conjure up images of cat eyes floating in the brown liquid. It would be a shame to let that deter you from trying this drink, because air mata kucing had been ranked #6 out of the "50 Most Delicious Drinks from Around the World" by CNN. Researchers claim that the fruit can help relieve depression, prevent cell damage, and act as an anti-ageing agent. Another key ingredient in this drink is the monk fruit, which is a natural sweetener and is widely used in traditional Chinese medicine.

Travel Information - Tourist Attractions -

| Petronas Twin Towers |

The Petronas Towers (Malay: Menara Berkembar Petronas), also known as the Petronas Twin Towers and colloquially the KLCC Twin Towers, are a pair of 88-story supertall skyscrapers in Kuala Lumpur, Malaysia, standing at 451.9 meters (1,483 feet). From 1998 to 2004, they were officially designated as the tallest buildings in the world until they were surpassed by the completion of the Taipei 101 in 2004. The entry fee is around 33,976 South Korean won for Non-Malaysian adults.

| Thean Hou Temple |

The Thean Hou Temple is a six-tiered temple of the Chinese sea goddess Mazu located in Kuala Lumpur, Malaysia. It is located on 1.67 acres (6,758 m2) of land atop Robson Heights on Lorong Bellamy, overlooking Jalan Syed Putra. It was completed in 1987 and officially opened in 1989. The temple was built by Hainanese living in Malaysia and the property belongs to and is run by the Selangor and Federal Territory Hainan Association (Malay: Hainan Selangor and Wilayah Persekutuan; China. It is one of the largest temples in Southeast Asia.

| Independence Square |

The flagpole which holds the flag of Malaysia is the highest in the world, towering at a height of 100 meters. Merdeka Square is a historical site where Malaya declared its independence. If you are a fan of Malayan history, you can come here and take some pictures. The field in front of Merdeka Square was officially named Dataran Merdeka on 1st January in conjunction with the Visit Malaysia Year 1990. There are many attractions nearby the eka Square. For shoppers, you can come over to Central Market Kuala Lumpur to buy some local souvenirs.

| Kuala Lumpur Bird Park |

Kuala Lumpur Bird Park (Malay: Taman Burung Kuala Lumpur) is a 20.9-acre (8.5 ha) public aviary in Kuala Lumpur, Malaysia. It is one of the world's largest covered bird parks, located adjacent to the 60-hectare (150-acre) Perdana Botanical Gardens, Kuala Lumpur Butterfly Park, the National Mosque and Royal Malaysian Police Museum. The Bird Park houses more than 3,000 birds representing more than 200 species in an enclosed aviary. About 90% are local birds and 10% were imported from countries such as Australia, China, Holland, Indonesia, New Guinea, Tanzania and Thailand.

Travel Information - Tourist Attractions -

| KLCC Park |

KLCC Park, located at the heart of Kuala Lumpur and nestled at the base of the Petronas Twin Towers, is a popular retreat for tourists seeking relaxation. Spanning over 50 acres, it offers an urban oasis with lush greenery, refreshing water features, and a captivating water fountain show. The park's beautifully landscaped gardens showcase a vibrant array of about 74 species of native plants, indigenous trees, and palms, attracting local and migratory birds. It provides a peaceful escape from the bustling city life.

| Bukchon Hanok Village |

Aquaria KLCC, established in 2002, is a significant indoor marine park in Malaysia, boasting over 250 species and 5,000 land and aquatic animals. Spanning 60,000 square feet across two levels and featuring a 90-meter underwater tunnel, it offers visitors a unique opportunity to observe a diverse range of underwater creatures. The majority of the showcased wildlife is sourced globally, with only a few species native to Malaysia. Renowned as one of the top attractions in Southeast Asia, Aquaria KLCC replicates natural habitats in its aquariums, creating a visually appealing experience for visitors.

| National Museum of Malaysia |

The National Mosque of Malaysia (Malay: Masjid Negara Malaysia) is a mosque in Kuala Lumpur, Malaysia. It has a capacity for 15,000 people and is situated among 13 acres (53,000 m2) of gardens. Its key features are a 73-meter-high (240 ft) minaret and a 16-pointed star concrete main roof. The umbrella, synonymous with the tropics, is featured conspicuously – the main roof is reminiscent of an open umbrella, the minaret's cap a folded one. Completed in 1965, the mosque is a bold and modern approach in reinforced concrete, symbolic of the aspirations of a then newly independent nation.

| Perdana Botanical Gardens |

The Perdana Botanical Garden, formerly known as Taman Tasik Perdana or Lake Gardens, is situated in the Heritage Park of Kuala Lumpur. It offers hours of fun activities and sightseeing opportunities for just about any visitor, from nature lovers and families with little ones. The garden aslo houses features that give the visitors the ambiance of being in a tropical rainforest, despite being in the middle of a bustling metropolis. Here, we've compiled the best things to see and do in Lake Gardens Kuala Lumpur if you have an afternoon to spare and fancy getting away from the hustle and bustle of the city.

Travel Information - Arts & Museums -

| National Museum of Malysia |

The National Museum (Muzium Negara) in Kuala Lumpur, Malaysia, situated near the Perdana Lake Gardens, is a palatial structure built in the style of Rumah Gadang, reflecting Minangkabau architecture. Opened on August 31, 1963, the museum is a three-storey building measuring 109.7 meters long, 15.1 meters wide, and 37.6 meters high at the central point. It serves as a repository for Malaysia's rich cultural and historical heritage, featuring four main galleries dedicated to ethnology and natural history. The exhibits cover a diverse range, including cultural events, traditional weapons, musical instruments, arts and crafts, ceramics, and flora and fauna.

| Bank Negara Malaysia Museum and Art Gallery |

The museum section features interactive exhibits and displays that showcase the history of money, the role of the Central Bank of Malaysia, and the country's economic development. Visitors can explore a variety of exhibits, including ancient coins, banknotes, and artifacts related to the evolution of the banking industry in Malaysia. The art gallery section of the museum showcases a collection of contemporary and traditional Malaysian art. The collection includes paintings, sculptures, and installations by prominent Malaysian artists, as well as international artists with a focus on Southeast Asia.

| Islamic Arts Museum Malaysia |

The attraction is situated in the central area of Kuala Lumpur's popular tourist district, surrounded by lush greenery and conveniently close to landmarks such as the National Mosque, Birds Park, and National Planetarium. The Islamic Arts attraction comprises twelve primary galleries, organized on levels three and four based on artifact categories. On the third level, visitors can explore the Quran and Manuscripts Gallery, Islamic Architecture Gallery, India Gallery, China Gallery, and the Traditional Malay World Gallery. Additionally, an impressive reconstruction of an Ottoman Syrian room from the 19th century can be found on this level.

| Royal Selangor Visitor Centre |

Royal Selangor Visitor's Center is one of Malaysia's top tourist attractions. The museum is showcases Royal Selangor's pewter practice beginning with its founding in 1885. Visitors can watch pewtersmithing workshops or even join one. Other features of the Royal Selangor Visitor Centre include the world's largest pewter tankard, a pewter replica of the Petronas Towers and hands-on educational exhibits. The visitor center has a retail showcase with items that can be purchased. There is also a cafe onsite with pastries, sandwiches, salads and daily specials.

Travel Information - Restaurants-

| Bijan Bar & Restaurant |

Pronounced as "Bee-Jahn", Bijan is one of the pioneers of refined Malay fine-dining in the heart of Kuala Lumpur. Established since September 2003, Bijan has been living up to the modern Malaysians' expectations by offering various interesting combinations of traditional Malay recipes and modern ingredients.

Opening Hours: Daily 11:30--21:40
Address: Bijan Restaurant & Bar No. 3 Jalan Ceylon, 50200 Kuala Lumpur.
Tel: + 603 2031 3575

| Makan Kitchen |

Indulge in an authentic Malaysian dining experience at the award-winning restaurant, Makan Kitchen, DoubleTree by Hilton Kuala Lumpur. Live interactive show kitchens and buffet spreads showcase the enormous diversity of Malaysian cuisine.
Opening Hours: Daily 12:00-14:30; 18:30 - 22:00
Address: 348, Jln Tun Razak, Kampung Datuk Keram at, 50400 Kuala Lumpur, Wilayah Persekutuan Kuala L umpur, Malaysia
Tel: +60 3-2172 7272

| Pampas Reserve Grill & Bar |

In the dining room, Pampas offers a daily tasting menu with a journey of seasonal ingredient, pure, clean and intense flavours. A 'a la carte' menu for dinner and prix-fixe tasting menu daily for dinner. Pampas Grill and Bar is proud to have a menu designed around the best steak that South America has to offer. In addition, we've filled out our menu with options to suit any mood : tender lamb, succulent chicken, seafood and crisp fresh salads - all finished with a flair that is uniquely Pampas.

Opening Hours: Monday - Friday 12:00 - 23:59; Saturday – Sunday 17:00 – 23:59

Address: G01, Suasana Bukit Ceylon, 2, Persiaran Raja Chulan, 50200 Kuala Lumpur.
Tel: +601128564186

| Madam Kwan's |

At Madam Kwan's, we take pride in serving you the very essence of Malaysia on a plate. Our journey started with Kwan Swee Lian, a devoted enthusiast who fell in love with the diverse and exciting flavors of Malaysia. Today, our commitment remains unwavering, as we are dedicated to preserving traditional recipes while infusing a modern twist, and we are your gateway to the enchanting world of truly Malaysian cuisine.

Opening Hours: Daily 10:00 – 22:30

Address: Kuala Lumpur City Centre, Petronas Twin Tower, Lot 420 421, Kuala Lumpur City Centre, 50088 Kuala Lumpur, Malaysia

Tel: +60320262297

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