2023

Conference Program

MAY 12-14, 2023 | OKAYAMA, JAPAN | GMT+9

2023 4th International Conference on Information Technology and Education Technology (ITET 2023)
2023 2nd International Conference on Intelligent Systems Design and Engineering Applications (ISDEA 2023)

Technical supported by

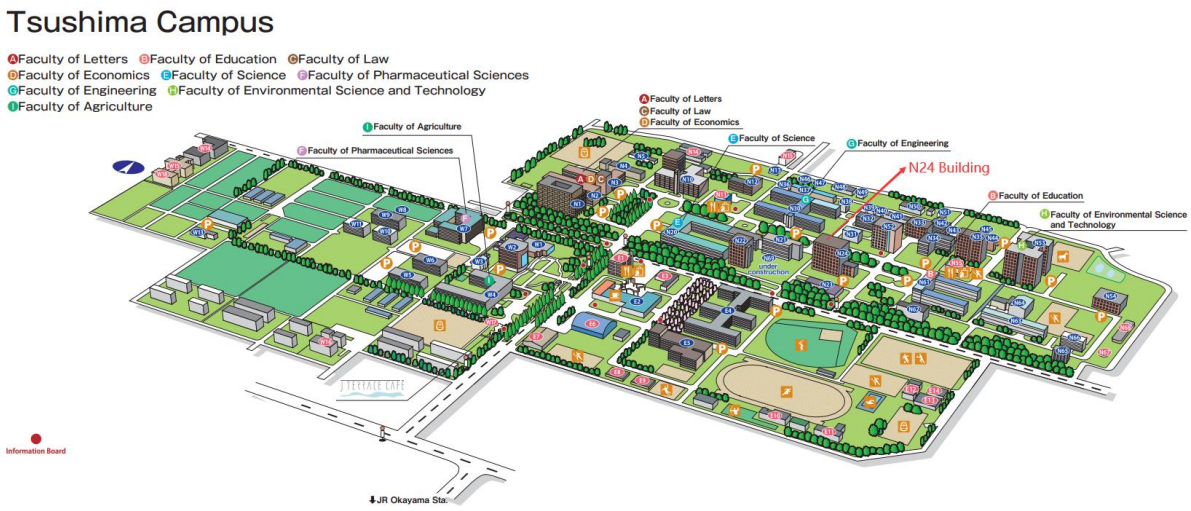
Okayama University
Add: 3-1-1 Tsushimanaka, Kita Ward, Okayama, 700-8530, Japan

Table of Content

General Information 02
Welcome Message 04
Conference Committee 07
Agenda Overview 05
Keynote Speaker 09
Onsite Session 1: Course Learning and Teaching Innovation 13
Onsite Session 2: Software Design and Image Analysis 14
Onsite Session 3: Computer Model and Machine Learning 15
Onsite Session 4: Intelligent Control System and Machine Vision 16
Online Session 1: Intelligent Information System Development and Computer Simulation Technology 17
Online Session 2: Modern Teaching Theory and Management Technology 18
Note

General Information

1) Conference Venue: Okayama University, Japan (Tsushima Campus)
3-1-1 Tsushimanaka, Kita Ward, Okayama, 700-8530, Japan



For Campus Map (Click)

Friday, May 12, 2023: #3 seminar room, 2F, N24 building

Saturday, May 13, 2023: Large Lecture Room & #2 Lecture Room, 2F, N24 building

Access to Okayama University Tsushima Campus

Access from Narita Airport

By Domestic Flight:
There is no direct flight service from Narita to Okayama. If you would like to take a domestic flight from Tokyo, you need to go to Haneda (Tokyo) Airport, which is an approximately 75-minute bus ride from Narita Airport. The flight from Haneda to Okayama takes about 70 minutes.
(Please check with your preferred airline company for the air fare from Tokyo to Okayama.)

By Shinkansen (Bullet train):
You can take the Narita Express from Narita airport to Tokyo station, which takes about 1 hour. You can also take the limousine bus service, which can take up to 2 hours depending on the traffic. There are frequent Shinkansen services to Okayama from Tokyo station, and it takes about 3 hours and 15 minutes by the super express "Nozomi".

Access from Kansai Airport

By Shinkansen (Bullet train):
Please take a train or a bus from Kansai airport to Shin-Osaka station. There are frequent Shinkansen services to Okayama station, which takes about 45 minutes by the super express "Nozomi", "Sakura", and "Muzuho".

Access from Okayama Airport

Limousine Bus:
The nearest bus stop is "Okayama Daigakusuji (岡山大学筋)". Then, it will take 15 min. to the campus.

Taxi

Access from Okayama Station

Bus: At JR Okayama Station West Exit Bus Terminal at #22, take Okaden Bus #47 for "Okayama Daigaku and Okayama Rika Daigaku" and get off at "Okadai Nishimon (岡大西門)" or "Okadai Higashimon (岡大東門)".
http://okayama-kido.co.jp/bus/wp-content/themes/okaden2023/assets/pdf/jikoku/47_gakuen.pdf?202305010029

"Okadai Higashimon (岡大東門)" is the nearest bus stop from the conference venue.
However, it takes much longer time than "Okadai Nishimon (岡大西門)" as you can see the bus time table.
The bus to "Myozenji" leaves from East Exit at Okayama Station.

Hotel Recommendation

Near Campus:

Recent Culture Hotel

Near Okayama Station:

ANA Crowne Plaza Okayama

Toyoko Inn Okayama-eki Nishi-guchi Hiroba

Hotel Granvia Okayama

Daiwa Roynet Hotel OKAYAMA-EKIMAE

2) Onsite Registration

Registration desk (#3 seminar room, 2F, N24 building) → Inform the staff of your paper ID→ Sign-in→ Claim your conference kit.

3) Devices Provided by the Organizer

Laptops (with MS-Office & Adobe Reader) / Projectors & Screen / Laser Sticks

4) Materials Provided by the Presenter

Oral Session: Slides (pptx or pdf version). Format 16:9 is preferred.

Official language: English.

5) Duration of Each Presentation

Keynote Speech: 40min, including Q&A / Oral Session: 15min, including Q&A

6) Notice

※ Please wear your delegate badge (name tag) for all the conference activities. Lending your participant card to others is not allowed.

※ Please take good care of your valuables at any time during the conference. The conference organizer does not assume any responsibility for the loss of personal belongings of the participants during conference day.

※ Wear a Mask. Make sure your mask fits well with the nose clip. Avoid hands shaking and Skin-to-skin contact.

※ **UTC+9. Japanese Time. Please be aware of time difference between this and your region/country.**

7) Online Presentation Tips

	Meeting ID	Link
Zoom Download	876 8061 6575	https://us02web.zoom.us/j/87680616575

Note:

We recommend that you install the Zoom platform on your computer before the conference starts. New users can participate in the Zoom meeting without registration.

Participants who are going to do an online presentation are required to join the rehearsal in Zoom on Friday, May 12. Duration: 3min apiece. Feel free to leave after you finish the test.

◆Name Setting

Keynote Speaker: KN-Name

Committee: Position-Name

Author: Paper ID-Name

Listener: Listener-Name

◆Useful Links

- Conference Banner
- Zoom Background

Welcome Message

Dear researchers, delegates of conference,

Welcome to Okayama, Japan to attend 2023 4th International Conference on Information Technology and Education Technology (ITET 2023) and 2023 2nd International Conference on Intelligent Systems Design and Engineering Applications (ISDEA 2023) which is technical supported by Okayama University, Shonan Institute of Technology, Nihon University, Nagoya Institute of Technology, Yamaguchi University, Japan.

In consideration of health and safety for everyone and travel restrictions, ITET 2023 and ISDEA 2023 are still made offline and online mixed. We feel pity that we cannot gather all together in Okayama. However, we will work hard to provide you with a high-quality conference as always, and with the hope that we can get your support.

The objective of the conferences is to provide a premium platform to bring together researchers, scientists, engineers, academics and graduate students to share up-to-date research results. We are confident that during this time you will get the theoretical grounding, practical knowledge, and personal contacts that will help you build a long term, profitable and sustainable communication among researchers and practitioners in the related scientific areas.

This year we have 4 Keynote Speeches. They are Prof. Makoto Iwasaki (IEEE Fellow, IEE Japan Fellow) from Nagoya Institute of Technology, Japan; Prof. B (Bedir) Tekinerdogan from Wageningen University, The Netherlands; Prof. Hideki Tode from Osaka Metropolitan University, Japan and Prof. Hong Wang (IEEE Fellow), Oak Ridge National Laboratory, USA. In the conferences, we have 6 sessions (In person + Virtual) with topics: Course learning and teaching innovation; Software design and image analysis; Computer model and machine learning; Intelligent control system and machine vision; Intelligent information system development and computer simulation technology; Modern teaching theory and management technology.

Meanwhile, we received more than 100 submissions from research institutions, universities and industries. The papers in the proceedings are accepted after being peer-reviewed by conference committee, international reviewers based on the topic and quality. With the keynote speeches, oral sessions, we'll have an exciting program this year, which will allow participants to present and discuss the latest research and industrial developments in these fields.

On behalf of the organizing committee, we would like to deeply express our heartfelt appreciation to all our delegates, keynote speakers, session chairs, as well as all the committee members involved in the technical evaluation of conference papers and in the organization of the conference for their time, effort, and great contributions.

We also wish that this conference will be an unforgettable and wonderful experience for you.

With Warmest Regards,

Conference Organizing Committees

ITET 2023

Ms. Teri Zhang

Email: itet-conf@outlook.com

ISDEA 2023

Ms. Rachel Cao

Email: isdea_conf@163.com

Conference Committee

Conference Advisory Committees
Prof. Yutaka Ishibashi, Nagoya Institute of Technology, Japan
Prof. Mitsuhiro Okayasu, Okayama University, Japan
Prof. Wen-Chung Kao (Fellow of IEEE), National Taiwan Normal University, Taiwan
Prof. B (Bedir) Tekinerdogan, Information Technology group at Wageningen University, The Netherlands

Conference Chairs
Prof. Takashi Yasuno, Tokushima University, Japan
Prof. Chih-Peng Fan, National Chung Hsing University, Taiwan
Prof. Yu-Cheng Fan, National Taipei University of Technology, Taiwan

Local Arrangement Chair
Prof. Nobuo Funabiki, Okayama University, Japan

Conference Co-Chairs
Prof. Makoto Iwasaki (Fellow of IEEE), Nagoya Institute of Technology, Japan
Prof. Yongsheng Ma, SUSTech in Shenzhen, China

Conference Program Chairs
Prof. Kiyoshi Ueda, Nihon University, Japan
Prof. Wilson Q. Wang, Lakehead University, Canada
Prof. Shinji Sugawara, Chiba Institute of Technology, Japan
Prof. Shingo Yamaguchi, Yamaguchi University, Japan

Conference Publication Chairs
Prof. Kazuhiro Kikuma, Nihon University, Japan
Prof. Kazuyuki Kojima, Shonan Institute of Technology, Japan

Conference Program Co-Chair
Assoc. Prof. Cheng Siong Chin, Newcastle University, Singapore

Technical Program Committees
Prof. Yeungkwun Kim, Western Illinois University,USA
Prof. Masaru Fukushi, Yamaguchi University, Japan
Prof. Juan M. Górriz Sáez, University of Granada, Spain
Prof. Qinglong Zhan, Tianjin University of Technology and Education, China
Prof. Ritthiwut Puwaphat, Princess of Naradhiwas University, Thailand
Prof. Chi-Cheng Cheng, National Sun Yat-sen University, Taiwan
Prof. Abdulkareem Al-Alwani, University of Prince Mugrin, Saudi Arabia
Prof. Matthew Montebello, University of Malta, Malta
Prof. Yi-Fang Lee, National Taiwan Normal University, Taiwan
Prof. P. Geetha, Mohan Babu University, India
Prof. Gurendra Nath Bhardwaj, NIIT University, Neemrana, Rajasthan, India
Prof. René Faruk Garzozi Pincay, Universidad Estatal Península de Santa Elena, Ecuador
Assoc. Prof. Naragain Phumchusri, Chulalongkorn University, Bangkok, Thailand
Assoc. Prof. Surachai Suksakulchai, King Mongkut's University of Technology Thonburi, Thailand
Assoc. Prof. Thai Hung Le, Vietnam National University, Vietnam
Assoc. Prof. Jitimon Angskun, Suranaree University of Technology, Thailand
Assoc. Prof. Thara Angskun, Suranaree University of Technology, Thailand
Assoc. Prof. John Blake, University of Aizu, Japan
Assoc. Prof. Yu-Mei Wang, University of Alabama at Birmingham, USA
Assoc. Prof. Olena Gusak, Kharkiv National Medical University, Ukraine

Assoc. Prof. Violeta Kalnytska, Kharkiv National Medical University, Ukraine
Assoc. Prof. Gamal Alawi, Taiz University, Yemen
Assoc. Prof. Athapol Ruangkanjanases, Chulalongkorn University, Thailand
Asst. Prof. Radhakrishna Bhat, Manipal Institute of Technology, Manipal Academy of Higher Education, India
Dr. Iara Margolis Ribeiro, Centro de Computacao Grafica | Lab2PT, University of Minho, Portugal
Dr. Dongkun Han, The Chinese University of Hong Kong, China
Dr. Jie Li, Nanjing University of Posts and Telecommunications, China
Dr. Xue Xia, Shanghai Normal University Tianhua College, China
Dr.Nantapong Keandoungchun, King Mongkut's University of Technology Thonburi, Thailand
Dr. Ossama Embarak, Higher Colleges of Technology, UAE
Dr. Myasar Tabany, University of Hertfordshire, UK
Dr. Emre Oner Tartan, Baskent University- Vocational School of Technical Sciences, Turkey
Dr. Echel S. Antero, First City Providential College, Philippines
Dr. Pit Ho Patrio Chiu, City University of Hong Kong, Hong Kong
Dr. Krongthong Khairiree, Suan Sunandha Rajabhat University, Thailand
Dr. Christina Ratnam-Lim, NIE-NTU, Singapore
Dr. Yanlan Shi, Beijing Language and Culture University, China
Dr. Siti Hajar Binti Halili, Unversity of Malaya, Malaysia
Dr. Shahid Anjum, Universiti Teknologi Brunei (UTB), Brunei Darussalam
Dr. Raymond Li, University of Canberra, Australia
Dr. Chau Kien Tsong, Universiti Sains Malaysia, Malaysia
Dr. Maritza Arones, Universidad Nacional "San Luis Gonzaga", Peru
Dr. Krongthong KHAIRIREE , Suan Sunandha Rajabhat University, Thailand
Dr. Thaweesak Yingthawornsuk, King Mongkut's University of Technology Thonburi, Thailand
Dr. Kai Ming Kiang, The Chinese University of Hong Kong, China
Dr. P. K. Paul, Raiganj University, India

Agenda Overview (UTC+9)

Friday, May 12, 2023		
Onsite Registration	**13:30-17:00**	**#3 seminar room, 2F, N24 building**
Zoom Test for online presenters	**13:30-17:00**	**ZOOM ID: 876 8061 6575**

Zoom Test Timetable

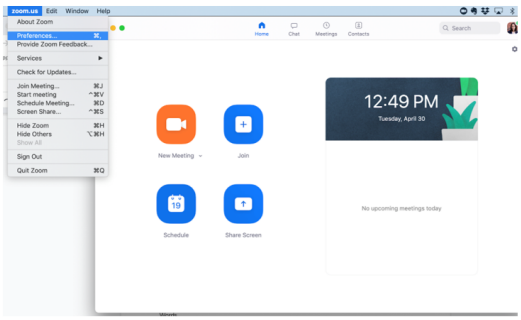
- ✧ Participants who are going to do an online presentation are required to join the rehearsal in Zoom on Friday, May 12, 2023. Duration: 3min apiece. Feel free to leave after you finish the test.
- ✧ We will test control panel including screen sharing, audio, video and "Raise Hand" feature, etc. Please get your presentation slides and computer equipment prepared beforehand.

13:30-14:30	T051 T0002 T0022 T0024 T0025 T0018 T0021 T0023
14:30-15:30	T017 T029 T053 T049 T060 T065 T061 T048 T0016
15:30-17:00	Alternative time for participants who are unavailable at allocated time. Other online participants, includes but not limited to keynote speaker, session chair, committee member, listener.

Zoom Guidance

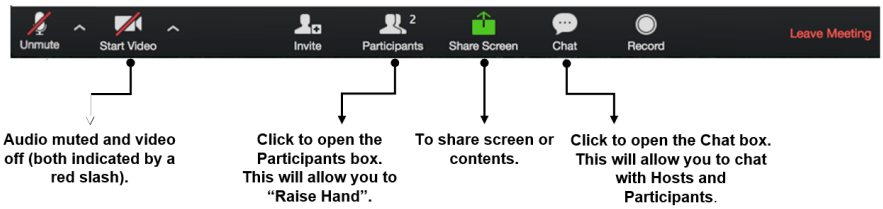
You can join the meeting without sign-in process.
Just put the meeting ID and join us.

URL: https://zoom.us/download



Each meeting has a unique **9, 10, or 11-digit** number called a **meeting ID** that will be required to join a Zoom meeting.

For any questions on the meeting day, you can text privately to "Assistant" for help.



Saturday, May 13, 2023	
Keynote & Plenary Speech (Onsite & Online)	**Large Lecture Room, 2F, N24 building** **ZOOM ID: 876 8061 6575**
Chairman: Prof. Nobuo Funabiki, Okayama University, Japan	
9:00-9:10	**Opening Remarks** Prof. Mitsuhiro Okayasu, Okayama University, Japan
9:10-9:50	**Keynote Speech I: Time-Guarantee Aware CSMA/CA based Random Access Protocols** Prof. Hideki Tode, Osaka Metropolitan University, Japan
9:50-10:30	**Keynote Speech II: Intelligent Transportation Systems via V2V Information: Integration of Vehicle (Powertrain), Signal control and Adaptive Routing** Prof. Hong Wang, Oak Ridge National Laboratory, USA
10:30-10:50	Group Photo & Coffee Break (2F, N24 building)
Chairman: Prof. Kazuyuki Kojima, Shonan Institute of Technology, Japan	
10:50-11:30	**Keynote Speech III: Architecting Smart Ecosystems** Prof. B (Bedir) Tekinerdogan, Information Technology group at Wageningen University, The Netherlands
11:30-12:10	**Keynote Speech IV: GA-Based Optimization in Mechatronic Systems: System Identification and Controller Design** Prof. Makoto Iwasaki, (IEEE Fellow, IEE Japan Fellow), Nagoya Institute of Technology, Japan
12:10-13:30	Lunch (2F, N24 building)
Parallel Session (Onsite)	
Onsite Session 1 (13:30-15:30)	**Large Lecture Room, 2F, N24 building**
Course Learning and Teaching Innovation	T018 T036 T064-A T1004-A T1006 T1005-A T1007 T009
Onsite Session 2 (13:30-15:15)	**#2 Lecture Room, 2F, N24 building**
Software Design and Image Analysis	T047 T1010 T015 T038 T071 T1009 T0009
15:30-16:00	Coffee Break (2F, N24 building)
Onsite Session 3 (16:00-17:45)	**Large Lecture Room, 2F, N24 building**
Computer Model and Machine Learning	T1001 T062 T069 T0001 T025 T026 T037
Onsite Session 4 (16:00-18:00)	**#2 Lecture Room, 2F, N24 building**
Intelligent Control System and Machine Vision	T030 T0004 T0010 T0011 T2002 T0013 T0012 T059
19:00-21:00	Banquet 岡山県青年館　Add: Okayama city Kita-kuTsushima eastern 1-4-1, 700-0081

Parallel Session (Online)	
Online Session 1 (13:30-15:30)	**ZOOM ID: 876 8061 6575**
Intelligent Information System Development and Computer Simulation Technology	T051 T0002 T0022 T0024 T0025 T0018 T0021 T0023
15:30-16:00	Break Time
Online Session 2 (16:00-18:15)	**ZOOM ID: 876 8061 6575**
Modern Teaching Theory and Management Technology	T017 T029 T053 T049 T060 T065 T061 T048 T0016

Sunday, May 14, 2023	
17:00-20:00	**Wrap-up Meeting** **(Committee Members, Keynote Speakers, etc.)**
	岡山県青年館　Add: Okayama city Kita-kuTsushima eastern 1-4-1, 700-0081

Keynote Speaker I (UTC+9)

Saturday May 13, 2023 9:10-9:50	Large Lecture Room, 2F, N24 building ZOOM ID: 876 8061 6575

Prof. Hideki Tode
Osaka Metropolitan University, Japan

Speech Title: Time-Guarantee Aware CSMA/CA based Random Access Protocols

Abstract: In a wireless sensor network or wireless LAN environment involving many devices that need to collect and control data within strict delay constraints, it is necessary to transmit data efficiently while suppressing delay precisely. For instance, in the Internet of Things (IoT) for smart factories that we mainly focus on, data used for automatic guided vehicle (AGV) notice, anomaly alert from machines, actuator operation, video transmission, human proximity detection, etc. must be transmitted within 10 – 100 ms. The author introduces novel and smart medium access control (MAC) protocols to suppress delay and jitter stably within constrained delay time by prioritizing packet transfer timings or modifying MAC mechanisms themselves. Our proposals are designed by the following two approaches: 1. Scheduling of frame transfer timing from upper protocol layer to MAC one not updating CSMA/CA-based MAC protocol itself, and 2. MAC protocol updating CSMA/CA principle as slightly as possible. The introduced protocols are compatible with CSMA/CA, which is widely used in IEEE 802.11 wireless LANs, and satisfy more stringent delay requirements. The above challenges are funded by a project entitled "R & D on Technologies for Adaptive Sharing of Radio Resources for Real-time Applications," supported by the Ministry of Internal Affairs and Communications as part of research program "R & D for Expansion of Radio Wave Resources (JPJ000254)," and partly collaborating with NICT, ATR, and KKE.

Hideki Tode received the B.E., M.E., and Ph.D. degrees in communications engineering from Osaka University in 1988, 1990, and 1997, respectively. From 1991 to 2008, he was an Assistant Professor and an Associate Professor with Osaka University. He has been a Professor with the Department of Computer Science and Intelligent Systems, Graduate School of Engineering, Osaka Prefecture University since 2008, which is renewed as Graduate School of Informatics, Osaka Metropolitan University from 2022. His current research interests include architectures and controls for optical networks, wireless LAN and sensor networks, future Internet, and content distribution networks. He is a Fellow of the Institute of Electronics Information and Communication Engineers, Japan.

Keynote Speaker II (UTC+9)

Saturday May 13, 2023 9:50-10:30	Large Lecture Room, 2F, N24 building ZOOM ID: 876 8061 6575

Prof. Hong Wang
Oak Ridge National Laboratory, USA
(IEEE Fellow, IET, InstMC, and AAIA)

Speech Title: Intelligent Transportation Systems via V2V Information : Integration of Vehicle (Powertrain), Signal control and Adaptive Routing

Abstract: This keynote presentation describes how the vehicle-to-vehicle V2V communications can be used to obtain optimal intelligent control effect for realizing intelligent transportation systems. The talk starts with the description of three-layered structure of the operation for transportation systems that consist of 1) vehicle-layer systems, 2) intersectional signal controls and 3) transportation management layer that looks into the adaptive routing for the system. At vehicle level, it has been shown that V2V information can be effectively used to obtain energy saving powertrain operation that leads to optimal trajectory control, where neural networks have been used to formulate equivalent energy consumption model for the optimal use of V2V information to save the fuel. At the intersection layer, a 100% Connected Autonomous Vehicle (CAV) case is given where the fault diagnosis and collaborative fault tolerant control have been applied to obtain safe operation of non-signalized intersections for CAVs to pass through the intersection. At the transportation management layer a Network-wide Intersectional Signal Control with Adaptive Routing (NISCAR) scheme is proposed that shows how the integration of vehicle (powertrain), signal control and adaptive routing can be made to provide a new and total solution to the future intelligent transportation systems.

Hong Wang (Fellows of IEEE, IET, InstMC, and AAIA) received the master's and Ph.D. degrees from the Huazhong University of Science and Technology, Wuhan, China, in 1984 and 1987, respectively. He was a Research Fellow with Salford University, Salford, U.K., Brunel University, Uxbridge, U.K., and Southampton University, Southampton, U.K., before joining the University of Manchester Institute of Science and Technology (UMIST), Manchester, U.K., in 1992. He was a Chair Professor in process control of complex industrial systems with the University of Manchester, U.K., from 2002 to 2016, where he was the Deputy Head of the Paper Science Department, the Director of the UMIST Control Systems Centre from 2004 to 2007, which is the birthplace of Modern Control Theory established in 1966. He was a University Senate member and a member of general assembly during his time in Manchester. From 2016 to 2018, he was with the Pacific Northwest National Laboratory (PNNL), Richland, WA, USA, as a Laboratory Fellow and Chief Scientist, and was the Co-Leader and the Chief Scientist for the Control of Complex Systems Initiative. He joined the Oak Ridge National Laboratory in January 2019 as a senior distinguished scientist at corporate fellow grade, US Department of Energy. He originated the stochastic distribution control theory to control the shape of the probability density functions for generic stochastic systems in 1996, and his research focuses on stochastic control, fault diagnosis and tolerant control, and intelligent controls with applications to several engineering practices including transportation system area, and has published more than 200 journal papers and 6 books together with numerous awards. He is an Associate Editor of IEEE Transactions on Neural Networks and Learning Systems, and was an Associate Editor of the IEEE Transactions on Automatic Control, the IEEE Transactions on Control Systems Technology, and the IEEE Transactions on Automation Science and Engineering. He is also a member for three Technical Committees of International Federation of Automatic Control (IFAC).

Keynote Speaker III (UTC+9)

Saturday May 13, 2023 10:50-11:30	Large Lecture Room, 2F, N24 building ZOOM ID: 876 8061 6575

Prof. B (Bedir) Tekinerdogan
Information Technology group at Wageningen University, The Netherlands

Speech Title: Architecting Smart Ecosystems

Abstract: Smart ecosystems are emerging as a promising solution for designing and managing complex systems that integrate various technologies, devices, and stakeholders. In this talk, we will explore the key principles and practices of architecting smart ecosystems, with a focus on the crucial role of architecture in enabling the creation and evolution of these systems. We will examine the challenges and opportunities associated with smart ecosystems and demonstrate how architecture can help address these challenges and unlock the potential benefits of these systems. Through case studies of various projects, we will share valuable insights and lessons learned. The talk aims to provide architects and designers with guidance and knowledge to create and manage smart ecosystems across different domains.

Bedir Tekinerdogan is full professor and chair of the Information Technology group at Wageningen University, The Netherlands. He has more than 25 years of experience in software/systems engineering. He is the author of more than 400 peer-reviewed scientific papers. He has been active in dozens of national and international research and consultancy projects with various large software companies, whereby he has worked as a principal researcher and leading software/system architect. Hence, he has got broad experience in software and systems engineering in different domains such as consumer electronics, enterprise systems, automotive systems, critical infrastructures, cyber-physical systems, satellite systems, defense systems, production line systems, command and control systems, physical protection systems, radar systems, smart metering systems, energy systems, and precision farming. His current research at Wageningen University concerns smart system of systems engineering, with an emphasis on software engineering, artificial intelligence, and information technology.

More details

Keynote Speaker IV (UTC+9)

Saturday May 13, 2023	**Large Lecture Room, 2F, N24 building**
11:30-12:10	**ZOOM ID: 876 8061 6575**

Prof. Makoto Iwasaki
Department of Electrical and Mechanical Engineering, Nagoya Institute of Technology, Japan
(Dr. Eng., IEEE Fellow, IEE Japan Fellow)

Speech Title: GA-Based Optimization in Mechatronic Systems: System Identification and Controller Design

Abstract: Fast-response and high-precision motion control is one of indispensable techniques in a wide variety of high performance mechatronic systems including micro and/or nano scale motion, such as data storage devices, machine tools, manufacturing tools for electronics components, and industrial robots, from the standpoints of high productivity, high quality of products, and total cost reduction. In those applications, the required specifications in the motion performance, e.g. response/settling time, trajectory/settling accuracy, etc., should be sufficiently achieved. In addition, the robustness against disturbances and/or uncertainties, the mechanical vibration suppression, and the adaptation capability against variations in mechanisms should be essential properties to be provided in the performance. The keynote speech presents practical optimization techniques based on a genetic algorithm (GA) for mechatronic systems, especially focusing on auto-tuning approaches in system identification and motion controller design. Comparing to conventional manual tuning techniques, the auto-tuning technique can save the time and cost of controller tuning by skilled engineers, can reduce performance deviation among products, and can achieve higher control performance. The technique consists of two main processes: one is an autonomous system identification process, involving in the use of actual motion profiles of system. The other is, on the other hand, an autonomous control gain tuning process in the frequency and time domains, involving in the use of GA, which satisfies the required tuning control specifications, e.g., control performance, execution time, stability, and practical applicability in industries. The proposed technique has been practically evaluated through experiments performed, by giving examples in industrial applications to a galvano scanner in laser drilling manufacturing and an actual six-axis industrial robot.

Makoto Iwasaki received the B.S., M.S., and Dr. Eng. degrees in electrical and computer engineering from Nagoya Institute of Technology, Nagoya, Japan, in 1986, 1988, and 1991, respectively. He is currently a Professor at the Department of Electrical and Mechanical Engineering, Nagoya Institute of Technology. As professional contributions of the IEEE, he has participated in various organizing services, such as, a Co-Editors-in-Chief for IEEE Transactions on Industrial Electronics since 2016, a Vice President for Planning and Development in term of 2018 to 2021, etc. He is IEEE fellow class 2015 for "contributions to fast and precise positioning in motion controller design". He has received many academic, foundation, and government awards, like the Best Paper and Technical Awards of IEE Japan, the Nagamori Award, the Ichimura Prize, and the Commendation for Science and Technology by the Japanese Minister of Education, respectively. He is also a fellow of IEE Japan, and a member of Science Council of Japan. His current research interests are the applications of control theories to linear/nonlinear modeling and precision positioning, through various collaborative research activities with industries.

Onsite Session 1 (UTC+9)

Saturday May 13, 2023 **13:30-15:30**	**Large Lecture Room, 2F, N24 building**

Course Learning and Teaching Innovation

Chairperson: **Assoc. Prof. Bin Li, City University of Hong Kong, Hong Kong S.A.R., China**

T018 13:30-13:45	Antecedents Affecting Blended Learning Satisfaction: A Comparative Study in Technologically Enhanced Environments between Students in the Philippines and Thailand **Athapol Ruangkanjanases[1] and Norman Diagan[2],** [1]Chulalongkorn University, Thailand; [2]MMG College of General Santos City, Inc., Philippines
T036 13:45-14:00	A Comparative Analysis of Business Students' Performance and Perception on Online vs. Face-to-face Peer-Assisted Learning **Ka Yan So**, City University of Hong Kong, Hong Kong S.A.R., China
T064-A 14:00-14:15	A New Way of Experiential Training: A Flipped Hybrid Robotic Laboratory **Dongkun Han,** The Chinese University of Hong Kong, Hong Kong S.A.R., China
T1004-A 14:15-14:30	Reframing articulation of program transfer and academic transition among senior-year-admitted students in Hong Kong's universities **Bin Li,** City University of Hong Kong, Hong Kong S.A.R., China
T1006 14:30-14:45	The relationship between Vietnamese students' incremental beliefs of digital intelligence and behavioral engagement in LMS courses **Hoang Bao Ngoc Nguyen,** National Taiwan Normal University, Taiwan
T1005-A 14:45-15:00	The impacts of a multimedia platform on Chinese character learning by dyslexic children in Hong Kong **Yuet Hung Cecilia Chan,** City University of Hong Kong, Hong Kong S.A.R., China
T1007 15:00-15:15	Applying a Formative Assessment Model for a Blended Learning Environment to Promote Students' Engagement and Motivation **Thi Phuong Vy Nguyen,** National Taiwan Normal University, Taiwan; Vietnam National University, Vietnam
T009 15:15-15:30	Choosing relevant internet assisted approaches for professional development courses **Lili Mutiary,** FETA-MOF, Indonesia; NIE-NTU, Singapore

Onsite Session 2 (UTC+9)

Saturday May 13, 2023 **13:30-15:15**	**#2 Lecture Room, 2F, N24 building**

Software Design and Image Analysis

Chairperson: **Prof. Yu-Cheng Fan, National Taipei University of Technology, Taiwan**

T047 13:30-13:45	Image Reconstruction Based on High Accuracy 3D Depth Map Information **Yu-Cheng Fan,** National Taipei University of Technology, Taiwan
T1010 13:45-14:00	Extensions of Exercise and Performance Learning Assistant System for Usability Improvements **Irin Tri Anggraini,** Okayama University, Japan
T015 14:00-14:15	A Case Study: Experimental Evaluation of OOP Concepts Learning with Kit-Build Concept Map **Ridwan Rismanto,** Hiroshima University, Japan
T038 14:15-14:30	Motivating to Learning Computer Programing using a Game Application **Thara Angskun,** Suranaree University of Technology, Thailand
T071 14:30-14:45	A Proposal of Code Writing Problem for C Programming Learning Assistant System **Htoo Htoo Sandi Kyaw,** Tokyo University of Agriculture and Technology, Japan
T1009 14:45-15:00	A Proposal of Hint Function for Java Programming Learning Assistant System **Yanhui Jing,** Okayama University, Japan
T0009 15:00-15:15	A Classifier of AMOLED-TFT Defect Images Based on a DNN Ensemble Framework **Yi-Hsien Li,** National Sun Yat-sen University, Kaohsiung, Taiwan

Onsite Session 3 (UTC+9)

Saturday May 13, 2023 **16:00-17:45**	**Large Lecture Room, 2F, N24 building**

Computer Model and Machine Learning

Chairperson: **Prof. Chih-Peng Fan, National Chung Hsing University, Taiwan**

T1001 16:00-16:15	OpenPose Technology Based Yoga Exercise Guidance Functions by Hint Messages and Scores Evaluation for Dynamic and Static Yoga Postures **Chih-Peng Fan,** National Chung Hsing University, Taiwan
T062 16:15-16:30	Temperature Estimation Accuracy Improvement of Computational Fluid Dynamic Simulation by Optimizing Multiple Parameters **Yuanzhi Huo,** Okayama University, Japan
T069 16:30-16:45	A Simple and Effective Evaluation Method for Fault-Tolerant Routing Methods in Network-on-Chips **Yota Kurokawa,** Yamaguchi University, Japan
T0001 16:45-17:00	Time Series and Machine learning Hybrid Models for Food Condiment Demand Forecasting: A case study in Thailand **Naragain Phumchusri,** Chulalongkorn University, Thailand
T025 17:00-17:15	Sentiment Analysis and Fake Reviews Classification of Long and Short Amazon Reviews using SVM Supervised Learning Model **Myasar Tabany,** University of Hertfordshire, UK
T026 17:15-17:30	A Lightweight Mutual Authentication Protocol for Internet of Vehicles **Myasar Tabany,** University of Hertfordshire, UK
T037 17:30-17:45	Factors for Predicting Success in e-Learning System Management during the Covid-19Pandemic: The Case Study of Suranaree University of Technology **Sorachai Kamollimsakul,** Institute of Digital Arts and Science, and Social Innovation Research Center, Suranaree University of Technology, Nakhon Ratchasima, Thailand

Onsite Session 4 (UTC+9)

Saturday May 13, 2023 **16:00-18:00**	**#2 Lecture Room, 2F, N24 building**

Intelligent Control System and Machine Vision

Chairperson: **Prof. Chi-Cheng Cheng, National Sun Yat-sen University, Taiwan**

T030 16:00-16:15	SEQUENTIAL DECISION MAKING FOR ELEVATOR CONTROL **Emre Oner Tartan,** Baskent University, Turkey
T0004 16:15-16:30	In-pipe stress-wave-based detection of voids behind concrete sewer pipes **Hengameh Noshahri,** University of Twente, The Netherlands
T0010 16:30-16:45	An Automatic Kiss Camera System Using Deep Neural Network Technique **Ciou-Fen Liao,** National Sun Yat-sen University, Kaohsiung, Taiwan
T0011 16:45-17:00	Based on Embedded Technology to Real-time Control for Analogous Active Suspension System **San-Shan Hung,** Feng-Chia University, Taiwan
T2002 17:00-17:15	Persistent UAV Formation Flight by Dynamic Agent Replacement and Leader Selection **Bauer Maximilian,** Distributed Systems Research Group, Univ. Kassel, Germany
T0013 17:15-17:30	A Human-like Intelligent Swing System Using the Machine Vision Approach **Chi-Cheng Cheng,** National Sun Yat-sen University, Kaohsiung, Taiwan
T0012 17:30-17:45	Analysis of Grasping Mechanism for Random Regular Object of Prosthetic Robotic Arm **DEVIN BABU A/L NADARAJAH,** University Malaysia Pahang, MALAYSIA
T059 17:45-18:00	Effect of Movement Control for Remote Robot Systems with Force Feedback **Kota Nishiyori,** Nagoya Institute of Technology, Japan

Online Session 1 (UTC+9)

Saturday May 13, 2023 **13:30-15:30**	**ZOOM ID: 876 8061 6575**

Intelligent Information System Development and Computer Simulation Technology

Chairperson: **Dr. Krissada Asavaskulkiet, Mahidol University, Thailand**

T051 13:30-13:45	A Novel Sparse Image Reconstruction Based on Iteratively Reweighted Least Squares Using Diagonal Regularization **Bamrung Tausiesakul,** Srinakharinwirot University, Thailand
T0002 13:45-14:00	Designing smart disinfection hangers in the COVID-19 epidemic **Yu Tian,** Accademia Albertina di Belle Arti di Torino, Italy
T0022 14:00-14:15	Intelligent Manufacturing Transformation Development Strategy of Jilin City Automobile Industry: A Research Based on SWOT-AHP Model **Ding Xu,** School of Computer Science, Northeast Electric Power University, China
T0024 14:15-14:30	Food Allergen Database for Japanese Restaurants and Its Application to Menu Recommendation System to Foreign Travelers **Qingling Jiang,** Yamaguchi University, Japan
T0025 14:30-14:45	Multi-Robot Positioning and Anti-Interference Based on Ultra Wide Band **Chunlei Tu,** School of Mechanical Engineering, Southeast University, China
T0018 14:45-15:00	UX and Industry 5.0: A study in Repairing equipment using Augmented Reality **Iara Margolis,** CCG, Portugal
T0021 15:00-15:15	Cloud Distribution Forecasting Model using Ground Altitude Information and CNN **Takahiro Kitajima,** Tokushima University, Japan
T0023 15:15-15:30	Augmented reality towards Industry 5.0: improving voice and tap interaction based on user experience feedback **Alexandre Carraça,** CCG, Portugal

Online Session 2 (UTC+9)

Saturday May 13, 2023 **16:00-18:15**	**ZOOM ID: 876 8061 6575**

Modern Teaching Theory and Management Technology

Chairperson: **Dr. Ossama H. Embarak, Higher Colleges of Technology (HCT), UAE**

T017 16:00-16:15	Design And Development of Virtual Reality Science Laboratory on Science Education: An Analysis of Presences During Learning **Nur Effatul Fairuz Binti Zainal Apandi,** Pusat Teknologi Pengajaran Dan Multimedia, Malaysia
T029 16:15-16:30	Development of Augmented Reality Learning Materials for the Hearing Impaired Students in Primary I **Umaporn Ploydjiw,** King Mongkut's University of Technology Thonburi, Thailand
T053 16:30-16:45	Composing a Syllabus via Educational Program Maker: Research on Curricula Structure and Implementation of a Web Tool for Curriculum Development **Polina Shnaider,** ITMO University, Russia
T049 16:45-17:00	JASPER: Journal Article Selection Program for Non-native English Readers **Nantapong Keandoungchun,** King Mongkut's University of Technology Thonburi, Thailand
T060 17:00-17:15	A Study on Educational Technology Acceptance of Special Education Teachers in Language Teaching Based on TAM Model **Xue Xia,** Shanghai Normal University Tianhua College, China
T065 17:15-17:30	A Study of Factors Affecting to Self-Managerial Skills of Undergraduate Students for Online Learning **Kanjana Tayaborworn,** King Mongkut's University of Technology Thonburi, Thailand
T061 17:30-17:45	Smart Education for Industry 04 Sustainable Futures: A New Theory of Maximization for Learner Success **Ossama H. Embarak,** Higher Colleges of Technology (HCT), UAE
T048 17:45-18:00	Students'pre- and post-COVID-19 perception of Mathematics videos in Higher Education **Ana Borges,** CIICESI, ESTG, Politécnico do Porto, Portugal
T0016 18:00-18:15	Using Computer Vision to Detect and Localize Fractures in Wrist X-ray Images **John Paul Q. Tomas,** Mapua University, Philippines

Note