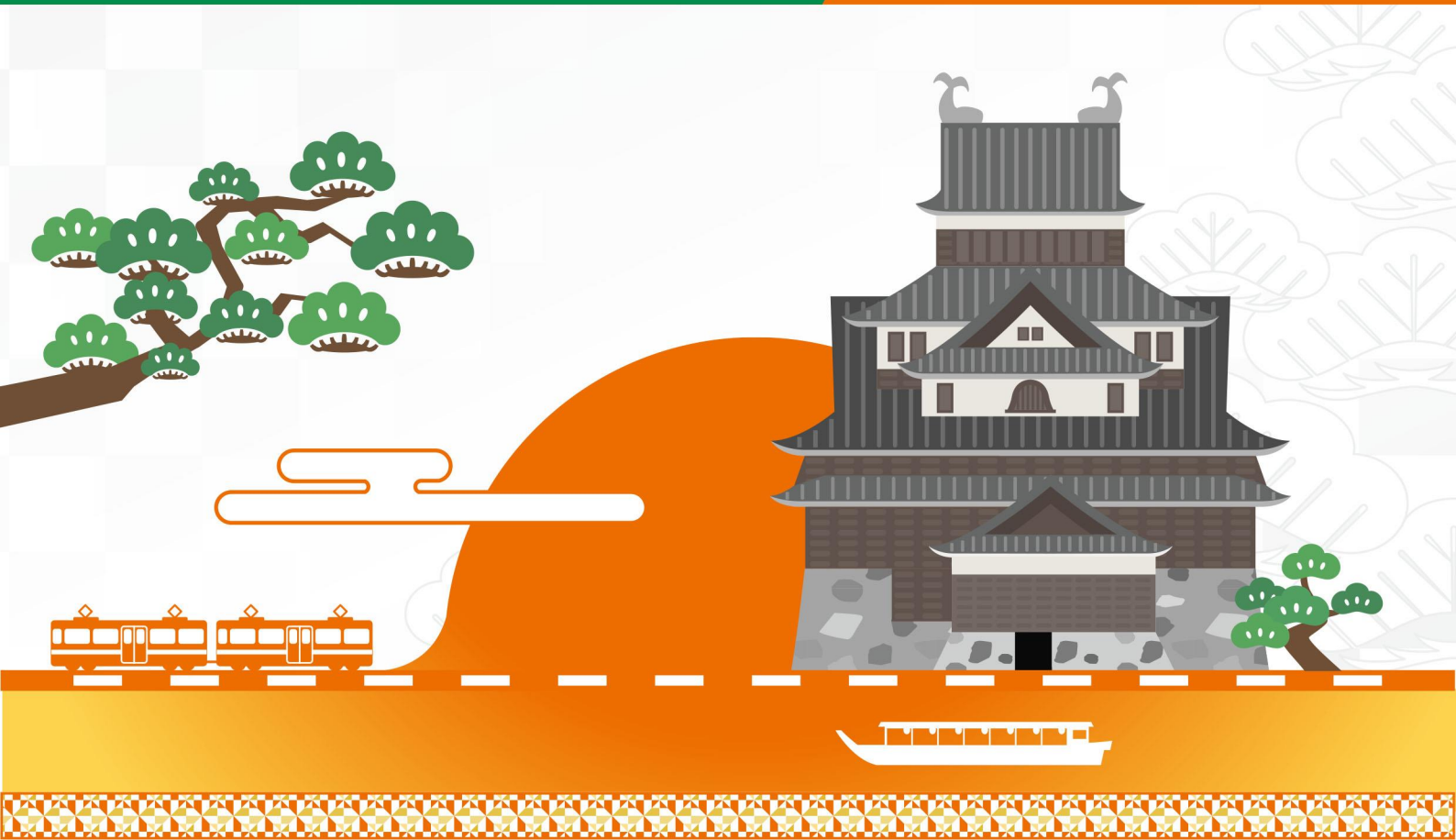
THE 31st INTERNATIONAL CONFERENCE ON COMPUTERS IN EDUCATION

ICCE 2023

December 4-8 Matsue, Shimane, JAPAN

PROGRAM BOOK



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Learning and Educational Technologies Research Unit

Kyoto University, Japan

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MESSAGE FROM THE CONFERENCE CHAIR

Weiqin CHEN
Conference Chair
Oslo Metropolitan University and University of Bergen, Norway

On behalf of the organizing committee, I would like to welcome all participants of the 31st International Conference on Computers in Education (ICCE) 2023, the flagship conference series of the Asia-Pacific Society for Computers in Education (APSCE). After the virtual conferences in 2020 and 2021 and the hybrid conference in 2022, we have come back to in-person conference this year.

ICCE is no stranger to Japan. After having successfully hosted ICCE 1999, 2007 and 2014, Japan is once again the host for ICCE, this time in Matsue, the "City of Water". Matsue, with magnificent castle, beautiful gardens, and breath-taking sunset over Lake Shinji, will undoubtedly give participants a unique experience. The conference theme of ICCE 2023, “Designing new technologies for education in a big social change world” signifies the role of technological innovation and adoption in transforming education and addressing societal challenges.

Four outstanding keynote speakers will share their insights across varying areas in the field of computers in education. **Curtis J. Bonk** from Indiana University, USA, will focus on achieving smarter and more innovative forms of learning where digital technologies provide learners of all ages with open, informal, adaptive, nontraditional, and self-directed learning opportunities. **Tak-Wai Chan** from National Central University, Taiwan, will share with us his vision of “Global Harwell” as the ultimate educational goal and how Seamless Interest-Driven Co-Creator Theory (SIDC) can contribute to achieving this goal. **Davinia Hernández-Leo** from Universitat Pompeu Fabra, Barcelona, Spain, will explicate how technology can support learning design and the orchestration of complex learning scenarios and thus improve the efficiency and effectiveness of teachers’ tasks. **Masaru Kitsuregawa** from the Research Organization of Information and Systems, Japan will talk about the research data management platform, GakuNin RDM, that provides support for publishing and sharing of big data including educational data, which has strong implications for learning analytics and educational datamining. There will also be three equally inspiring theme-based invited speeches. **Kaushal Kumar Bhagat** from Indian Institute of Technology Kharagpur, India, will present the potential benefits of game-based learning and how

it can be used to create engaging and effective learning experiences. **Brendan Flanagan** from Kyoto University, Japan, will discuss challenges and opportunities of educational data science focusing on reading systems. **Daner Sun** from Education University of Hong Kong will talk about the evolution of mobile learning environments and share insights gained from her experiences in research and teaching. These speeches connect with the essence of the conference theme in different ways and will stimulate reflections and inspire us to rethink the design of digital technologies and their impacts on education and the society.

Indeed, organizing such a large-scale conference requires the orchestrated efforts and unwavering support from the conference organizing committee members and conference paper reviewers. I would like to express my sincere appreciations to all the individuals who have rendered their help in every possible way to make this conference a reality. The names of the hard-working Local Organizing Committee (LOC) chair and team members, International Program Coordination (IPC) chairs, Sub-conference chairs, Program Committee (PC) members and reviewers, chairs and organizers of Workshops, Interactive Events, Tutorials, Panels, Work-In-Progress Posters (WIPP), Doctoral Student Consortium (DSC), Early Career Workshops (ECW), Executive Summary (ES), APSCE Merit Scholarship, and Showcase of Advancements in Technology-Enhanced Learning in Underrepresented Countries (SATELUC) are enlisted in the proceedings. I am also grateful to all the paper authors and registered participants for their exciting academic contributions to the fruitful intellectual exchange in this conference.

Last but not list, I would like to express my heartfelt appreciation to the Managing Secretary of APSCE Pham-Duc Tho for his support, the standing committee for being flexible and proactive, and the consultants for sharing their experiences and wisdom and advising us along the way.

I hope all participants will have opportunities to renew friendships, forge new friendships and professional collaborations. I trust that you will have a productive and fun-filled time at this very special conference and leave Matsue - a picturesque city with rich and remarkable heritage—with beautiful, affectionate memories.

Thank you!

MESSAGE FROM
THE INT'L PROGRAM COORDINATION CHAIRS

Ju-Ling SHIH
International Program Coordination Chair
National Central University, Taiwan

Akihiro KASHIHARA
International Program Coordination Co-Chair
University of Electro-Communications, Japan

The International Conference on Computers in Education (ICCE) is an annual conference series encompassing a broad range of issues related to using Information and Communication Technology (ICT) for education, organized by the Asia-Pacific Society for Computers in Education (APSCE). ICCE 2023 takes place at Matsue, Shimane prefecture, Japan from December 4-8, 2023. It aims to bring together researchers from all over the world to share and exchange research and to develop and deploy new ideas that span the field of Computers in Education. Following the tradition of previous conferences in this series, ICCE 2023 is organized as a meta-conference, where there are seven Sub-Conferences, each of which focuses on specialized themes. Each Sub-Conference is organized by a program committee appointed by the respective Special Interest Group (SIG – see https://apsce.net/sigs). These Sub-Conferences are:

- C1: ICCE Sub-Conference on Artificial Intelligence in Education/Intelligent Tutoring System (AIED/ITS)
- C2: ICCE Sub-Conference on Computer-supported Collaborative Learning (CSCL) and Learning Sciences (LS)
- C3: ICCE Sub-Conference on Advanced Learning Technologies (ALT), Learning Analytics, Platforms and Infrastructure
- C4: ICCE Sub-Conference on Classroom, Ubiquitous, and Mobile Technologies Enhanced Learning (CUMTEL)
- C5: ICCE Sub-Conference on Educational Gamification and Game-based Learning (EGG)
- C6: ICCE Sub-Conference on Technology Enhanced Language Learning (TELL)

- C7: ICCE Sub-Conference on Practice-driven Research, Teacher Professional Development and Policy of ICT in Education (PTP)

The International Program Committee is led by a strong and dedicated team, which includes the Conference Chair, the Program Coordination Chair and Co-Chair, Sub-Conference Chairs and Co-Chairs and experts in the field of Computers in Education from many different countries or economies. Former ICCE local organizing and program coordination chairs have played important roles as consultants in overseeing the organization process of this conference.

The conference received a total of 256 papers (192 full, 44 short, and 20 posters) from 26 different countries or economies. Table 1 provides the submissions by the country of the first author in each paper.

Table 1. Submission Statistics (based on first author's country)

Countries or Economies					
Japan	67	Thailand	5	France	1
Taiwan	44	Poland	4	Germany	1
China	41	Australia	2	Italy	1
India	19	Indonesia	2	New Zealand	1
Hong Kong	17	Spain	2	Nigeria	1
Philippines	15	Tunisia	2	Norway	1
Singapore	13	Canada	1	Turkey	1
Malaysia	6	Croatia	1	Viet Nam	1
United States	6	Ecuador	1		

All papers were subjected to a rigorous review process by 3 to 5 reviewers from the respective Sub-Conference program committees. After the reviews were completed, a meta-review was provided for each paper. In total, 740 reviews and meta-reviews were received. After a discussion period within the individual program committees led by the Sub-Conference Executive Chairs and Co-Chairs, recommendations were made to the Program Coordination Committee Chair and Co-Chair, who oversaw the review process and quality for all Sub-Conferences. This resulted in 44 full, 67 short, and 48 poster acceptances across all of the seven Sub-Conferences. The overall acceptance rate for full papers is 22.92%. The acceptance rate for the full papers in the individual Sub-Conference closely mirrored the overall acceptance rate. This is a testimony to the continued maintenance of the quality of presentations in our conference. The complete statistics of paper acceptance is shown in Table 2.

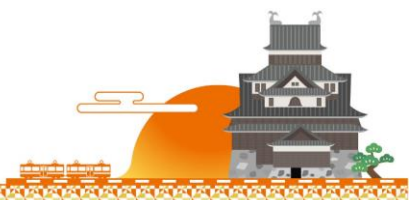
In addition to full papers, short papers and posters, ICCE 2023 includes various program components, such as Keynote Speeches, Theme-based Invited Speeches, Workshops, Interactive Events, Panels, Work-in-Progress Posters (WIPP), Extended Summary (ES), Doctoral Student Consortia (DSC), and Early Career Workshop (ECW). All the papers in these program components are published in separate proceedings with their own ISBN numbers. Pre-conference events are held on the first two days of the conference, including 13 workshops, 4 Interactive Events, DSC, ECW, and APSCE Student Wing Workshop.

Table 2. Paper Acceptance Statistics

	Total Submissio	Submitted as Full	Accepted as Full	Full Only(%)	Accepted as Short	Accepted as Poster	Overall Accepted (%)
C1 - AIED/ITS	46	37	8	21.62%	5	12	54.35%
C2 - CSCL/LS	36	26	6	23.08%	11	8	69.44%
C3 - ALT/LA/PI	49	39	10	25.64%	13	8	63.27%
C4 - CUMTEL	19	14	2	14.29%	5	3	52.63%
C5 - EGG	33	29	7	24.14%	7	7	63.64%
C6 - TELL	27	18	4	22.22%	12	4	74.07%
C7 - PTP	46	29	7	24.14%	14	6	58.70%
ICCE 2023	256	192	44	22.92%	67	48	62.11%

We would like to thank all who have contributed to making ICCE 2023 a successful conference. First of all, we would like to thank all paper authors for your contributions and for choosing ICCE 2023 as an outlet to present your research. We would also like to thank the IPC Executive Chairs/Co-Chairs and members, who undertook the responsibility of reviewing and selecting papers that represent research of high quality. Specially thanks to our Keynote and Invited Speakers for accepting our invitations and bring inspiring research to ICCE 2023 participants. The Local Organizing Committee deserves a big thank you for their hard work under the tremendous time pressure.

We hope that all participants will find the activities in ICCE 2023 interesting and inspiring, and have opportunities to meet old friends and establish new professional collaborations. Furthermore, we hope that participants will enjoy not only the academic activities, but also the vibrant and exciting culture experience at Matsue, Shimane prefecture, Japan.



MESSAGE FROM
THE LOCAL ORGANIZING COMMITTEE CHAIR

Hiroaki OGATA
LOC Chair
Kyoto University, Japan

Kon'nichiwa 😊 (Hello!)

On behalf of the local organising committee, I would like to extend my warm welcome to all delegates of the 31st International Conference on Computers in Education (ICCE 2023), held for the fourth time in Japan (the first time in Chiba in 1999, the second time in Hiroshima in 2007, and the third time in Nara in 2014). It is my great pleasure and honor to host ICCE 2023 as it takes place fully in-person this year. The theme of the conference, "Designing new technologies for education in a big social change world," aptly reflects what we had experienced during COVID-19, and digital technologies adoption including AI and big data has taken an exponential leap for transforming education in the new norm.

It is a great privilege to share our beautiful country with you. I hope you will be able to enjoy Matsue city, which is often referred to as Little Kyoto. Known as the "City of Water", Matsue stands by the Sea of Japan where Lake Shinji and Nakaumi meet, in the middle of Shimane Peninsula. A former feudal stronghold, Matsue is a true castle town crossed with many canals and boasts one of the twelve remaining original castles in Japan, and famous for its beautiful sunsets over Lake Shinji. In addition, Matsue is the birthplace of Japanese culture and origin of conventions in Japanese Mythology.

I would like to thank the APSCE Executive Committee for giving us this wonderful opportunity. Our sincere thanks to the standing committee, the International Program Committee, reviewers, authors, participants and student volunteers. Especially, I would like to express my gratitude to all the local organizing committee members and sponsors: Uchida Yoko Co. Ltd., Photron Limited, Research Council of Evidence-Driven Education, and Learning and Educational Technologies Research Unit, Kyoto University, Japan. Also, this event is supported by Allied Telesis K.K., Digital Knowledge Co., Ltd., IPSJ, IEICE, JAEIS, JSAI, JSET, JSiSE, JASLA, and Shimane University, Japan. We trust all of you will enjoy the conference, and take home a lot of great memories from Matsue city in Shimane prefecture, Japan.

Arigato! 😊 (Thank you!)

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Universiti Putra Malaysia,Malaysia
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Nanyang Technological University, Singapore

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Kyushu University

Yasuhiro YAMADA
Shimane University

Sho YAMAMOTO
Kindai University

Kazuaki YOSHIHARA
Kindai University

Sub-Conferences

C1: Artificial Intelligence in Education/Intelligent Tutoring System (AIED/ITS) and Adaptive Learning

PC Executive Chair
Ryan BAKER, University of Pennsylvania, USA

PC Co-Chair
Sébastien LALLÉ, Sorbonne University, France

C2: ICCE Sub-Conference on Computer-supported Collaborative Learning (CSCL) and Learning Sciences

PC Executive Chair
Ben CHANG, National Central University, Taiwan

PC Co-Chair
Daniel BODEMER, University of Duisburg Essen, Germany
Gaoxia ZHU, National Institute of Education, Singapore

C3: ICCE Sub-Conference on Advanced Learning Technologies (ALT), Learning Analytics and Digital Infrastructure

PC Executive Chair
Seb DIANATI, Charles Darwin University, Australia

PC Co-Chair
Zablon PINGO, Charles Darwin University, Australia
Suman LAUDARI, University of Technology Sydney, Australia
Ashwin DIXIT, Indian Institute of Technology Bombay, India

C4: ICCE Sub-Conference on Classroom, Ubiquitous, and Mobile Technologies Enhanced Learning (CUMTEL)

PC Executive Chair
Yuqin YANG, Central China Normal University, China

PC Co-Chair
Daner SUN, Education University of Hong Kong, Hongkong
Gaoxia ZHU, Nanyang Technological University, Singapore
Lu-Ho HSIA, National Chin-Yi University of Technology, Taiwan

C5: ICCE Sub-Conference on Educational Gamification and Game-based Learning (EGG)

PC Executive Chair
Hafed ZARZOUR, Souk Ahras University, Algeria

PC Co-Chair
Jewoong MOON, The University of Alabama, USA
Junfeng YANG, Hangzhou Normal University, China
Luiz RODRIGUES, Center for Excellence in Social Technologies – NEES, UFAL, Brazil

C6: ICCE Sub-Conference on Technology Enhanced Language Learning (TELL)

PC Executive Chair
Ahmed Mohamed Fahmy YOUSEF, Fayoum University, Egypt

PC Co-Chair
Ahmed Hosny Saleh METWALLY, Beijing Normal University, China

C7: ICCE Sub-Conference on Practice-driven Research, Teacher

Professional Development and Policy of ICT in Education (PTP)

PC Executive Chair
Jayakrishnan MADATHIL, Indian Institute of Technology Madras, India

PC Co-Chair
Rotem ISREL-FISHELSON, University of Maryland, USA
Shitanshu MISHRA, UNESCO MGIEP, India

Workshop/Tutorial/Interactive Event

PC Executive Chair
Di ZOU, The Education University of Hong Kong

PC Co-Chair
Junjie Gavin WU, Shenzhen Technology University
Rui LI, Hunan university
Zi YANG, Xiamen University

Work-in-ProgressPosters(WIPP)

PC Executive Chair
Wen YUN, Nanyang Technological University, Singapore

PC Co-Chair
Zhang SI, Central China Normal University, China

Doctoral Student Consortium(DSC)

PC Executive Chair
Vwen Yen Alwyn LEE, Nanyang Technological University, Singapore

PC Co-Chair
Yanjie SONG, The Education University of Hong Kong
Jayakrishnan MADATHIL, Indian Institute of Technology Madras, India
Bo JIANG, East China Normal University, China

Early Career Workshops(ECW)

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PC Co-Chair
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Kai-Hsiang YANG, National Taipei University of Education (NTUE)

ExtendedSummaries(ES)

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Special Interest Groups(SIG) 2022-2023

SIG 1: Artificial Intelligence in Education/Intelligent Tutoring Systems/Adaptive Learning (AIED/ITS/AL)
May Marie TALANDRON-FELIPE, University of Science and Technology, Phillipines

SIG 2: Computer-supported Collaborative Learning and Learning Sciences (CSCL)
Elizabeth KOH, Nanyang Technological University, Singapore

SIG 3: Advanced Learning Technologies, Platforms and Infrastructure (ALT)
Eunice SARI, UX, Indonesia

SIG 4: Classroom, Ubiquitous and Mobile Technologies Enhanced Learning(CUMTEL)
Daner SUN, The Education University of Hong Kong, Hong Kong

SIG 5: Educational Gamification and Game-based Learning (EGG)
TLILI, Beijing Normal University, China

SIG 6: Technology Enhanced Language Learning (TELL)
Vivian WU, Asia University, Taiwan

SIG 7: Practice-driven Research, Teacher Professional Development and Policy of ICT in Education (PTP)
Mas NidaMDKHAMBARI, Universiti Putra Malaysia, Malaysia

SIG 8: Development of Information and Communication Technology in the Asia-Pacific Neighborhood (DICTAP)
Patcharin PANJABUREE, Mahidol University, Thailand

SIG 9: Educational Use of Problems/Questions in Technology-Enhanced Learning (EUPQ)
Takahito TOMOTO, Tokyo PolytechnicUniversity, Japan

SIG 10: Learning Analytics and Educational Data Mining (LAEDM)
Ramkumar RAJENDRAN, Indian Institute of Technology Bombay, India

SIG 11: Computational Thinking Education & STEM Education (CTE&STEM)
Chee Kit LOOI, Nanyang Technological University, Singapore

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Claude Frasson, University of Montreal, Canada

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Yuki Hayashi, Osaka Prefecture University, Japan
Tomoko Kojiri, Kansai University, Japan
Cristina Maier, McGraw Hill Education, United States
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Daiyi Wang, Providence University, Taiwan
Hongzhi Yang, The University of Sydney, Australia
Gaoxia Zhu, National Institute of Education, Nanyang Technological University, Singapore

C3: ALT PC Member

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C4: CUMTEL PC Member

Kaushal Bhagat, Centre for Educational Technology, Indian Institute of Technology, Kharagpur, India
Ivana Bosnic, University of Zagreb, Croatia
Ivica Boticki, Fakultet elektrotehnike i računarstva, Croatia
Huiying Cai, Jiangnan University, China
Ben Chang, National Central University, Taiwan
Guang Chen, Beijing Normal University, China

Feng-Kuang Chiang, Shanghai Jiao Tong University, China
Chi-Ming Chu, National Ilan University, Taiwan
Haiguang Fang, Capital Normal University, China
Xueqi Feng, Southern University of Science and Technology, China
Maja Gligora Marković, University of Rijeka, Croatia
Martina Holenko Dlab, University of Rijeka, Croatia
Yih-Ruey Juang, Jinwen University of Science and Technology, Taiwan
Tai-Chien Kao, National Dong Hwa University, Taiwan
Chiu-Lin Lai, National Taipei Univeristy of Education, Taiwan
Chen-Yu Lee, Ling Tung University, Taiwan
Jing Leng, East China Normal University, China
Xiuhan Li, Central China Normal University, China
Ma Luo, East China Normal University, China
Igor Mekterović, Fakultet elektrotehnike i računarstva, Croatia
Kuo-Liang Ou, National Tsing Hua University, Taiwan
Yanjie Song, The Education University of Hong Kong, Hong Kong
Daner Sun, The Education University of Hong Kong, China
Yuyao Tong, University of Hong Kong, China
Zhihong Wan, The Education University of Hong Kong, China
Xuefeng Wei, Ludong University, China
Longkai Wu, National Institute of Education, Singapore
Kai-Hsiang Yang, National Taipei University of Education, Taiwan
Xianmin Yang, Jiangsu Normal University, China
Yuqin Yang, Central China Normal Univerisity, China
Ying Zhan, The Education University of Hong Kong, Hong Kong

C5: EGG PC Member

Ahmed Ahmim, Faculty of Exact Sciences and Sciences of Nature and Life University of Larbi Tebessi, Algeria
Alex Barrett, Florida State University, United States
Abdelmalek Bouguettaya, CRTI, Algeria
Chefrour, université badji mokhtar annaba, Algeria
Chih-Pu Dai, Florida State University, United States
Zhaihuan Dai, University of South Florida, United States
Samia Drissi, univeristé de souk ahras, Algeria
Maazouzi Faiz, Univ annaba, Algeria
Zakaria Gheid, University of Souk Ahras, Algeria, Algeria
Kamel Eddine Heraguemi, M'sila University, Algeria
Hyangeun Ji, Temple University, United States
Amine Khaldi, kasdi merbah university, Algeria
Lukas Liu, The University of Hong Kong, Hong Kong
Soltani Mohamed, Souk Ahras University, Algeria
Yanjun Pan, Florida STATE UNIVERSITY, United States
Marcela Sávia Pessoa, Universidade do Estado do Amazonas, Brazil
Khedairia Soufiane, souk ahras university, Algeria
Luke West, Florida State University, United States

C6: TELL PC Member

Michael Adarkwah, Southwest University, China
Ting Da, Beijing Normal University, China
Reza Hadi Mogavi, Sharif University of Technology, Iran
Feifei Han, Australian Catholic University, Australia

Ahmed Hosny, Beijing Normal University, Egypt
Muhammad Yasir Mostafa, Beijing Normal University, China
Stylianos Mystakidis, University of Patras, Greece
Michelle Siao-Cing Guo, National Taipei University of Business, Taiwan
Wanwisa Wannapipat, Khon Kaen University, Thailand
Vivian Wu, Asia University, Taiwan
Dong Yang, Beijing Normal University, China
Ahmed Mohamed Fahmy Yousef, Fayoum University, Egypt

C7: PTP PC Member

Vishwas Badhe, Indian Institute of Technology Bombay, India
Aparajita Biswal, B H Gardi College of engineering and technology, India
Ivica Boticki, Fakultet elektrotehnike i računarstva, Croatia
Arup Chatterjee, Indian Institute of Technology Madras, India
Rohan Dasgupta, Anjuman-I-Islam's Kalsekar Technical Campus, India
Ajita Deshmukh, MIT-ADT University, Pune, India
Anita Diwakar, Indian Institute of Technology Bombay, India
Lakshmi Ganesh, Indian Institute of Technology Bombay, India
Anchal Garg, University of Bolton, United Kingdom
Arnon Hershkovitz, Tel Aviv University, Israel
Martina Holenko Dlab, University of Rijeka, Croatia
Sajna Jaleel, Mahatma Gandhi University, India
Kapil Kadam, Indian Institute of Technology Bombay, India
Navneet Kaur, Indian Institute of Technology Bombay, India
Najwan Khambari, Universiti Teknikal Malaysia Melaka, Malaysia
Chen-Yu Lee, Ling Tung University, Taiwan
Ganesh Lokhande, Symbiosis International (Deemed) University, India
Jayakrishnan Madathil, Indian Institute of Technology–Madras, India
Hagit Meishar Tal, Holon Institute of Technology (HIT), Israel
Shitanshu Mishra, UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development, India
Priscilla Moses , Universiti Tunku Abdul Rahman, Malaysia
Soumya Narayana, Indian Institute of Technology Bombay, India
Lucian Ngeze, Indian institute of Technology Bombay, India
Yogendra Pal, NIIT University, India
Mrinal Patwardhan, Indian Institute of Technology Bombay, India
Prajish Prasad, FLAME University, India
Rajashri Priyadarshini, Indian Institute of Technology Bombay, India
Ashutosh Raina, Indian Institute of Technology Bombay, India
Rekha Ramesh, Mumbai University, India
Vivek Sabanwar, Indian Institute of Technology Bombay, India
Sameer Sahasrabudhe, Indian Institute of Technology Bombay, India
Charu Saini, UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development, India
Madhuri Srinivas, SMIORE – Education, India
Narasimha Swamy, Indian Institute of Technology Bombay, Mumbai, India
Briju Thankachan, Indian Educational Technology Association, India
Bindu Thirumalai, Tata Institute of Social Sciences in, India
Vikram Vincent, Indian Institute of Technology Bombay, India
Ying Zhan, The Education University of Hong Kong, Hong Kong

ABOUT CONFERENCE

The 31st International Conference on Computers in Education (ICCE 2023) is organized by the Asia-Pacific Society for Computers in Education (APSCE) and hosted by Research Council of Evidence Driven Education. ICCE 2023 will be held as a fully in-person conference in Matsue city, Shimane Prefecture, Japan from December 4 to December 8, 2023 (Monday to Friday). Pre-conference events (workshops and tutorials) will be conducted on the first two days. The main conference will begin on December 6, 2023.

Accepted papers in the main conference, workshops, Early Career Workshop, Doctoral Student Consortia and Work-in-Progress Posters will be published in proceedings, which will be submitted to Elsevier for inclusion in Scopus. Proceedings of the main conference (excluding posters) will also be submitted to Thomson Reuters for inclusion in the Conference Proceedings Citation Index.

Conference Venue

The conference will be held at Kunibiki Messe, Matsue city, Shimane Prefecture, Japan.

PAPER PRESENTATION GUIDELINES

Full Paper Presentation

25 minutes will be allocated for presentation and 5 minutes for discussion.
Please keep the presentation within the time limit set.

Short Paper Presentation

15 minutes will be allocated for presentation and 5 minutes for discussion.
Please keep the presentation within the time limit set.

Extended Summary Presentation

10 minutes will be allocated for presentation and 5 minutes for discussion.
Please keep the presentation within the time limit set.

1. Please check in with your Session Chair before the session in which your presentation begins.
2. Please bring your own computer for presentation. The connection between the computer and the projector is via HDMI.
3. Please set up and test your presentation in the designated room prior to your session.

POSTER PRESENTATION GUIDELINES

On-site Poster Presentation Guidelines

1. Your poster should be within 1150mm(width)×2050mm(height). The orientation of posters is Portrait.

2. Poster presentations will be divided into two sessions. The presentation time for each session is 60 minutes. Please check your presentation time in the programme.

3. Please include the title of the paper, the names and affiliations of the authors in the poster.

4. The contents of the poster should be clear and concise. Figures, tables and letters on the posters should be large and clear enough that they are readable from a distance. Letters in font size less than 1 cm should be avoided.

5. Electrical power point plugs will not be available for the poster presentation.

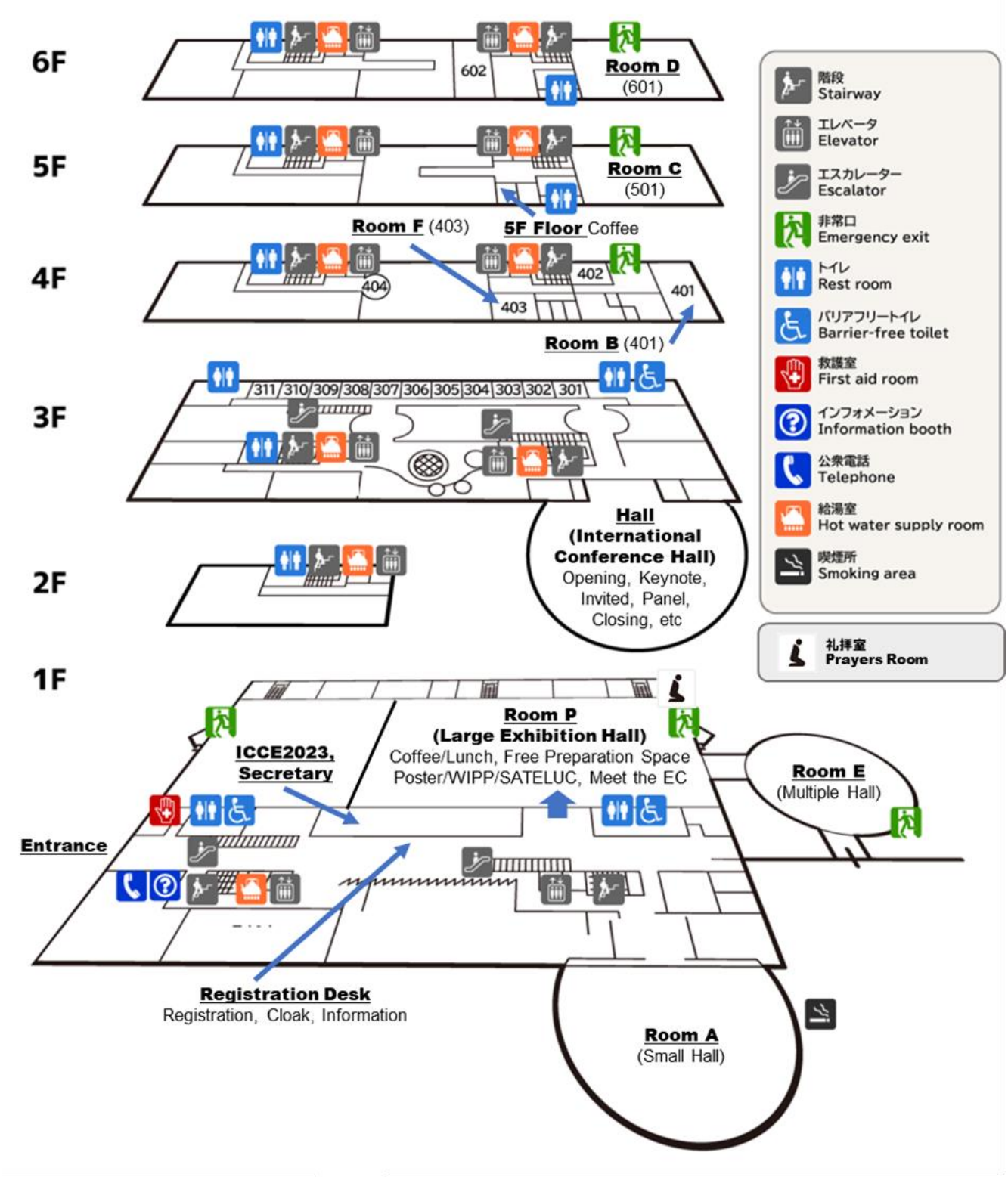
6. Wi-Fi Internet connection will be provided.

7. Posters will be displayed in different locations in Room P for Regular Poster, WIPP Poster and SATELUC. Please check the details at the venue.

8. All necessary materials such as thumbtacks will be provided at the venue.

9. Posters may be posted and removed at any time during the main conference, December 5-8. Please post your poster before your presentation time. However, please do not set up your poster during the time when there is a session in the Room P. Please be sure to remove your poster and take it back home with you.

FLOOR INFORMATION



(Edited: https://www.kunibikimesse.jp/facilitys/)

REGISTRATION

Registration

Upon first arrival at the Conference, proceed to the Registration Desk, located on the ground floor of the conference venue, Kunibiki messe.. Please show any ID that indicates your name and collect your conference kit.

Registration dates and times:

December 4-7: 08:30–18:00 (GMT+9)
December 8: 08:30–15:00 (GMT+9)

Meals

Snacks, buffet lunches, and welcome reception will be served with labels.
Halal and vegetarian meals will be served with labels.
If you have food allergies, please check the label.

Banquet dinner will be served for each person. Special seating is prepared for those with dietary restrictions.

Social Events

The Welcome Reception (evening of December 5, 2023) will be held at Hotel Ichibata.
The Banquet (evening of December 7, 2023) will be held at Hotel Gyokusen.
A matcha (Japanese traditional green tea) table will be open during tea time and lunch on December 6 and 7. (The number of teas is limited for each day.)

Prayer Room

A prayer room is provided near Room P (Large Exhibition Hall). There is a hand and foot washing area in the room, but you must provide your own worship mat. Free WiFi is available, so please check the direction yourself. Please ask our conference volunteers to guide you to the room.

Free Preparation Space

Participants can use this space for preparation for presentation and communication outside of session time on December 4-8: 09:00–18:00 (GMT+9), this space located in Room P (Lage Exhibition Hall).

Wifi Internet Access

Free Wi-Fi is provided in each room.

Sharing photos

You can upload your photos to share them with other participants at
https://drive.google.com/drive/folders/11PwiW5eWB_XrYHyF9b0ok25iID_xFn-4?usp=sharing

You can also scan the following QR code.

Car Park

Parking is available at the venue. Please refer to the following website for details (in Japanese).
https://www.kunibikimesse.jp/access/

You can also scan the following QR code.

Conference Secretariat

If you need information and assistance, please ask a volunteer staff of LOC nearby or visit the Registration Desk.

Email: icce2023@apsce.net

LOCAL INFORMATION

Time Zone

Japan has only one time zone. Japan Standard Time (JST) is 9 hours ahead of GMT (GMT+9).

Language

All Japanese people speak the Japanese language in everyday activity. Many Japanese people speak simple English. Almost official signs in the city are written in Japanese along with English.

Electrical Voltage

The electric voltage in Japan is 100 volts. The plug used is type-A.

Emergency contact

- Ambulance: 119
- Fire: 119
- Police: 110

Currency

Japanese money is ‘Yen’ (JPY). Foreign Currency Exchange centers and banks are easily accessible in most parts of the country.

Telecommunications

Prepaid mobile SIM cards are widely accessible in airports, malls, and convenience stores.

Smoking

The ICCE 2023 Conference Venue is generally non-smoking.
Smoking is allowed only in the smoking area outside on the ground floor.

Medical Services

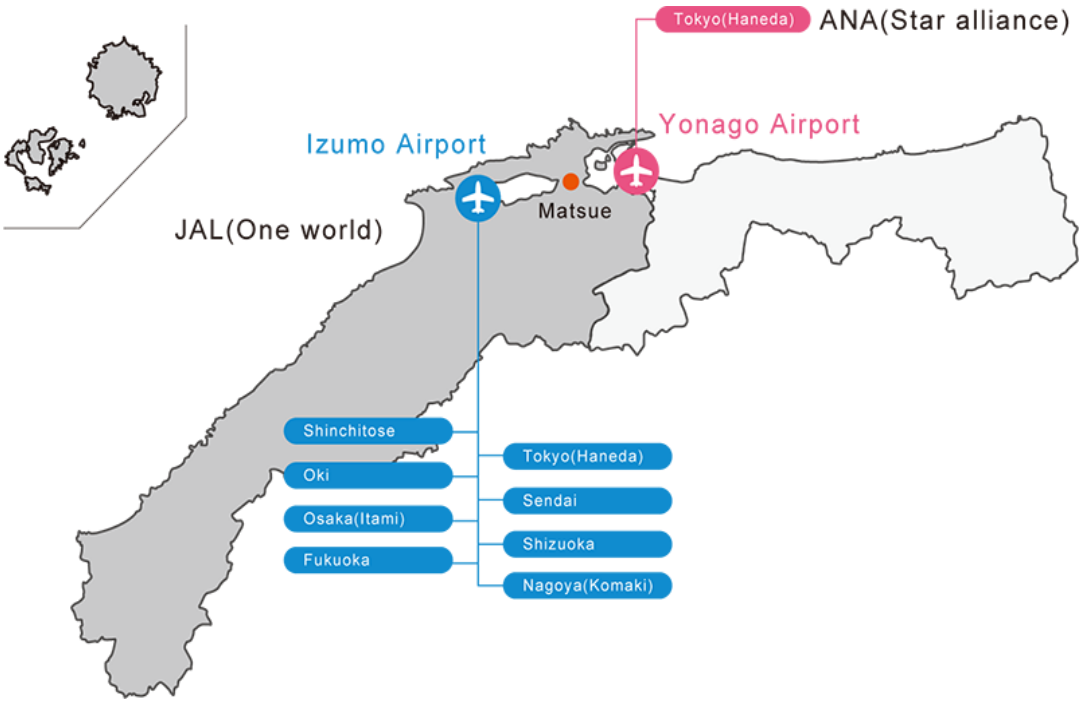
Please contact the secretariat/registration desk if you need medical assistance. They will advise you about where and how to find appropriate medical care. Some hotels provide a 24-hour clinic with a doctor on call.

Location

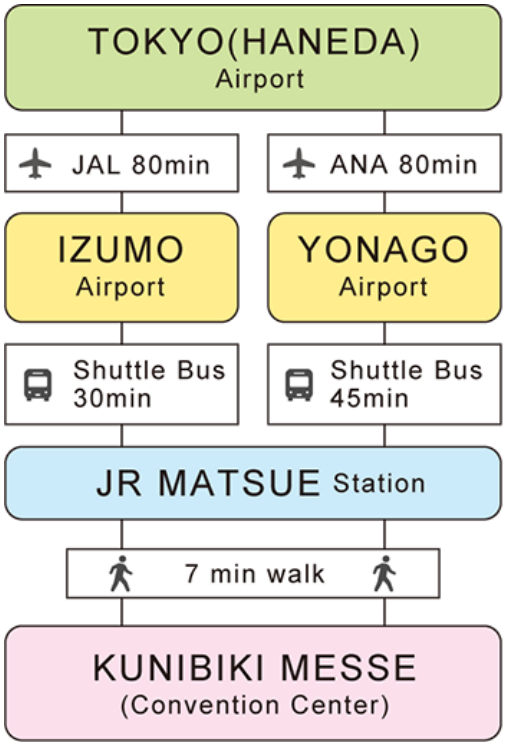
Matsue city, Shimane Prefecture

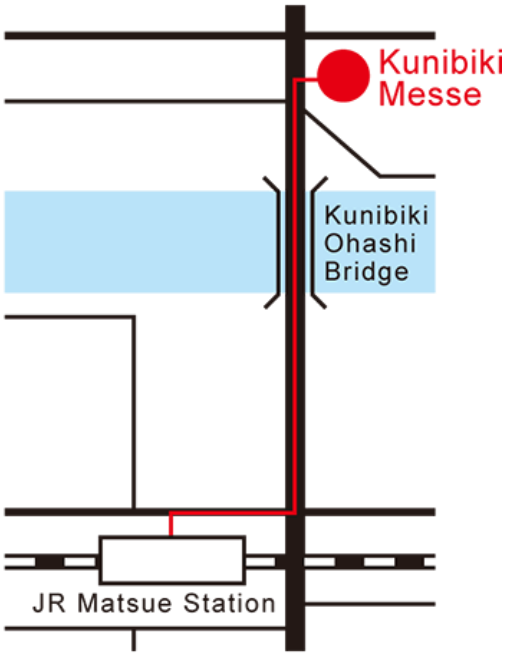
Transportation

Izumo and Yonago airports



You can take a shuttle bus for JR Matsue station from Izumo and Yonago airports, both of which you can come from Haneda airport in Tokyo.
You can take a walk from JR Matsue station to Kunibiki Messe for 7 min.





Tourist Attractions

Matsue is well known as “a city of water” because it is located between the Sea of Japan and two lakes, Lake Shinji and Nakaumi. The conference participants can enjoy the spectacular sunset view of the lake. Surrounded by beautiful nature, Matsue has a castle built in 1611 during Edo Period. The Matsue Castle has been the city’s symbol, and become a national treasure. Near Lake Shinji, there is one of the most important and ancient Shinto shrines, Izumo Taisha, where Shinto deities gather for a meeting once a year. In addition to that, this region is the birthplace of Japanese Mythology. In addition, Matsue’s warm and welcoming locals make tourists feel like they are part of the community, enhancing the overall travel experience.

Matsue’s typical attractiveness

- Nestled along the serene shores of Lake Shinji, Matsue’s picturesque landscape enchants overseas visitors with its tranquility and natural beauty.
- Matsue Castle, often referred to as the “Black Castle,” stands as a magnificent symbol of Japanese history and architecture, drawing tourists from around the world.

- Exploring Matsue's well-preserved samurai district allows travelers to step back in time and immerse themselves in the rich cultural heritage of Japan.
- Matsue is renowned for its delightful local cuisine, including Izumo soba noodles and fresh seafood, making it a paradise for food-loving tourists.

Tourist spots around Matsue

The Adachi Museum of Art's meticulously manicured gardens have been consistently ranked among the most beautiful in the world, making it a must-visit attraction for art and nature enthusiasts.

For those seeking a spiritual journey, the Izumo Taisha Grand Shrine, a short trip from Matsue, offers a glimpse into Japan's ancient Shinto traditions.

More information

VISIT MATSUE (Matsue Travel Association):

https://www.visit-matsue.com/

SHIMANE JAPAN – Official Tourism Guide (Shimane Prefecture):

https://www.kankou-shimane.com/en/

EARLY CAREER RESEARCHER AWARD WINNER

(2023)

Rwitajit MAJUMDAR
Research and Educational Institute for Semiconductors and Informatics
Kumamoto University, Japan

Dr. Rwitajit Majumdar is an Associate Professor at the Research and Educational Institute for Semiconductors and Informatics at Kumamoto University. He is attached to the Graduate School of Social and Cultural Sciences in the Division of Instructional System Studies. Before joining Kumamoto University in September 2023, he was a senior lecturer at the Academic Center for Computing and Media Studies at Kyoto University since 2021. He joined as a post-doc researcher in Prof. Hiroaki Ogata's lab and moved to Japan in 2018.

Rwitajit graduated from the Inter-disciplinary program (IDP) in Educational Technology at the Indian Institute of Technology Bombay in India, co-advised by Prof. Sridhar Iyer of the Computer Science and Engineering department and Prof. Aniruddha Joshi from the Design School. He did his undergraduate studies and master's from BITS Pilani, India, in Engineering Technology and Design Engineering. He attended doctoral coursework at the Indian Institute of Science in Bangalore before moving to Mumbai for doctoral research.

Rwitajit's research interests include Learning Analytics, designing data-driven services, and studying human-data interactions in the context of education. In the last five years, he has received 3 national grants from JSPS as PI and 3 as co-PI for research related to the GOAL project for designing data-driven platforms to develop learners' self-direction skills and build knowledge model-based learning infrastructure. At Ogata lab, over the years, Rwitajit worked directly with 7 Ph.D. and 7 master's students and other research members in various learning analytics research projects and has co-authored more than 100 international conference papers and 30 journal publications. He continues to bridge researchers from the East in Japan, India, Taiwan, and the West to share expertise and perspectives in different collaborative research projects.

In 2023, he has actively participated in the APSCE events, being co-chair for the Advanced Learning Technologies (ALT), Learning Analytics and Digital Infrastructure sub-conference track of ICCE, organizing workshops related to Learning Analytics as well as Embodied Learning in ICCE and contributing to RPTEL journal as an author as well as reviewer. Rwitajit was also awarded the IEEE TCLT Early Career Researcher Award in Learning Technologies during ICALT 2023. Along with research, Rwitajit likes to travel and experience local cultures and practices. His hobbies include photography, music, and mending broken potteries with the art of Kintsugi.

LAST TEN YEARS' DISTINGUISHED RESEARCHER AWARD WINNERS

2022 -APSCE Distinguished Researcher Award
Maiga Chang, Athabasca University, Canada

2021 -APSCE Distinguished Researcher Award
Maria Mercedes T. Rodrigo,Ateneo de Manila University, Philippines

2020 -APSCE Distinguished Researcher Award
Wenli CHEN, Nanyang Technological University, Singapore

2015 -APSCE Distinguished Researcher Award
Lung-Hsiang WONG, Nanyang Technological University, Singapore

2014 -APSCE Distinguished Researcher Award
Hiroaki OGATA, Kyushu University, Japan

2011 -APSCE Distinguished Researcher Award
Antonija MITROVIC, University of Canterbury, New Zealand
Chen-Chung LIU, National Central University, Taiwan

LAST TEN YEARS' EARLY CAREER RESEARCHER AWARD WINNERS

2022 - APSCE Early Career Researcher Award
Daner Sun, The Education University of HongKong, HongKong

2021 -APSCE Early Career Researcher Award
Bo Jiang,East China Normal University, China

2020 -APSCE Early Career Researcher Award
Kaushal Kumar BHAGAT, Indian Institute of Technology, Kharagpur, India

2019 -APSCE Early Career Researcher Award
Cheng-Jiu YIN, Kobe University, Japan

2018 -APSCE Early Career Researcher Award
Ting-Chia HSU, National Taiwan Normal University, Taiwan

2017 -APSCE Early Career Researcher Award
Jon MASON, Charles Darwin University, Australia

2015 -APSCE Early Career Researcher Award
Morris Siu-Yung JONG, The Chinese University of Hong Kong, Hong Kong

APSCE WEBINAR SERIES

(December 2022 – November 2023)

APSCE Webinar #30: The Metaverse and Language Learning
Date: 16 December 2022 (Friday)
Speaker: Prof. Yu-Ju LAN (National Taiwan Normal University, Taiwan)
Moderator: Prof. Vivian Wen-Chi WU (Asia University, Taiwan)
Curated by: APSCE Technology-Enhanced Language Learning (TELL) SIG

APSCE Webinar #31 : Leveraging Deep NLP and Generative AI in Education
Date: 10 March 2023 (Friday)
Speaker: Dr. Michelle Banawan, Asian Institute of Management, Philippines
Moderator: Dr. May Marie P. Talandron-Felipe, University of Science and Technology of Southern Philippines, Philippines
Curated by: APSCE Artificial Intelligence in Education / Intelligent Tutoring Systems / Adaptive Learning (AI-Ed) SIG

APSCE Webinar #32 : Graphical organizer-based in-field mobile learning
Date: 21 April 2023 (Friday)
Speaker: Prof. Hui-Chun CHU, Soochow University, Taiwan
Moderator: Prof. Jerry Chih-Yuan SUN, National Yang Ming Chiao Tung University, Taiwan
Curated by: APSCE Advanced Learning Technologies, Platforms & Infrastructures (ALT) SiG

APSCE Webinar #33 : Institutional and Psychological Factors Affecting Online Distant Foreign Language Learning Behaviors
Date: 5 May 2023 (Friday)
Speaker: Prof. Yuichi ONO, University of Tsukuba, Japan
Moderator: Prof. Vivian Wen-Chi WU (Asia University, Taiwan)
Curated by: APSCE Technology-Enhanced Language Learning (TELL) SIG

APSCE Webinar #34: Transforming Education with AI and Computational Action
Date: 18 May 2023
PANELIST:
Natalie LAO, Massachusetts Institute of Technology, USA
Mark FRIEDMAN, App Inventor Foundation, USA
Keertan KINI, Stanford University, USA
Chair: Ting-Chia HSU, National Taiwan Normal University, Taiwan
Curated by: APSCE Computational Thinking in Education/STEM (CTE/STEM) SIG

APSCE Webinar #35 : Three Challenges in Implementing Multimodal Learning Analytics in Real Learning Environments
Date: 31 May 2023 (Wednesday)
Speaker: Assoc. Prof. Bertrand Schneider, Harvard Graduate School of Education, USA
Moderator: Dr. Elizabeth Koh, Nanyang Technological University, Singapore
Curated by: APSE Computer-Supported Collaborative Learning / Learning Sciences (CSCL/LS) SIG

APSCE Webinar #36 (Postponed): Smart Technologies in Education: Policies for Effective and Ethical Use
Date: 16 June 2023
PANELIST:
Habibah Ab Jalil, Universiti Putra Malaysia, Malaysia
Vikas Kanungo, World Bank
Lung Hsiang WONG, Nanyang Technological University, Singapore
Moderator: Khaizer Omar Universti Putra Malaysia, Malaysia
Curated by: APSCE Practice-Driven Research, Teachers' Professional Development & ICT Policies (PTP) SIG

APSCE Webinar #37: Moving Toward a Mobile Learning Landscape: Effective Device Integration
Date: 3 July 2023
Speaker: Dr. Helen Crompton, Old Dominion University, USA
Moderator: Dr. Daner Sun, Education University of Hong Kong
Curated by: APSCE Classroom, Mobile and Ubiquitous Technology Enhanced Learning (CUMTEL) SIG

APSCE Webinar #36 (Re-scheduled): Smart Technologies in Education: Policies for Effective and Ethical Use

Date: 31 July 2023

PANELIST:

Habibah Ab Jalil, Universiti Putra Malaysia, Malaysia

Maiga Chang, Athabasca University, Canada

Lung-Hsiang Wong, Nanyang Technological University, Singapore

Moderator: Muhd Khaizer Omar, Universiti Putra Malaysia, Malaysia

Curated by: SIG 7 – Practice-driven Research, Teacher Professional Development and Policy of ICT in Education (PTP)

APSCE Webinar #38: Human-Centered Learning Technologies and Multimodal Data

Date: 21 July 2023

Speaker: Prof. Michail (Michalis) Giannakos

Norwegian University of Science and Technology (NTNU), Norway

Moderator:Dr. Ramkumar Rajendran, IIT Bombay, India

Curated by: APSCE Learning Analytics and Educational Data Mining (LAEDM) SIG

APSCE Webinar #39: Unlocking Potential: Leveraging Multimodal Learning Analytics for Collaborative Learning

Date: 11 August 2023

Speaker: Prof. Dragan Gašević, Monash University, Australia

Moderator: Dr. Ramkumar Rajendran, IIT Bombay, India

Curated by: APSCE Learning Analytics and Educational Data Mining (LAEDM) SIG

APSCE Webinar #40: Where now for 'Smart'? Consequent questions and the co-production of knowledge

Date: 6 September 2023 (Wednesday)

Speaker: Assoc. Prof. Jon Mason, Charles Darwin University, Australia

Moderator: Prof. Takahito Tomoto, Chiba Institute of Technology, Japan

Curated by: APSCE Education Use of Problems/Questions in Technology-Enhanced Learning (EUPQ) SIG

APSCE Webinar #41: Building In-Context Understanding of Learning Behaviors for Designing Game-Based Assessments

Date: 3 October 2023 (Tuesday)

Speaker: Assist. Prof. Zhichun “Lukas” Liu, The University of Hong Kong, Hong Kong SAR

Moderator: Assoc. Prof. Ahmed Tlili, Beijing Normal University, China

Curated by: APSCE Educational Gamification and Game-based Learning (EGG) SIG

APSCE Webinar #42: Digital Transformation of Higher Education: Challenges and Insights

Date: 25 October 2023 (Wednesday)

Speaker: Prof. Merlin Teodosia Suarez, De La Salle University, The Philippines

Moderator: Assoc. Prof. Patcharin Panjaburee, Khon Kaen University, Thailand

Curated by: APSCE Development of Information and Communication Technology in the Asia-Pacific Neighborhood (DIC TAP) SIG

KEYNOTE SPEAKERS

Curtis J. BONK
Indiana University, USA

Time to Wake Up from Our Innovative Learning Dreams and Make Smarter Learning a Reality

Abstract

For a half century, educators, psychologists, and researchers have been predicting that highly intensive, innovative, and individualized learning formats are only a few years away. Learners of all ages would enter enticing microworlds, highly engaging learning experience holodecks, fully immersive hands-on scenarios, high fidelity simulations and games, AI-based adaptive microlearning snippets, and completely free and open educational resources and courses on any topic. Massive open online classes were promised one day and then on demand microlearning snippets were delivered in the next. The learning related dreams we had in past decades were quickly forgotten as the next wave of learning technology came along. But all those dreams will prove pointless if they fail to address true problems or issues that some aspect of society is struggling with. It is time to wake up from such dreams of a glistening technological future and have our dream machines help us envision a world filled with open, informal, adaptive, nontraditional, and self-directed learning opportunities. When that happens, we will truly have arrived in the age of smarter and more innovative forms of learning where the learner is finally in charge of the dreams.

Biography

Curtis J. Bonk is Professor in the School of Education at Indiana University (IU) teaching psychology and technology courses and Adjunct in the School of Informatics at IU. He is a former software entrepreneur, certified public accountant, corporate controller, and educational psychologist who presently is an educational technologist, award-winning writer,

highly published researcher, statewide and national awardee in innovative teaching with technology, and internationally acclaimed presenter. Curt is the author of over 400 publications including 20 books such as the Handbook of Blended Learning: Global Perspectives, Local Designs, MOOCs and Open Education in the Global South, The World is Open: How Web Technology is Revolutionizing Education, and Transformative Teaching Around the World. He has given close to 2,000 talks around the world, including over 300 keynote and plenary talks. In 2020, Curt was awarded the IU President's Award for Excellence in Teaching and Learning Technology and in 2021, he received the David H. Jonassen Excellence in Research Award. Recently, the American Educational Research Association named him a 2022 AERA Fellow for his exceptional contributions to, and excellence in, education research, and the following week, he was honored with the International Engagement award from the IU School of Education. In 2022, he was also listed in the top 2% of scientists in the world based on publication citations for career. In 2023, AERA awarded Curt and his colleague Dr. Min Young Doo from Kangwon National University in Korea with the Outstanding International Research Collaboration Award. Curt Bonk co-hosts the weekly award-winning podcast show, Silver Lining for Learning (https://silverliningforlearning.org/). He can be contacted at cjbonk@indiana.edu and his homepage is http://curtbonk.com/.

KEYNOTE SPEAKERS

Tak-Wai CHAN
National Central University, Taiwan

Global Harmony and Wellbeing ——Should it be our Ultimate Educational Goal Worldwide?

Abstract

More than 160 years ago, Dickens wrote in the first sentence of his A Tale of Two Cities: "It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of Light, it was the season of Darkness, it was the spring of hope, it was the winter of despair...". Today, the human lifespan has extended, but millions of people have deceased in a short time before our eyes due to COVID-19. Digitization enables all of us to connect and communicate, but we constantly quarrel over different beliefs; online games offer immersive experience, but the specter of children's addiction looms large; artificial intelligence promises to enhance our lives, yet it harbors the potential of great harm to human beings; the advent of metaverse could herald a luminous future, but it may also signal a dark abyss to come; we cheer for technological advancement, but are simultaneously beset by concerns over environmental pollution, wealth disparity, and other daunting challenges.

During my keynote address at AIED2007, I put forward my observation: our research community has been experiencing three orientations of research: dream-oriented, adoption-oriented, and humanity-oriented. Humanity-oriented research, which was emerging at the time, addresses that learning should go beyond knowledge acquisition, and hence it should cover cognitive, affective, social and attitudinal domains. For the sake of humanity, we should strive to lay the foundations for the future world by bettering yourself, nurturing a caring family, incubating a humane society, fostering a peaceful and collaborative world.

Furthermore, I posed 4 grand challenge problems. The first three were informed by my observation of research in artificial intelligence in education (AIED), computer-supported collaborative learning, mobile learning, and game-based learning, as well as by the challenges of transforming education at that time. The fourth problem, the 'global educational goal problem'—rethinking the educational goal from the global perspective—was due to the threats such as nuclear holocaust, earth resource exhaustion, climate change, societal polarization, and mass extinction of species. These issues present profound risks to humanity and the planet's future. There is an increasing concern about whether our descendants will be able to survive on Earth, let alone live enjoyably. Recognizing the pressing need to address the global educational goal problem, I reordered the four problems in my last slide, placing it as the first grand challenge problem.

I acknowledge that when I first posed the global educational goal problem, I didn't have any idea about the answer, and I believed that this was the case for most other researchers in our field as well. However, the problem is so fundamental that it underpins why we do what we do.

Given the recent regrettable conflicts in the world, leaders in a prominent society in our field have recently raised questions and made statements: "Can we develop partnerships, processes, and learning environments that can reduce divisiveness and engender abilities to talk, work, and learn across differences? Can we design to disrupt othering and hate and to promote empathy and care? There is growing urgency to continue developing theory and practice to address this aim. We have expertise in our membership, we need to learn from each other, especially from those who have been thinking about this for a while now. This is where we can make a difference and take action as a Society." The world truly stands on the brink of peril. Can we coexist harmoniously with our environment? What is the future of humankind? What role do we, as educators, play in shaping the world of tomorrow?

What is education? It is said that at the end of World War II, a letter was found in a Nazi concentration camp. It is addressed to Teachers (Note 1).

Dear Teachers:

I am a survivor of a concentration camp. My eyes saw what no man should witness: gas chambers built by learned engineers, children poisoned by educated physicians, infants killed by trained nurses, women and babies shot and burned by high school and college graduates. So, I am suspicious of education.

My request is: help your students become human. Your efforts must never produce learned monsters, skilled psychopaths, educated Eichmanns. Reading, writing, arithmetic are important only if they serve to make our children more human.

If knowledge and human values are disconnected, can education lead to a more civilized world? If global society is not harmonious, can wellbeing be achievable?

Mandela once said, “Education is the most powerful weapon which you can use to change the world.” Indeed, education stands as a beacon of hope for the future. The education we impart today will shape the destiny of all humans in the years to come. In two decades or so, today's students in schools and universities will become the pillars of our society.

Designing the future of education is equivalent to designing the future world. Educational researchers—particularly those in our community who are engaged with technology—bear an even greater responsibility to lead change through global collaboration.

In this talk, I will share some thoughts based on years of ongoing discussions among a group of international researchers (Note 2). First, we may define the 'ultimate educational goal worldwide' as the final, most far-reaching aspiration that people envision, plan, and commit to achieving in education. It is designed to serve everyone across all societies and cultures, transcending individual and societal objectives to embrace humanity as a whole. For the sake of brevity, we will refer to the 'ultimate educational goal worldwide' simply as the 'ultimate educational goal' henceforth.

Second, assuming the ‘ultimate educational goal’ exists, its realization would necessitate a form of ‘ultimate education.’ Perhaps we can formulate this ultimate education as follows:

ultimate education = (ultimate educational goal, design theory, future digital world)

In this formulation, the ‘ultimate educational goal’ represents 'why' and 'what' to learn; design theory informs 'how' to learn; and ‘future digital world’ addresses ‘who’ and 'where' to learn, as well as how the ultimate education can be supported by and integrated into the digital future world, propelling the transformation of education toward that overarching goal.

We propose 'Global Harmony and Wellbeing' (abbreviated as ‘Global Harwell’) as a candidate for the ultimate educational goal in this formulation (Note 3). We use 'candidate' to acknowledge that, after thorough discussion, other superior options for the ultimate educational goal may emerge. Additionally, we introduce the Interest-Driven Creator (IDC) Theory as a candidate for the design theory—a theory planned to be a revised version of its predecessor. Moreover, we suggest the term 'Seamless AI World' is a candidate concept (or notion) that succinctly and accurately captures the essence of the future digital world (Note 4).

Once the ultimate educational goal is identified, to impact education significantly and accelerate its transformation, we may:

1. Build global and local awareness of the goal,
2. Establish experimental and model educational sites in various countries and regions,
3. Create a ‘global ultimate educational park,’ and
4. Disseminate the principles of ultimate education worldwide."

Given its potential far-reaching impact on education, along with its inherent intricacy and the fast-paced nature of the digital world, establishing the ultimate education worldwide will

require concerted efforts of several generations. There's an adage: “If you want to go fast, go alone; if you want to go far, go together.” In fact, if you go alone, you won't get anywhere. However, given the pressing urgency humanity faces and our planet teetering on the edge of catastrophe, we must unite to achieve swift and substantial progress. We cordially invite you to join us in this fruitful dialogue. To facilitate this, we plan to host a series of forums, either online or in person, to deliberate the aforementioned issues at the website: globalharwellgoal.org. We have chosen 'Global Harwell Goal' as the name for our website because the proposed goal can, at the very least, serve as a reference point and stimulate discussions until a more suitable name for the ultimate educational goal is agreed upon.

Note 1: Chee-Kit Looi forwarded the story to me. The letter, often attributed to Haim Ginott, was published in his book ‘Teacher and Child.’
Note 2: Tak-Wai Chan, Chee-Kit Looi, Siu-Cheung Kong, Wenli Chen, Lung-Hsiang Wong, Su Luan Wong, Ben Chang, Ju-Ling Shih, Ying-Tien Wu, Fu-Yun Yu.
Note 3: It is worth noting that most of us are researchers, not experts in philosophy, politics, or religion. Nevertheless, we can still propose possible candidates for the ultimate educational goal based on our knowledge and life experiences, without deliberately considering religious doctrines or ideological beliefs. Furthermore, if Global Harwell is our ultimate educational goal, its fulfillment would require what we might call Global Harwell Education.
Note 4: If we accept Global Harwell as our ultimate educational goal, addressing the 'why' and 'what'; IDC Theory as our activity design framework, explaining the 'how'; and Seamless AI World as the concept describing the digital future, outlining the 'where' and 'who'; then 'Seamless IDC Theory' could be a theory for designing Global Harwell Education.

Biography

Professor Tak-Wai Chan is a trailblazer in digital learning and a global leader in the field. Almost 40 years ago, at a time when computers and the internet were not yet mainstream in the mid-eighties, he began researching on AI supported learning for his doctoral dissertation, proposing a new genus of AI in education system called learning companion system in 1988. This virtual companion system, called Integration-Kid, was the first artificial companion in the world. In 1989, he and his students started to build the world’s first dedicated networked learning system for collaborative learning and learning through competition games, called Distributed West (1992). In early 2000s, he and his colleagues built the largest online learning community called EduCity (1.5 million learners with 1,700 schools involved in 2003), which was also referred as the first learning society in the world. In the same time period, his team conducted frontier research on mobile learning, intelligent classroom, future classroom,

interactive clicker, e-schoolbag, one-to-one technology enhanced learning, and so forth. After this series of research, in 2006, working together with a large group of international researchers mainly from the Western countries, he proposed the concept of Seamless Learning. In 2010s, after some long-term experiments on reading (MSSR) and writing in one-to-one technology enhanced classroom, in collaboration with a group of Asian scholars, he proposed the Interest-Driven Creator (IDC) Theory. Again, he and his colleagues are now calling for building Seamless Interest-Driven Creator (SIDC) Theory with interested researchers.

In addition to his research, Professor Chan has also been a major founder of two societies: the Asia-Pacific Society for Computers in Education (APSCE) and the Global Chinese Society for Computers in Education (GCSCE). These two societies respectively host annual conference series ICCEs and GCCCEs, as well as the journals RPTEL and JLCE. Moreover, to cope with the expanding research community of the field, he has been assisting the establishment of APSCE Theme-Based International Conference Series (TBICS), including CTE-STEM, ICFULL, MetaACES.

KEYNOTE SPEAKERS

Davinia HERNÁNDEZ-LEO
Universitat Pompeu Fabra, Barcelona,Spain

Computers in Education: how can we support teachers?

Abstract

While it is widely agreed that the role of teachers is key to achieve students' learning, research on how technology can support teachers' tasks is often underemphasized. In this talk I will summarise research results leading to practical implications in the design of technologies that improve the efficiency and effectiveness of teachers' tasks, caring also for their wellbeing. In particular, I will focus on how technology can support learning design and the orchestration of complex learning scenarios, such as computer-supported collaborative learning in large classrooms. The technology presented will include authoring tools, teaching community platforms, enactment systems, orchestration dashboards and data-driven interventions based on learning analytics. I will also discuss synergies between technological solutions emphasizing human-in-control and machine-in-control perspectives. During the talk, participants will be able to experience some notions covered by interacting using the PyramidApp tool and the Integrated Learning Design Environment (ILDE).

Biography

Davinia Hernandez-Leo is Full Professor, Serra Hunter and ICREA Academia Fellow at the Department of Information and Communications Technologies Department (DTIC) at Universitat Pompeu Fabra, Barcelona (Spain), where she is the director of the Interactive and

Distributed Technologies for Education research group (TIDE). She obtained a Ph.D. at University of Valladolid, Spain, and has been visiting researcher at Open University of the Netherlands, Fulbright Scholar at Virginia Tech and visiting academic at the University of Sydney. She has published extensively and received several awards, including best and most cited scientific paper awards and recognitions for technology contributions. Prof. Hernández-Leo has been Vice-President of the European Association for Technology-Enhanced Learning, a Associate Editor of the IEEE Transactions of Learning Technologies, and is currently an elected member of the CSCL Committee within the International Society of the Learning Sciences and member of the Steering Committee of the European Conference on Technology-Enhanced Learning. She is very active in research supervision (PhD students, visitors, etc.), in participation and lead of European and national projects, and in collaborations with companies, non-profit organizations, policy makers and private foundations. Her research activity is broadly centered on the domain of learning technologies, spanning fields such as learning design technology, computer-supported collaborative learning (CSCL), community platforms and learning analytics.

KEYNOTE SPEAKERS

Masaru KITSUREGAWA

Research Organization of Information and Systems, Japan

Building a Research Data Platform and Education

Abstract

We have entered a highly uncertain, unpredictable age beset by natural disasters and wars around the world as well global-scale pandemics. However, we must not despair at this state of affairs and simply wait in hope of better circumstances. Rather, we must move forward with an eye to the future. The Research Organization of Information and Systems (ROIS), consisting of four distinguished research institutes, aims to solve complex phenomena and issues relating to life, the earth, the natural environment, and human society by reframing these issues from the perspective of information and systems while advancing data science to conduct integrated research that transcends disciplinary boundaries. In line with its mission to support resource-sharing and joint research among all universities, ROIS promotes cutting-edge research in specialized fields through joint research that transcends university boundaries by providing researchers nationwide with access to large-scale, state-of-the-art equipment and facilities, big data, valuable materials, and analytical methods. Especially, the National Institute of Informatics replaced the previous Science Information NETwork (SINET) with the world's fastest ultra-high-speed network infrastructure, SINET6, which provides transmission speeds of up to 400 Gbps. In addition to the over 1,000 institutions and universities currently being served, the network will soon be offered to elementary, junior high, and high schools as well. SINET is also expected to make substantial contributions to industry and continuing education. The full rollout of the GakuNin RDM research data management

platform not only provides data management support for individual researchers but also supports the development of open science by providing a platform for the proper release of research data including educational big data.

Biography

Masaru Kitsuregawa graduated from the Electronics Engineering Department, Faculty of Engineering, the University of Tokyo in March 1978, completed his doctorate in information engineering at the same university and received a Ph.D. in 1983. He became a lecturer at the Institute of Industrial Science in April 1983, an associate professor in 1984, and a professor in 1997, all at the same university. He has been director general of the National Institute of Informatics since 2013. Currently he is a president of Research Organization of Information and Systems in Japan. Dr. Kitsuregawa has made numerous distinguished achievements in the database field over a long period. He was a leading researcher on the high-speed operation of a hashed relational database. With a conventional simple method, the relational database operation cost is the square of the number of records. To solve this problem, he developed the GRACE hash method, which operates a database at a linear cost by combining a dynamic destaging method, bucket adjustment and different implementation methods. This method is referred to in Wikipedia as a basic method of operating a relational database. Today, all major database software programs use a hash algorithm. Dr. Kitsuregawa's research established the foundation of this algorithm. In recognition of his achievements in enhancing database performance, including those mentioned above, he received the ACM SIGMOD E. F Codd Innovations Award, which is the most prestigious award in database system research. He was the first recipient from Asia. Also, he was designated a fellow by IEICE, IEEE, and ACM, and also received many awards, including Achievement Award from IEICE, Medal with Purple Ribbon, and Legion d'Honneur, Chevalier.

THEME-BASED INVITED SPEAKERS

Kaushal Kumar BHAGAT
Indian Institute of Technology Kharagpur, India

Game On! Leveraging the Benefits of Game-Based Learning in the Digital Age

Abstract

In today's digital age, game-based learning has become an increasingly popular way to engage students and enhance their learning experiences. Game-based learning leverages the engaging and immersive nature of games to create a fun and interactive learning environment, which can help students to develop critical thinking, problem-solving, and collaboration skills. In this keynote presentation, we will explore the benefits of game-based learning and discuss how it can be used to meet the needs of today's learners. We will discuss the importance of incorporating game-based learning into the classroom and explore some of the latest research on the effectiveness of this approach. We will also explore some fundamental design principles of successful game-based learning and highlight some of the best practices that educators can use to create engaging and effective games for their students. Finally, we will examine some of the challenges and limitations of game-based learning and discuss how educators can work to overcome these obstacles. Overall, this keynote presentation will provide attendees with a comprehensive overview of game-based learning and its potential to transform education in the digital age. Whether you are an educator, a curriculum developer, or a game designer, this presentation will provide valuable insights into how you can leverage the benefits of game-based learning to create engaging and effective learning experiences.

Biography

Dr. Kaushal Kumar Bhagat is currently working as an assistant professor in the Advanced Technology Development Centre at the Indian Institute of Technology (IIT), Kharagpur, India. He received his Ph.D. from the National Taiwan Normal University in September 2016. He then served a two-year postdoctoral position at the Smart Learning Institute at Beijing Normal University. In 2015, Dr. Bhagat received NTNU International Outstanding Achievement Award. He was also awarded the 2017 IEEE TCLT Young Researcher award. In 2020, he received APSCE Early Career Researcher Award (ECRA) from the Asia-Pacific Society for Computers in Education. He was also awarded the 2022 Excellence in Distance Education Award (EDEA) by the Commonwealth of Learning (COL), Canada. He is an associate editor of the British Journal of Educational Technology (BJET), Regional Associate Editor (Asia) of the Journal of Learning for Development (JL4D), and editor-in-chief of Contemporary Educational Technology (CET). He is also an editorial board member of several reputed international journals. He is a consultant for international organizations like the Commonwealth of Learning, UNESCO, etc. His research area of interest includes augmented reality, virtual reality, game-based learning, online learning, and technology-enhanced learning.

THEME-BASED INVITED SPEAKERS

Brendan FLANAGAN
Kyoto University, Japan

Challenges and Opportunities of Educational Data Science for Reading Systems

Abstract

As educational systems are collecting an increasing amount of data on the learning behavior of students, its analysis has given rise to the fields of Educational Data Mining, and more recently Learning Analytics. As a result, educational AI that is constructed from and consumes learning behavior data has become more prevalent in learning systems and is fueling increased research attention in the field. While many datasets have been made public to promote research, important issues such as information privacy have also limited broader analysis and have resulted in data silos and hindered replication studies within the community. This talk will give an overview of educational data science focusing on reading systems and discuss important ongoing challenges including data analysis for niche learning contexts, data divide, and insights into methods for promoting collaboration through synthetic data and their possible limitations.

Biography

Brendan Flanagan is an Associate Professor at the Center for Innovative Research and Education in Data Science, Institute for Liberal Arts and Sciences, and the Data Science Department at the Graduate School of Informatics, Kyoto University. His research interests include Learning Analytics, Educational Data Science, Computer Assisted Language

Learning, and the Application of Blockchain in Education. He has also hosted educational data challenges at prominent international conferences for more than 5 years to promote educational data science research. He is currently the Principle Investigator of several government-funded research projects that investigate knowledge and learning process analysis, and explainable predictions by learning systems, and is also part of a Japanese Cabinet Office (NEDO) funded large research project into educational symbiotic AI systems.

THEME-BASED INVITED SPEAKERS

Daner SUN
Education University of Hong Kong, Hong Kong

Exploring the Evolution of Mobile Learning Environments

Abstract

The rapid advancement of technology and the changing landscape of education have led to significant changes in technology-enabled learning environments. This presentation will explore the impact of changing situations on mobile technology-enabled learning environments, with the speaker sharing insights as both a researcher and an instructor. The talk will cover the evolving distribution and adjustment of components in these environments, as well as changes in pedagogy before, during, and after the Covid-19 pandemic. Additionally, the speaker will highlight the emerging dominance of new technologies in Hong Kong and worldwide, and propose future research directions for mobile learning.

Biography

Dr Daner Sun is an assistant professor at the Department of Mathematics and Information Technology, the Education University of Hong Kong (EdUHK), Hong Kong. Her research interests are mobile learning, STEM education, and higher-order thinking in technology-supported learning. So far, Dr Sun has published more than 30 SSCI journal papers. She serves as the editor/co-editor for conference proceedings and journal special issues and acts as a reviewer in the community. Besides being the awardee of the APSCE Early Career Researcher Award (ECRA) 2022, she is also the awardee of Outstanding Performance in Research 2023, Outstanding Performance in Knowledge Transfer (Team) 2020, and Dean's Research Output Prize 2021 in EdUHK.

EXTENDED SUMMARY

PC Executive Chair
Juan ZHOU, Tokyo Institute of Technology, Japan

PC Co-chair
Ruining YANG, Hunan University, China

Abstract

In response to raising concerns about overlapping conference and journal papers, we are pleased to announce another paper category — Extended Summary (ES). The ES session will provide opportunities for authors to pitch main ideas and key results. Four kinds of contributions will be accepted: empirical, technical design, conceptual and literature review papers.

INTERACTIVE EVENTS

TOPIC: Metaverse in Education: Design, Applications, and Challenges

ORGANISERS:

Dr. Yanjie SONG, The Education University of Hong Kong, Hong Kong, China
Prof. Ping LI, Hong Kong Polytechnic University, Hong Kong, China
Prof. Siu Cheung KONG, The Education University of Hong Kong, Hong Kong, China
Prof. Qing LI, Hong Kong Polytechnic University, Hong Kong, China
Prof. Xuesong ZHAI, Zhejiang University, China
Prof. Chengjiu YIN, Kyushu University, Japan
Dr. Peter Hiu Fung NG, Hong Kong Polytechnic University, Hong Kong, China

ABSTRACT:

Metaverse is the next generation of internet and has been heralded as a trend of future education with great potential. Innovations in using augmented reality (AR), virtual reality (VR), mixed reality (MR), CAVE (a cave automatic virtual environment), and other artificial intelligence technologies to design and develop a variety of platforms for educational and training purposes are increasing rapidly. The adoption of these innovations will bring about transformations in education. In this interactive event, the organisers from Hong Kong, Mainland China and Japan will introduce their innovations and applications, discuss challenges, and explore future work with regard to the metaverse in education. The innovations include design and development of (1) language and culture learning through VR and metaverse — simulating embodied cognition and action in a multimodal behavioral and neurocognitive platform; (2) a 3D metaverse platform – 'Cheer Zone Metaverse' to establish a virtual community that leverages immersive environments for behaviour interactions, employing diversified avatars for affective communication, and implementing equitable mechanisms for knowledge creation; (3) a 'Central Venous Catheters Training Prototype System' by combining Haptics devices (Touch X) and VR Goggles to reproduce the sense of touch and enhance the sense of immersion in medical education; (4) Play2Earn APPs by applying GameFi and gamification concept to facilitate whole person education (Humane, Physical Development, Social & Spiritual) in higher education; and (5) a 3D metaverse

platform – ‘Learningverse’ to support teaching, social and cognitive presences in immersive, collaborative and interactive learning environments. In tandem with these innovations and applications of metaverse in education, issues and types of versatile data sharing in educational metaverse systems (EMS) and metaverse literacy are also important topics to be explored and discussed in this interactive event.

AGENDA:

Session	Topics	Speaker	Duration (minutes)
	Opening remarks	Dr. Yanjie SONG	3
1	Innovation & application 1	Prof. Ping LI	10
2	Innovation & application 2	Prof. Xuesong ZHAI	10
3	Innovation & application 3	Dr. Peter Hiu Fung NG	10
4	Innovation & application 4	Prof. Chengjiu YIN	10
5	Innovation & application 5	Dr. Yanjie SONG	10
6	Issues & types of data in EMS	Prof. Qing LI	10
7	Metaverse literacy	Prof. Siu Cheung KONG	10
8	Interactive discussion	All speakers with audience	45
	Closing remarks	Prof. Ping LI	2

WORKSHOPS

W01: The Applications of Generative Artificial Intelligence (GAI) in Education

ORGANIZERS

Chiu-Lin Lai, Associate professor, National Taipei University of Education, Taiwan

Yun-Fang Tu, Associate professor, Department of Educational technology, University of Wenzhou, China

Xiao-Li Zheng, Associate professor, Department of Educational technology, University of Wenzhou, China

Charoenchai Wongwatkit, Assistant professor, Mae Fah Luang University, Thailand

About

Artificial intelligence (AI) has been considered to be the next key technology for integrating technology into teaching and learning. The core technology behind it is machine learning or deep learning, which gives it the ability to imitate human thinking. Machine learning is a process by which computers look at a given data set to generate a model that can solve a problem. Deep learning algorithms are often used to compute and analyze high-dimensional data such as images, video, and audio. With the development of deep learning technology, many generative AI (GAI) is developing rapidly (Limet al., 2022). It can also generate personalized suggestions based on user's behavioral data and preferences. Common GAI products currently include ChatGPT, DALLE-E, Midjourney, and so on. This technology has gradually changed human life. In the future, GAI will also have great potential to change the current educational landscape. Therefore, researchers and educators need to evaluate and discuss the features, conditions, and applicable teaching and learning areas of GAI to provide sufficient reference resources for future teaching and learning sites. Therefore, this workshop will emphasize a wide spectrum of research or practical topics related to the usage of GAI in education.

This workshop will explore and discuss generative artificial intelligence (GAI) in education, providing a platform for international exchange, aiming for future research collaborations, and fostering innovative advancements. Proposals are called for regarding the following issues, including (but not limited to):

- Development of generative artificial intelligence (GAI) for education
- Application of generative artificial intelligence (GAI) in education
- Implementing generative artificial intelligence (GAI) in educational settings

- Integration of generative artificial intelligence (GAI) and other innovative tools for education
- Students' or teachers' perception of generative artificial intelligence (GAI)
- Strategies and approaches for employing generative artificial intelligence (GAI) in education
- Digital divide of generative artificial intelligence (GAI) in education
- Rights, ethical concerns, and equity in the deployment of GAI in educational settings

W02: The 7th Computer-Supported Personalized and Collaborative Learning

ORGANIZATION

Dr. Sunny S. J. Lin, National Yang Ming Chiao Tung University (NYCU), Taiwan.
Dr. Robin Chiu-Pin Lin, National Tsing Hua University, Taiwan.
Dr. Sherry Y. Chen, National Central University, Taiwan
Dr. Gwo-Haur Hwang, National Yunlin University of Science and Technology, Taiwan.
Dr. Fu-Yun Yu, National Cheng Kung University, Taiwan.
Dr. Lung-Hsiang Wong, National Institute of Education, Nanyang Technological University (NTU), Singapore.
Dr. Shu-Yuan Tao, Takming University of Science and Technology, Taiwan.
Dr. Hsiu-Ling Chen, National Taiwan University of Science and Technology, Taiwan.
Dr. Ching-Yi Chang, Taipei Medical University, Taiwan.

About

The development of advanced information technologies has opened up new opportunities in the area of computer supported learning environments. A key aspect of this work lies within the fact that students can access learning material at any time and any places. As a result of such convenience, a wide range of people have begun using computer supported learning environments for supporting instruction. Thus, it is important to ensure that such computer supported learning environments can accommodate diverse students' needs.

To address this issue, it is necessary to incorporate personalization into the development of computer supported learning environments. Personalization is acknowledged as a useful approach to develop added value services in computer supported learning environments. It can help students with different characteristics, backgrounds and needs to get different types of content presentation and navigation support. In this context, a deep understanding of personalization is essential for the development of computer supported learning environments.

While acknowledging the essentiality of personalization, the importance of incorporating an element of collaboration during the process so that students can contribute to each other's learning has become prevalent in educational practice with the advent of Web 2.0 technologies. Thus, issues on how to address these two aspects simultaneously if desirable, or at different learning stages to create optimal learning space and experience for involved learners are the focus of this workshop. In sum, this proposed workshop addresses two core aspects in computer supported learning environments—personalization and collaboration. The workshop provides opportunities for the cross-fertilization of knowledge and ideas from researchers in the many fields that make up this interdisciplinary research area. We hope that the implications of findings of each work presented in this workshop can be used to improve the development of Computer-Supported Collaborative and Personalized Learning environments.

In ICCE2014, we held successful workshops where we paid special attention to computer supported personalized learning. In ICCE2015, we extended and expanded our focus to include the essential aspect of collaboration in online learning environments. The continuous effort to organize this workshop will allow researcher with similar interest to bond and form a stable research community to share their insight and concerns with regard to the many aspects of personalization and collaboration within computer supported learning environments in the ICCE community from different angles (e.g., theoretical conceptualization, system designs, classroom arrangements/mechanisms, cultural/sociological perspectives, and/or evaluation models).

The topics discussed in this workshop will cover a wide range of topics on the captioned workshop. In particular, topics of interest may focus on, but are not restricted to:

- New technology or AI supported personalized learning
- Self-directed learning
- One-to-one tutoring
- Individual trait and ergonomics
- Personalized game-based learning
- Personalized mobile learning
- Learning analytics for understanding computer-supported personalized and collaborative learning
- Emerging technologies supporting collaborative learning in online space
- Group composition and group dynamics in computer-supported collaborative learning
- Collaborative online game-based learning
- Collaborative mobile learning

W03: The Applications of Information and Communication Technologies (ICTs) in Adult and Continuing Education

ORGANIZATION

Xibei Xiong, Associate Professor, Guangxi Normal University, China
Chunping Zheng, Professor, Beijing University of Posts and Telecommunications, China
Jyh-Chong Liang, Chair Professor, National Taiwan Normal University, Taiwan

HONORARY CHAIR

Chin-Chung Tsai, National Taiwan Normal University, Taiwan

About

Information and communication technologies (ICTs)—which include various forms of media, as well as new digital technologies such as computers and the Internet—have been recognized as potentially powerful enabling tools for educational use. When used appropriately, ICTs are expected to expand access to teaching and learning. Recently, the probable impacts of ICTs on adult education have been receiving much attention from educational researchers. Although the targeted areas of adult education may be diverse, such as higher education, teacher education or continuing education, researchers and practitioners have focused on the related issues in such fields, such as facilitating professional development, encouraging life-long learning, designing distance education programs, and other related issues. However, a successful usage of ICTs is not always a simple thing to achieve, and it needs researchers and practitioners to scrutinize, plan, and implement it with caution. Therefore, this workshop will emphasize a wide spectrum of research or practical topics related to the usage of ICTs in enhancing adult education or continuing teaching and learning.

In this workshop, a wide spectrum of research or practical topics relating to the usage of ICTs in adult education or continuing learning will be explored and discussed. The aim of this workshop is to provide a forum in which international participants can share knowledge, experiences and concerns regarding the application of ICTs for adult and continuing education and for professional development, and explore directions for future research collaborations. In addition, we hope to build on the fruitful results of this workshop to bring about innovative advancements in adult education and continuing learning. Proposals are called for regarding the following issues, including (but not limited to):

- Information and Communication Technologies for Adult Education
- Teaching and Learning issues about ICT in Adult Education
- Online Education and Learning Environments for Adults
- Professional Development and Continuing Education
- The usage of ICTs for senior people
- Teaching and Learning issues about ICT in teacher education

W04: The 7th International Workshop on Information and Communication Technology for Disaster and Safety Education (ICTDSE)

ORGANIZATION

Hisashi Hatakeyama, Tokyo Institute of Technology, Japan
Hiroyuki Mitsuhara, Tokushima University, Japan

ADVISORY MEMBER

Ruggiero Lovreglio, Massey University, New Zealand

About

The natural and human-caused disasters, such as earthquakes, epidemics, terrorist attacks, and cyberattacks, are dangerous as they can occur at any time and at any location. They pose severe threats to property, happiness, and life. In many cases, disasters are unpredictable and complex, which makes them even worse. The matter of how to survive in this unsafe era is questionable. A promising survival method is to learn about disasters and safety. However, methods for understanding them have not yet been completely established. In other words, disaster and safety education (DSE) should be actively promoted all over the world.

Nevertheless, information and communication technology (ICT) plays a significant role in promoting DSE. For example, the simulation and virtual reality (VR) technologies realistically visualize disaster situations and enable us to think about how to survive disasters and ensure safety from a wide perspective. Currently, new ICTs have started to emerge and gain popularity worldwide, necessitating the need for comprehensively exploring various possibilities of ICT for DSE from various viewpoints (e.g., instructional design, system development, and practice). The continuous exploration of these possibilities will certainly offer sufficient outcomes and eventually establish several methods of learning about disasters and safety, ensuring safety, security, and peace globally.

Technological scopes

- Augmented reality (AR)/mixed reality (MR)/virtual reality (VR)
- Big data analytics (e.g., GPS and SNS data)
- Computer network analysis and design
- Cloud computing and distributed systems
- Decision support system
- E-learning
- Ergonomics
- Game-based learning and gamification
- Geographic information systems
- Human–computer interaction (HCI)
- Image and signal processing
- Information infrastructure
- Information security
- Intelligent sensors
- Internet of things (IoT)
- Intuitive user interfaces
- Mobile devices (e.g., smartphones and tablets) and applications
- Simulation and gaming
- Social networks (e.g., Facebook and Twitter)
- User interfaces
- Visualization
- Wearable devices (e.g., smart glasses)
- Web technologies

Academic/pedagogical scopes

- Cognitive science
- Criminology
- Crisis/risk management
- Decision making
- Disaster education
- Environmental education
- Ethics education
- Food education
- Health education
- Information ethics and literacy
- Media literacy
- Medical education
- Nursing education
- Peace education
- Pharmacy
- Physical education
- Preventive healthcare
- Psychology
- Safety education
- Security education
- Sociology and social science

W05: 3rd International Workshop on Embodied Learning: Technology Design, Analytics & Practices

ORGANIZATION

Prajakt Pande Southern Methodist University, Dallas, USA.
Rwitajit Majumdar Kyoto University, Japan.
Shitanshu Mishra MGIEP UNESCO, India.
Jayakrishnan Madathil Warriem IIT Madras, India.
Aditi Kothiyal Indian Institute of Technology Gandhinagar, India.

About

This workshop aims to provide a highly interactive avenue for educational technology researchers to discuss strongly embodied cognition/embodied learning theory-based approaches to the design, application, practice, and evaluation of educational/learning technologies, technology-enhanced learning environments (TELE), and learning analytics. We particularly welcome papers discussing reports/findings on the development, deployment, and evaluation of embodied learning technologies in formal or informal educational settings (e.g. K-12 schools, out-of-school outreach programs, undergraduate or graduate education). Newer accounts of cognition and learning, such as 4E (embodied, embedded, extended, and enactive) cognition suggest that cognition and learning are grounded in action. Hence learning design and assessment must be grounded in action. However, designing for embodied learning is yet to find a solid traction among educational technology communities as a fundamental technology-enhanced learning design theory. Existing work is fragmented and fails to provide concrete design principles. Further, the benefits of embodied learning are attractive yet elusive.

In order to realize the hypothesized benefits of embodied learning, it is important to identify the learning mechanisms underlying embodied learning, and quantify as well as diversify its benefits. Given the nature of embodied learning systems, it is necessary to use multimodal data such as large and small body movements, speech, eye gaze, and several other potential biometrics to capture all learning interactions and in turn identify the learning mechanisms. Analysis of embodied learning scenarios thus becomes challenging, but is intricately tied to design and its refinement.

Researchers and practitioners interested in the design and analysis of embodied learning, as well as the design and analysis of technology environments for embodied or 4E learning, are strongly encouraged to submit their work. We welcome a variety of topics and research issues related to the design, development, and analyses of technology for embodied learning. The term embodied learning should be interpreted in its broadest sense. The aim of this workshop

is to provide a platform for researchers to exchange ideas and share practices about how technology can be used to leverage design and understanding of embodied learning.
Topics and research issues of the workshop include but are not limited to:
Design of learning environments based on embodied cognition or 4E cognition theories, and (bodily) interaction-focused approaches
Pedagogical approaches for interactive technology-enhanced learning (TEL) based on embodied cognition/learning and allied theories
Assessment of technology-enhanced embodied learning – techniques, tools, and innovative approaches
Multimodal learning/data analytics methods/models to identify/characterize interaction processes or mechanisms supporting embodied and/or 4E learning
Learner modeling techniques for embodied and/or interaction-based learning
AI and technology-enhanced embodied learning (e.g. AI for TEL design and evaluation)
Feedback in the context of technology-enhanced embodied learning (the term feedback should be interpreted in its broadest sense - e.g. learner feedback, teacher feedback, automated feedback on gestures, body movements, etc.)
Benefits of embodied learning in underrepresented domains such as liberal arts and humanities
Diversity, inclusion, equity, and embodiment in the context of TEL (e.g. embodiment, learning, and education focusing on underserved and/or differently-abled communities of learners)
Embodied learning designs for online, remote, and asynchronous settings (e.g. MOOCs, Intelligent Tutoring Systems)
Practitioners' views and faculty development for adopting embodied TEL

W06: The 16th Workshop on Technology Enhanced Learning by Posing/Solving Problems/Questions

ORGANIZATION

Takahito Tomoto, Chiba Institute of Technology, Japan
Jon Mason, Charles Darwin University, Australia
Shitanshu Mishra, UNESCO MGIEP, India
Chun-Ping Wu, National University of Tainan, Taiwan
Yusuke Hayashi, Hiroshima University, Japan
Tsukasa Hirashima, Hiroshima University, Japan
Kazuaki Kojima, Teikyo University, Japan
Tomoko Kojiri, Kansai University, Japan
Tanja Mitrovic, University of Canterbury, New Zealand

Fu-Yun Yu, National Cheng Kung University, Taiwan

About

Problems/questions are indispensable in the teaching and learning process. Adequate problems/questions give essential motivation for learning. Problems/questions with adequate quality in various testing conditions are believed to enable teachers to assess individual students' capability and readiness of transfer in specific domain knowledge. Despite this, there are still many areas in need of systematic investigation to promote knowledge and skills facilitated by problems/questions, including learning by problem solving and/or generation. For instance: what criteria constitute as adequate test item quality (in addition to frequently cited psychometric index like item difficulty, discrimination index); how to best assess a learner's capability with appropriate quality level within constraints (e.g., an optimal number of items, time limitation, etc.); any feasible metadata heuristics and/or techniques for problems/questions selection; any promising alternative strategies for compiling a sufficient number of problems/questions; any scaffolding techniques for question-generation implementation and instructional diffusion and so on.

From ICCE 2006 to 2022, we held a series of 15 workshops where we paid special attention to "questions/problems" in technology-enhanced learning. We have established a SIG of "Educational Use of Problems/Questions in Technology-Enhanced Learning" in 2015. This 16th workshop is the ninth workshop organized by the SIG. This continuous workshop aims to provide a good and timely opportunity to present and share the results and issues about "problems/questions" and to grow the SIG community.

We cordially invite presenters and participants who are interested in "problems/questions" in computer-supported education/learning environment. We would like to discuss the many facets and potential uses of "problems/questions" from a technological, computational, pedagogical, psychometrics, theoretical, sociological and administrative point of views. In addition to oral presentation sessions for research papers, we have a demonstration session for the computer-supported environments developed.

- Problem/question generation/authoring/posing
- Learning by problem/question-posing
- Problem/question variation/changing
- Problem analysis and evaluation
- Structuration of domain knowledge
- Problem/question selection
- Metadata or Ontology of problems

- Metacognition in problem-solving or problem-posing
- Test theory
- Instructional intervention for problem/question-authoring in classrooms
- Affordances of the digital environment for scaffolding questioning and question-answering

W07: The 3rd Workshop on Innovative technologies for enhancing interactions and learning motivation

ORGANIZATION

Jerry Chih-Yuan Sun, National Yang Ming Chiao Tung University, Taiwan
Sherry Y. Chen, National Central University, Taiwan
Hui-Chun Chu, Soochow University, Taiwan
Yih-Lan Liu, National Yang Ming Chiao Tung University, Taiwan
Ken-Zen Chen, National Yang Ming Chiao Tung University, Taiwan
Shih-Jou Yu, National Yang Ming Chiao Tung University, Taiwan
Chiung-Fang Chang, National Yang Ming Chiao Tung University, Taiwan

About

The purpose of this workshop (The 3rd Workshop on Innovative technologies for enhancing interactions and learning motivation) focuses on innovative technologies for enhancing interactions and learning motivation. The workshop welcomes all of the submissions using innovative technologies to enhance learning motivational factors, such as self-efficacy, goal orientation, learning interest, anxiety, intrinsic and extrinsic motivation, or any antecedents or consequences of learning motivational factors, such as self-determination, learning behavior or learning performance. The content of innovative technologies may include Interactive Response Systems (IRS), bio-feedback, feedback based on learning analytics, online feedback, Augmented Reality (AR)/Virtual Reality (VR)-based feedback, feedback on wearable devices, and chatbot feedback. The innovative technologies are not limited to the innovation of the teaching/learning devices; we also welcome submissions for innovative instructional design, strategies for using the technological tools, innovative perspectives and research outcomes of relevant topics. The workshop creates opportunities for researchers from various domains to present their research findings. The findings of each work in this workshop could stimulate future research studies for enhancing interactions and learning motivation.

- Mobile and ubiquitous learning for enhancing learning motivation
- Personalized learning for enhancing learning motivation

- Innovative technology-enhanced learning strategies for enhancing learning motivation
- Innovative technologies for enhancing learning motivation
- Evaluations and assessment of technology-enhanced environment for enhancing learning motivation
- Interactive Response Systems (IRS) for enhancing learning motivation
- Bio-feedback for enhancing learning motivation
- Feedback based on learning analytics for enhancing learning motivation
- Augmented Reality (AR)/Virtual Reality (VR)-based feedback for enhancing learning motivation
- Online feedback for enhancing learning motivation
- Feedback on wearable devices for enhancing learning motivation
- Chatbot feedback for enhancing learning motivation
- Flipped classroom strategies for enhancing learning motivation
- Any other types of learning technologies or strategies for enhancing learning or learning motivation

W08: The 11th Workshop on Technology-Enhanced STEM Education

ORGANIZATION

Pawat Chaipidech, Ph.D. (Chair), Khon Kaen University, Thailand

Sasithorn Chookaew, Ph.D. (Co-Chair), Associate Professor, King Mongkut's University of Technology North Bangkok, Thailand

Charoenchai Wongwatkit, Ph.D. (Co-Chair), Assistant Professor, Mae Fah Luang University, Thailand

Niwat Srisawasdi, Ph.D. (Co-Chair), Assistant Professor, Khon Kaen University, Thailand

Patcharin Panjaburee, Ph.D. (Co-Chair), Associate Professor, Khon Kaen University, Thailand

Shao Chen Chang, Ph.D. (Co-Chair), Assistant Professor, Yuan Ze University, Taiwan

Anggiyani Ratnaningtyas Eka Nugraheni (Co-Chair), Assistant Professor, Yogyakarta State University, Indonesia

Phattaraporn Pondee, Ph.D. (Co-Chair), Khon Kaen University, Thailand

About

STEM (Science, technology, engineering, and mathematics) involves the study of, and coherent integration among, various academic disciplines, especially the four cardinal disciplines of STEM. To make STEM education effective, the use of innovative and digital

technologies, such as online interactive learning environments and systems, digital games, augment reality (AR), mobile app., simulations and animations, and sensor-based tools and robots in STEM education should be an important research issues. Therefore, the focus of any technology-related teaching and learning should not be on the digital technology itself, but on how digital technologies can pedagogically use to improve students' STEM learning. To address this important issue, this workshop aims to explore the application of innovative educational technologies and pedagogies in STEM education from both research and practice perspectives.

The 11th TeSTEM Workshop in conjunction with ICCE2023, and we believe ICCE2023 participants will get interested in this issue, and those researchers who had relevant experience of this issue can also share and interact with one another in this workshop. STEM (Science, technology, engineering, and mathematics) involves the study of, and coherent integration among, various academic disciplines, especially the four cardinal disciplines of STEM, and E-STEM involves the environmental education as integral part of conventional STEM.

The scope of the TeSTEM Workshop will cover but not be limited to:

Review and meta-analyses of the application of educational technologies in STEM education

Empirical studies on the effects of technology-enhanced STEM education on learners' learning outcomes (e.g., knowledge construction, higher-order thinking skills, motivation, and engagement)

- Case studies and exemplar of the application of educational technologies in STEM education
- Learning process analysis of technology-enhanced STEM education
- Instructional design for using educational technologies in STEM education
- Assessment for technology-enhanced STEM education
- Discussion about re-thinking or expanding of models of teaching, learning, and assessment in response to STEM education
- Teacher education or professional development for technology-enhanced STEM education
- Theory-driven frameworks for using emerging educational technologies (e.g. augmented reality, robots) in STEM education
- Technical and engineering education with technology applications
- Technology-enhanced industrial and manufacturing education
- Vocational Education and STEM applications with technology supports
- Robotics in technical and engineering education
- And more with relevance to technology-supported STEM applications

W09: The First International workshop on Ethics of AIED: Challenges and Opportunities for Achieving Learner Centricity

ORGANIZATION

Anantha Duraiappah, Director of the Mahatma Gandhi Institute of Education for Peace and Sustainable Development (MGIEP), a UNESCO Category 1 Research Institute in the Asia Pacific.

Shitanshu Mishra, National Information Technology Officer, UNESCO MGIEP

Ramkumar Rajendran, Assistant Professor, IDP in ET, IIT Bombay, India.

Kshitij Sharma, Associate Professor, Norwegian University of Science and Technology, Norway.

About

Discussion on cutting-edge themes in the ethics of AIED, particularly those that are associated with identifying challenges and opportunities for achieving learner-centricity.

Exploring strategies for mitigating the negative impacts of AIED on learners, educators, and society.

Deliberating on scalable solutions and best practices for designing and implementing AIED technologies that prioritize ethical considerations and values.

Fostering collaboration and inter-sectoral dialogue among researchers, educators, and other stakeholders to advance the ethical development of AIED.

This workshop is intended for researchers, educators, policymakers, and other stakeholders interested in the ethical implications of AIED. Its panellists and presenters will, therefore, include experts from diverse fields like computer science, social science, moral philosophy, law, and economics; from at least two or more different countries or regions of the world.

Researchers, educators, policymakers, and other stakeholders interested in the ethical implications of AIED are strongly encouraged to submit their work.

We solicit original research or review papers on the topics related to Ethics of AIED that include, but not limited to, following thematic areas.

- The impact of AIED on student autonomy and agency
- The ethical implications of using AIED for assessment purposes
- The role of AIED in promoting diversity and inclusivity
- Challenges and opportunities in data custodianship through commons
- Understanding ethical intersections, trade-offs, and social cost-benefits in the deployment of AIED

- Implications of AIED for inclusive and bias-free education

W10: The 12th International Workshop on ICT Trends in Emerging Economies (WICTTEE 2023)

ORGANIZATION

Patcharin Panjaburee, Ph.D., Khon Kaen University, Thailand (Chair)
Charoenchai Wongwatkit, Ph.D., Mae Fah Luang University, Thailand (Co-chair)
May Marie P. Talandron-Felipe, Ph.D., University of Science and Technology of Southern Philippines, Philippines (Co-chair)
Ryan A. Ebardo, DIT., De La Salle University, Philippines (Co-chair)
Long-Wei Zheng, Ph.D., East China Normal University, China (Co-chair)

About

In response to the emerging research diversity, the SIG on Development of Information and Communication Technology in the Asia Pacific Neighbourhood (DICTAP) is organising a workshop on ICT Trends in Emerging Economies. The developmental growth of ICT in the Asia Pacific countries has been phenomenal in recent years as the Government of these countries have embarked on various ICT initiatives. Despite these efforts, the ICT development rate of each country has not been the same among countries from the low-income, lower-middle-income and upper-middle-income economies within the Asia Pacific region (hitherto referred to as underrepresented countries). In general, the ICT growth in these countries is only at the emerging or development stage.

This workshop aims to provide an interactive channel for interdisciplinary researchers and practitioners to present papers, communicate, and discuss relevant issues regarding the ICT trends in developing countries. The workshop invites contributions from researchers who are from emerging economies* or those who are working on issues related to emerging economies* to share scholarly findings and professional insights in ICT development in the field of education.

In response to the emerging research diversity, the SIG on Development of Information and Communication Technology in the Asia Pacific Neighborhood (DICTAP) is organizing a workshop on ICT Trends in Emerging Economies. The developmental growth of ICT in the Asia Pacific countries has been phenomenal in recent years as the governments of these countries have embarked on various ICT initiatives. Despite these efforts, the ICT development rate of each country has not been the same among countries from the low-

income, lower-middle-income, and upper-middle-income economies within the Asia Pacific region (hitherto referred to as underrepresented countries). In general, the ICT growth in these countries is only at the emerging or development stage.

The sub-conference on DICTAP invites contributions from researchers from under-represented countries* or those working on issues related to under-represented countries* sharing scholarly findings and professional insights into ICT development in the field of education. The scope of this sub-conference will cover but is not limited to the following areas:

- Role of ICT after COVID-19 outbreak
- E-learning policies and administration
- Educational data mining
- Learning analytics
- Multimedia content development
- Game-based learning
- Mobile/ubiquitous learning
- Technological pedagogical and content knowledge (TPACK)
- Technology-enhanced critical and creative thinking scaffolds
- Teacher professional development
- Life-long learning
- Open educational resources

W12: The 1st International Workshop on Computational Thinking and Programming Education (CTPE)

ORGANIZATION

Ting-Chia Hsu, National Taiwan Normal University, Taiwan
Haoran Xie, Lingnan University, Hong Kong
Jingyun Wang, Durham University, UK
Liang-Yi Li, National Taiwan Normal University, Taiwan

About

Computational thinking (CT) refers to a set of problem-solving skills, such as solving problems, designing systems, and understanding human behavior, by drawing on concepts fundamental in computer science (Wing, 2006). It can be applied to solve everyday problems and has been advocated as a fundamental twenty-first century skill students need to develop. Therefore, researchers, educators, and policy makers have concentrated on CT in recent few

years. In addition, programming is considered to be a key tool for acquiring CT experience and developing CT skills. Several programming environments have been used for developing CT, such as text-based programming, visual-based programming, robotics programming, and unplugged learning activities. Different programming environments affect the development of CT differently. They may need different instructional designs (collaborative learning, game-based learning, and project-based learning) for different individual characteristics (e.g., gender and educational level).

For bringing forth wider collaboration and sharing, this workshop “Computational Thinking and Programming Education” aims at providing a forum where international participants can share knowledge, experiences and concerns on computational thinking and programming education and explore directions for future research collaborations.

Basic Themes and Topics (but not restricted to):

- Theories behind Computational Thinking and Programming education
- CT and programming pedagogy and learning design
- Constructions of CT and programming education infrastructure
- Government and school policies for CT and programming education implementation
- Socio-cultural perspectives and implications of computing education
- Teachers’ professional development for computing education
- Custom built tools and apps for Computational Thinking and Programming education
- Case study on CT and programming education
- Creative ways of using text-based programming, visual-based programming, robotics programming, and unplugged learning activities
- Evaluation or Instructional Development of Computer and Information Literacy

W13: ICCE Workshop on "Towards the Practice of Seamless Interest-Driven Creators (SIDC) Theory with Technological Supports"

ORGANIZATION

Lung-Hsiang WONG, Nanyang Technological University, Singapore
Tak-Wai CHAN, National Central University, Taiwan
Chee-Kit LOOI, Education University of Hong Kong, Hong Kong
Wenli CHEN, Nanyang Technological University, Singapore
Ju-Ling SHIH, National Central University, Taiwan
Siu Cheung KONG, Education University of Hong Kong, Hong Kong
Fu-Yun YU, National Cheng Kung University, Taiwan
Ying-Tien WU, National Central University, Taiwan

About

In 2006, 17 international scholars published a seminal paper that virtually launched the research field of mobile-assisted seamless learning. Seamless learning is an educational approach that seamlessly integrates learning experiences across different locations, settings, and technologies. It aims to provide learners with a continuous and coherent learning experience that extends beyond the boundaries of traditional learning settings.

Initially incubated in Taiwan, since the mid-2010s, a group of Asian scholars have embarked on the Interest-Driven Creator (IDC) Initiative, a theoretical synthesis effort aimed at co-constructing a holistic developmental framework in which students nurture their learning interests, creative capacities, and learning habits—the three anchoring concepts of IDC theory.

IDC Theory is both a learning theory and learning design framework, while the line of seamless learning research began with the construction of the supporting technological environment and gradually moved towards the development of pedagogical principles and the study of such a learning culture from a socio-cultural perspective. This opens up the possibility of integrating both learning concepts to facilitate the continuity of IDC-based learning in the future seamless learning space.

Thus, more recently, scholars involved in the original IDC initiative and earlier seamless learning research has been discussing the possibility of constructing the integrated Seamless IDC (SIDC) Theory and how it might contribute to future education in the era of AI and the metaverse. We think it is time to recruit more interested scholars to discuss these emerging and far-reaching issues. For example, Tak-Wai Chan gave a keynote address on this topic in MetaACES2023 in Hong Kong in June 2023.

This workshop aims to provide a platform for the colleagues involved in the initiative to articulate the synthesized theory of SIDC as well as for eliciting responses from other scholars. It will be conducted in mini-conference style and apart from invited papers, interested scholars may submit their research papers or position/conceptual papers pertaining (but not limited) to the following topics,

- Original IDC Theory and/or its extension in view of seamless learning
- Original notion of seamless learning and/or its extension in view of IDC Theory
- Potential frameworks of SIDC Theory
- Potential educational outcomes of SIDC Theory
- Potential development of SIDC practice supported by emerging technologies such as AI and the Metaverse
- The vision of SIDC theory from the local and global perspectives
- Research studies pertaining to the IDC theory or seamless learning
- Technologies and technological tools to support IDC or seamless learning practice

W14: Quantification of Learning in Virtual Learning Environments

ORGANIZATION

Dr Cheryl Wong Sze Yin, Institute for Infocomm Research, A*STAR, Singapore
Associate Professor Tan Chin Tuan, Institute for Infocomm Research, A*STAR, Singapore
Dr Zhang Huayun, Institute for Infocomm Research, A*STAR, Singapore

About

Due to the increasing availability of computers and technology, virtual learning is gaining popularity due to its accessibility and flexibility. Virtual learning can typically be grouped into two categories – asynchronous learning through courses on online learning platform such as Coursera, Skillshare, Khan Academy, Udemy, and synchronous learning through real-time seminars via platforms such as Zoom, Microsoft Teams. Both setups hope to retent learning in long-term memory for easy recall and transfer to different domains by incorporating some factors:

- when learning is accompanied by a motive and an interest (motivation)
- the more an individual repeats or practices a task or learning material (repetition)
- associating content to with real-life scenarios (association)
- available to choose different learning to meet different learning dispositions – e.g. visual learners, hands-on experience, scaffolding, etc.(engagement)

This workshop seeks to explore and discuss the following questions (but not limited to):

- Can asynchronous learning (allowing the repetition of content) help in retaining knowledge?
- Asynchronous VS Synchronous learning: Effectiveness and Efficiency
- Curriculum design using both asynchronous and synchronous learning components
- How do we know if the student achieves the learning outcomes?
- Is the use of assessment the best method for measuring learning outcomes?
- Can behavioral cues observed in a physical classroom be identified in a virtual classroom as well?
- Are behavioral cues good indicators of learning engagement?

We are calling for papers to address the following topics (not limited to):

- Knowledge tracing methods
- Design of assessment in asynchronous learning
- Measurement of student engagement in asynchronous/synchronous learning
- Methodologies to improve student engagement in virtual learning environments
- Retention in asynchronous /synchronous learning and more..

APSCE STUDENT WING

Purpose

The APSCE Student Wing is meant for engaging and empowering student volunteers in organizing student activities and building a student network both within and beyond the International Conference on Computers in Education (ICCE), and providing assistance to APSCE Executive Committee (EC) operations. This may also become a platform for APSCE and ICCEs to nurture future leaders.

Logo

The logo is made up of five abstract people, symbolizing students and student wing members. The five colors of the logo (blue, red, green, yellow and black) are the same as the colors of the APSCE logo. The overall shape of the logo is also a flower and has a dynamic rotating visual effect, it represents the vitality of the students and the spirit of progress.

Designed by: Mengyuan CHEN, APSCE Student Wing member (2018)

APSCE Student Wing Organisation

Chair:
Liang Jing TEH (Universiti Putra Malaysia) – Professor Su Luan WONG

Committee members:
Kamilah ABDULLAH (Universiti Putra Malaysia) – Dr. Mas Nida MD. KHAMBARI
Taisei YAMAUCHI (Kyoto University, Japan) – Professor Hiroaki OGATA

Kensuke TAKII (Kyoto University, Japan) – Professor Hiroaki OGATA
Vando Gusti AL HAKIM (National Central University, Taiwan) – Chair Professor Gwo-Dong CHEN
Taito KANO (Kyoto University, Japan) – Professor Hiroaki OGATA
Guo SU (Nanyang Technological University, Singapore) – Associate Professor Wenli CHEN
Faisal BADAR (Charles Darwin University, Australia) – Associate Professor Jon MASON
De-Qi ZHANG (The Chinese University of Hong Kong) – Professor Morris Siu-Yung JONG

Lead Mentor:
Hiroaki OGATA, Kyoto University, Japan

Mentors:
Weiqin CHEN, Oslo Metropolitan University, Norway
Tatsunori MATSUI, Waseda University, Japan
Ma. Mercedes T. RODRIGO, Ateneo de Manila University, Philippines
Masanori SUGIMOTO, Hokkaido University, Japan
Alwyn Vwen Yen LEE, Nanyang Technological University, Singapore

Activity:

Date: 4 December 2023 (Monday)

Time (GMT + 9)	*Activity*
16:50 – 18:40	**City tour**
18:40 – 21:00	**Dinner**

Date: 5 December 2023 (Tuesday)

Time (GMT + 9)	*Activity*
16:40 – 16:45	**Opening Remarks**
16:45 – 17:30	**Workshop**: **AI in research** Associate Professor Jon MASON
17:30 – 18:00	**Interactive session**

<table>
<tr><th>TIME</th><th>12/4</th><th>12/5</th><th>TIME</th><th>12/6</th><th>12/7</th><th>12/8</th></tr>
<tr><td>08:30
-
09:00</td><td colspan="6">Registration</td></tr>
<tr><td rowspan="2">09:00
-
10:30</td><td rowspan="2">Workshops</td><td rowspan="2">Workshops
DSC</td><td>09:00
-
10:00</td><td>Opening
Ceremony</td><td>Keynote
Speaker</td><td>Keynote
Speaker</td></tr>
<tr><td>10:00
-
10:20</td><td colspan="3">Coffee/Tea break</td></tr>
<tr><td>10:30
-
10:50</td><td colspan="2">Coffee/Tea break</td><td rowspan="2">10:20
-
11:20</td><td rowspan="2">Keynote
Speaker</td><td rowspan="2">Theme Speaker
Parallel Sessions</td><td rowspan="2">Parallel Sessions</td></tr>
<tr><td>10:50
-
12:20</td><td>Workshops</td><td>Workshops
DSC</td></tr>
<tr><td>12:20
-
13:20</td><td colspan="2">Lunch</td><td rowspan="2">11:30
-
12:40</td><td rowspan="2">Panel
Parallel Sessions</td><td rowspan="2">Panel
Parallel Sessions
CB Session</td><td rowspan="2">Parallel Sessions</td></tr>
<tr><td>12:40
-
13:30</td><td colspan="3">Lunch</td></tr>
<tr><td>13:20
-
14:50</td><td>Workshops
ECW
Interactive Event</td><td>Workshops
DSC
CB Session</td><td>13:30
-
14:30</td><td>Theme Speaker
Parallel Sessions
Meet APSCE EC
CB Session</td><td>Theme Speaker
Parallel Sessions
CB Session</td><td>Parallel Sessions</td></tr>
<tr><td>14:50
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15:10</td><td colspan="2">Coffee/Tea break</td><td rowspan="2">14:40
-
15:40</td><td>POSTER/WIPP/
SATELUC
IPC Meeting
CB Session</td><td>Keynote
Speaker</td><td rowspan="3">Parallel Sessions</td></tr>
<tr><td rowspan="2">15:10
-
16:40</td><td rowspan="2">Workshops
ECW
Interactive Event</td><td rowspan="2">Workshops
DSC
Interactive Event</td><td>15:40
-
16:00</td><td colspan="2">Coffee/Tea break</td></tr>
<tr><td>16:00
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17:00</td><td>Parallel Sessions
Interactive Event</td><td>POSTER/WIPP/
SATELUC</td><td>Closing
Ceremony</td></tr>
<tr><td>16:40
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17:40</td><td></td><td>Workshops
Student Wing
Interactive Event</td><td>17:00
-
18:20</td><td>Parallel Sessions
Interactive Event</td><td></td><td></td></tr>
<tr><td></td><td></td><td>19:00-21:00
Welcome
Reception</td><td></td><td>19:00-22:00
APSCE EC
meeting</td><td>19:00-21:00
Dinner
Banquet</td><td></td></tr>
</table>

Acronyms

DSC: Doctoral Student Consortium

ECW: Early Career Workshop

WIPP: WORK-IN-PROGRESS POSTERS

BOPN: Best Overall Paper Nominee

BSPN: Best Student Paper Nominee

BTDPN: Best Technical Design Paper Nominee

Timings

F: Full Paper – 25minutes + 5 minutes Q&A

S: Short Paper – 15minutes + 5 minutes Q&A

ES: Extended Summary – 10minutes + 5 minutes Q&A

SATELUC: Showcase of Advancements in Technology-Enhanced Learning in Underrepresented Countries

12/4	Room A	Room B	Room C	Room D	Room E
08:30-09:00	**Registration**				
09:00-10:30	**W03**	**W01**	**W09**	**W05**	**W08**
10:30-10:50	**Coffee/Tea break**				
10:50-12:20	**W03**	**W01**	**W09**	**W05**	**W08**
12:20-13:20	**Lunch**				
13:20-14:50	**Interactive Event** Bridging Learning Analytics Research -LEAF System	**Interactive Event** LA-ReflecT	**ECW**	**W02**	**W08**
14:50-15:10			**Coffee/Tea break**		
15:10-16:40			**ECW**	**W02**	**W08**
16:50-17:50					

12/5	Room A	Room B	Room C	Room D	Room E	Room F
08:30-09:00	Registration					
09:00-10:30	W04	DSC	W06	W14	W12	W10
10:30-10:50	Coffee/Tea break					
10:50-12:20	W07	DSC	W06	W14	W12	W10
12:20-13:20	Lunch					
13:20-14:50	W07	DSC	W13	W02	W12	SIG-09 CB Session (EUPQ)
14:50-15:10	Coffee/Tea break					
15:10-16:40	Student Wing	DSC	W13	W02	Interactive Event Metaverse in Education	
16:40-17:40			W13			
17:45-18:30	Move to Reception Venue (Bus)					
19:00-21:00	Welcome Reception					

12/6	Hall	Room P	Room A	Room B	Room C	Room D
08:30-09:00	Registration					
09:00-10:00	Opening Ceremony					
10:00-10:20	Coffee/Tea break					
10:20-11:20	Keynote Speaker Tak-Wai Chan					
11:30-12:40	Panel Chee-Kit Looi		CSCL-1	CUMTEL-1	AIED/ITS-1	EGG-1
12:40-13:30	Lunch					
13:30-14:30	Theme Speaker Kaushal Kumar Bhagat		Meet the APSCE Executive Committee	SIG-02 CB Session (CSCL)	AIED/ITS-2	EGG-2
14:40-15:40		POSTER/WIPP/ SATELUC		IPC Meeting	SIG-10 CB Session (LAEDM)	
15:40-16:00	Coffee/Tea break					
16:00-18:20	Interactive Event The G3 of Writing and Publishing		CSCL-2	TELL-1	PTP-1	ALT-1
			CSCL-3	TELL-2	PTP-2	ALT-2
18:30-18:45	Move to EC meeting Venue (Walk/Bus)					
19:00~22:00	APSCE EC meeting					

12/7	Hall	Room P	Room A	Room B	Room C	Room D
08:30-09:00	Registration					
09:00-10:00	Keynote Speaker Davinia Hernández-Leo					
10:00-10:20	Coffee/Tea break					
10:20-11:20	Theme Speaker Brendan Flanagan				AIED/ITS-3	ALT-3
11:30-12:40	Panel Mobile Learning	SIG-07 CB Session (PTP)	EGG-3	CUMTEL-2	AIED/ITS-4	ALT-4
12:40-13:30	Lunch					
13:30-14:30	Theme Speaker Daner Sun			SIG-06 CB Session (TELL)	PTP-3	ALT-5
14:40-15:40	Keynote Speaker Masaru Kitsuregawa					
15:40-16:00	Coffee/Tea break					
16:00-17:00		POSTER/WIPP/ SATELUC				
17:15-18:30	Move to Dinner Banquet Venue (Bus)					
19:00-21:00	Dinner Banquet					

12/8	Hall	Room A	Room B	Room C	Room D
08:30-09:00	Registration				
09:00-10:00	Keynote Speaker Curtis J. Bonk				
10:00-10:20	Coffee/Tea break				
10:20-11:20	ALT-6	EGG-4	AIED/ITS-5	PTP-4	CSCL-4
11:30-12:40	ALT-7	EGG-5	AIED/ITS-6	PTP-5	TELL-3
12:40-13:30	Lunch				
13:30-14:30	ALT-8	CSCL-5	CUMTEL-3	PTP-6	TELL-4
14:40-16:00	ALT-9	CSCL-6	PTP-7	PTP-8	TELL-5
16:00-17:00	Closing Ceremony				

December 4

09:00-12:20 W03 - The Applications of Information and Communication Technologies (ICTs) in Adult and Continuing Education — Room A

Chair: Jyh-Chong Liang

W03-001S Investigating Students' Perceptions of Knowledge-building Environment and Learning Engagement
Wei-Shou CHEN, Min-Hsien LEE & Jyh-Chong LIANG

W03-002F Exploring The Framing Effect of Drawing Task Instructions on Science-Major Novice Preservice Teachers' Technology-use Knowledge
Yung-Hsiang HUANG, Yi-Sheng HUANG, Shan-Hui SU, & Chia-Ching LIN

W03-003S Exploring the Relationship Between Students' Preferences for Teacher Authority and Learning Approaches: An Example of Student Learning Communication Theory and Computer Technology Contexts
Wen-Lung HUANG

W03-004F Learning Analysis infrastructure to support optimal learning based on IRT and Video Enrollment Data
Masahiro SAKAMOTO, Yukihiro MATSUBARA, Kousuke MOURI

W03-005F Measuring Understanding in Video-Based Learning
Song-Yi Lin, Meilun Shih and Hsin-Mu Tsai

W03-009S Research and Design of Digital Learning Resource Management System in Meteorological Adult Training Based on Cloud Computing
Jinfang HOU

December 4

09:00-12:20 W01 - The Applications of Generative Artificial Intelligence (GAI) in Education — Room B

Session 1 Chair: Xiao-Li Zheng

W01-01S A prototype of a chatbot for evaluating and refining student startup ideas using a large language model
Joseph Benjamin ILAGAN, Jose Ramon ILAGAN

W01-03F Exploring the Integration of AI Creation and ICT-assisted Mandarin Teaching
Yi-Hsuan CHEN, Yun-Fang TU, Yu-Ju LAN

W01-04F Tools and Approaches of Generative Artificial Intelligence Used in Education
Hsin-Hsuan CHUNG, Fu-Ling CHUNG, Shu-Min LIN, Yu-Ju LAN

W01-05S Exploring ChatGPT Performance on PISA Multiple Choice Sample Questions Comparing English and Japanese Expression
Kyosuke Takami

Session 2 Chair: Chiu-Lin Lai

W01-06F A Systematic Review of Generative Artificial Intelligence in Language Education
Zilin WANG, Di ZOU, Lap-Kei Keith LEE, Haoran Xie, Fu Lee Wang

W01-07F Integrating ChatGPT into Synectics Model to Improve High School Student's Creative Writing Skill
Worapong KHUIBUT, Sasivimol PREMTHAISONG, Pawat CHAIPIDECH

W01-08F Generating Interactive Stories with ChatGPT to Teach Filipino Values
Angelo Miguel GREGORIO, Sarah Jessica MANUEL, Alyssa Jaye PALMARES, Sharlin Mae TANG, Ethel ONG

December 4

09:00-12:20 W09 - The First International workshop on Ethics of AIED: Challenges and Opportunities for Achieving Learner Centricity — Room C

Session 1 Chair: Ramkumar Rajendran

WG09-02F Ethical Challenges and Best Practices for Transparency in AIED: A Literature Review and Learner Centric Guidelines
Ram Das Rai, Meera Daulatrao Pawar, Ramkumar Rajendran

WG09-03F Ethical Implications of Utilizing Artificial Intelligence in Education for Assessment
Mihir PATKI, Saira SANADI, Shraddha JADHAV, Ashish MUSALE, Kapil KADAM

WG09-04F Fostering Ethics in AI: Perceptions from the Indian AI Curriculum
Ashutosh Raina, Kushal Mundra, Prajish Prasad, Shitanshu Mishra C

WG09-01S Ethical Challenges of Artificial Intelligence in Education: Achieving Learner Centricity with Respect to Learner Autonomy
Meera Daulatrao Pawar, Ram Das Rai, Ramkumar Rajendran

WG09-05S ChatGPT in Education: Risks to Fairness of Access
Sumitra Sadhukhan, Shitanshu Mishra, Sridhar Iyer

Session 2 Chair: Shitanshu Mishra

WG09-06S AIED in K-12 Classrooms: Challenges and Opportunities from an Ethics Lens
Anabil Munshi

Panel Discussion on Ethics of AI in Education

Pre-Launch of UNESCO MGIEP Report on Ethics of AI in Education for Learner Centricity

December 4

09:00-12:20 W05 - 3rd International Workshop on Embodied Learning: Technology Design, Analytics & Practices — Room D

Session 1 Chair: Rwitajit Majumdar, Aditi Kothiyal, Prajakt Pande

W05-01F Embodied Learning of Integer Operations Using a Multitouch Design: Touchy Pinchy Integers
Priyadharshni Elangaivendan, Ashwin Ramaswamy, Melwina Albuquerque, & Sanjay Chandrasekharan

W05-03F Maker-Material Creative Embodiments in Collaborative Making
Alekh V & Chandan Dasgupta

Common Q&A and discussion (Session 1 papers only)

Session 2 Chair: Jayakrishnan Madathil Warriem, Shitanshu Mishra, Aditi Kothiyal

W05-05F Virtual Reality and Embodied Learning: Unraveling the Relationship via Dynamic Learner Behavior
Antony Prakash & Ramkumar Rajendran

W05-06F Enacting Biomolecular Interactions in VR: Impact on Student Conceptual Understanding in Biochemistry
Prajakt Pande

Common Q&A and discussion (Session 2 papers only)

Session 3

Workshop Synthesis cum Panel Discussion (Technology-enhanced Embodied Learning)

December 4

09:00-12:20 W08 - The 11th Workshop on Technology-Enhanced STEM Education Room E

Session 1 Chair: Sasithorn Chookaew

W08-01F Arduino as Learning Tools for Artificial Intelligence Education: A Systematic Literature Review

Pornchai KITCHAROEN, Suppachai HOWIMANPORN, and Sasithorn CHOOKAEW

W08-05F A Preliminary Study on Knowledge Reconstruction Activity for Fostering Cognitive Presence in Online Discussion

Lintang Matahari HASANI, Kasiyah JUNUS, Lia SADITA, Tsukasa HIRASHIMA, and Yusuke HAYASHI

W08-02S Proposing a Training Model on Energy Management of Compressed Air Systems with Artificial Intelligence of Things

Noppadon MONOK, Suppachai HOWIMANPORN, and Sasithorn CHOOKAEW

W08-03S An Inquiry-based Learning Approach in Engineering Education regarding Simulation Practice on Automation Control

Santi HUTAMARN

December 4

09:00-12:20 W08 - The 11th Workshop on Technology-Enhanced STEM Education Room E

Session 2 Chair: Sasithorn Chookaew

W08-09F AquaFarm Ace: A Game on the Intensive Aquaculture Process of Oreochromis niloticus
Gerick Jeremiah Niño GO and Angela Nicole YAP

W08-04S Promoting STEM Interest through Empathy and Creative Thinking in a STEM-based Community Service Program
Ma. Jenina N. NALIPAY, Biyun HUANG, Morris Siu-Yung JONG, Ching Sing CHAI, and Eric Tsun-Hin LUK

W08-06S Technological Tools for the Teaching and Learning of Statistics
Mark Anthony C. TOLENTINO, Juan Carlo F. MALLARI, Maria Alva Q. ABERIN, Ma. Louise Antonette N. DE LAS PEÑAS, Agnes D. GARCIANO, Jumela F. SARMIENTO, and Debbie Marie B. VERZOSA

W08-07S A Visualization App on Proving Geometric Concepts
Ma. Louise Antonette N. DE LAS PEÑAS, Debbie Marie B. VERZOSA, Maria Alva Q. ABERIN, Agnes D. GARCIANO, Jumela F. SARMIENTO, Mark Anthony C. TOLENTINO, and Juan Carlo F. MALLARI

W08-10S Designing a Training Tool for an Industrial Robot Operating with a Programmable Logic Controller
Porramut WATANAKUL, Suppachai HOWIMANPORN, and Sasithorn CHOOKAEW

12:20-13:20 Lunch

December 4

13:20-16:40 Interactive Event — Room A

LA-ReflecT: Multimodal Learning Analytics of Micro-learning

Prajakt Pande Southern Methodist University, Dallas, USA.
Rwitajit Majumdar Kyoto University, Japan
Shitanshu Mishra MGIEP UNESCO, India
Jayakrishnan Madathil Warriem IIT Madras, India
Aditi Kothiyal Indian Institute of Technology Gandhinagar, India

13:20-16:40 Interactive Event — Room B

Bridging Learning Analytics Research and Practice With LEAF System

Changhao Liang, Kyoto University, Japan
Yiling Dai, Kyoto University, Japan
Izumi Horikoshi, Kyoto University, Japan
Rwitajit Majumdar, Kyoto University, Japan
Hiroaki Ogata, Kyoto University, Japan

December 4

13:20-16:40 ECW Chair: Hui-Chun Chu — Room C

ECW01 Enhancing English as a Foreign Language (EFL) Learners' learning outcomes through a socially shared regulation-based First Principle Instruction approach
Mei-Rong Alice Chen
ECW02 Prompt Writing Patterns for Scenario-based Learning Tasks
Shurui BAI
ECW03 Learning Activity Visualizationfrom Cross-platform, Daily Trace Data
Izumi HORIKOSHI
ECW04 Developing and Evaluating AI-assisted Non-Player Characters in the Virtual Learning Environment for Pre-Service Teachers' Professional Development
Yin YANG
ECW05 How Laparoscopic Surgical Skills Training Impacts Eye Movement Patterns
Hung-Jen CHEN

December 4

13:20-16:40 W02 - The 7th Computer-Supported Personalized and Collaborative Learning — Room D

Session 1 Chair: Ching-Yi Chang

W02-01(286-F) The Effect of Gamification with Self-Regulated Approach to Promoting Nursing Students' Leopold's Maneuvers Performance
Intan Setiani, Ching Yi Chang and Jie Chi Yang

W02-08(316-S) Motivating Knowledge Seeking and Sharing Behavior in the Online Discussion Forum
Yue Hu, Baoping Li, Xiang Zhang and Ling Chen

W02-13(335-F) Educational Use of SVVR: A Scoping Review on Harnessing EduVenture-VR in Learning and Teaching
Youwen Shi

W02-06(283-S) The Trends of Computer-Supported Collaborative Learning in Two Decades
Hui-Chun Chu, Gwo-Haur Hwang, Han-Chieh Chao and Ching-Yi Chang

W02-05(307-F) Improving Thinking Awareness in Animation Scriptwriting Through Learning Supporting Tool
Panadda Jaiboonlue, Wasan Na Chai, Taneth Ruangrajitpakorn and Thepchai Supnithi

December 4

13:20-16:40 W02 - The 7th Computer-Supported Personalized and Collaborative Learning — Room D

Session 2 Chair: Ching-Yi Chang

W02-07(292-S) Facilitating nursing students' critical thinking and problem-solving competence in a computer supported collaborative learning environment
Zi-Ying Jiang and Ching-Yi Chang

W02-17(337-S) Supporting Peer Help Recommendation Based on Learner-Knowledge Model
Peixuan Jiang, Kensuke Takii, Changhao Liang, Rwitajit Majumdar and Hiroaki Ogata

W02-18(354-S) Conceptual Design of WHALE: a Wise Helper Agent for the LEAF Environment
Kento Koike, Rwitajit Majumdar, H. Ulrich Hoppe and Hiroaki Ogata

W02-09(321-S) Personalized Hands-on Training Via a Hybrid Intelligent Teacher System
Dongkun Han

December 4

13:20-16:40 W08 - The 11th Workshop on Technology-Enhanced STEM Education Room E

Session 3 Chair: Pawat Chaipidech

W08-16F Encouraging Primary Students' Environmental Awareness by Using STEM Inquiry-based Learning
Sasivimol PREMTHAISONG and Pawat CHAIPIDECH

W08-23F A Proposal for Mobile-assisted Citizen Inquiry Learning Approach in Learning of Plastic Pollution
Chawadol SRIBOONPIMSUAY and Niwat SRISAWASDI

W08-11S Designing a Sorting System using Machine Vision Training Kit for Mechatronics and Robotics Engineering Students
Pakorn MUANGSUK, Suppachai HOWIMANPORN, and Sasithorn CHOOKAEW

W08-12S Computer-Supported Collaborative Work in Academics During the COVID-19 Pandemic
Bjorn Svetlana NG, John Michael CALVARA, and Judith AZCARRAGA

W08-13S Design of a Pneumatics System Learning Material with AR Technology for Vocational Education Students
Tanit PHETCHAKAN, Suppachai HOWIMANPORN, and Sasithorn CHOOKAEW

December 4

13:20-16:40 W08 - The 11th Workshop on Technology-Enhanced STEM Education Room E

Session 4 Chair: Pawat Chaipidech

W08-15S Using of Augmented Reality Technology in the Learning Process of Calculus2 for Higher Education Students
Anek Putthidech, Amnaj Sookjam, Suwit Somsuphaprungyos and Sangtong Boonying

W08-17S Enhancing Understanding of Complex Systems through Analogy-Based Video Scenarios
Meera Daulatrao PAWAR, Sheeja VASUDEVAN and Sahana MURTHY

W08-19S Effectiveness of Learning Seminar Course to Promoting Research Skills : Observe-Plan-Organize-Present in Science Project
Chitphon YACHULAWETKUNAKORN, Witsanu SUPANDEE, and Ratthakarn NA PHATTHALUNG

W08-20S The Collaborative Learning of Science Project to Supporting 4C's Skills for Learning in 21st Century
Witsanu SUPANDEE and Chitphon YACHULAWETKUNAKORN

W08-21S Implementation of Professional Development Training for Industrial Employees on Artificial Intelligence of Things
Sasithorn CHOOKAEW, Suppachai HOWIMANPORN and Warin SOOTKANEUNG

W08-22S STEM Education in Sustainability: A Brief Literature Review (2019 - 2023)
Pawat CHAIPIDECH, Sasivimol PREMTHAISONG, and Niwat SRISAWASDI

December 5

09:00-10:30 W04 - The 7th International Workshop on Information and Communication Technology for Disaster and Safety Education (ICTDSE) — Room A

Session Chair: Hisashi Hatakeyama, Hiroyuki Mitsuhara

W04-01F Collaborate, Design, and Generate Cybercrime Script Tabletop Exercises for Cybersecurity Education
Joshua Dwight

W04-03F Non-Player Characters for Evacuation Training in Metaverse: Preliminary Experiment
Kaito Oe, Yusaku Ichino, Hiroyuki Mitsuhara, Masami Shishibori

W04-02S Local Safety Map for a Cornerstone of Local Disaster Prevention: A Case Study of a Historical Local Town in Japan
Yasuhisa Okazaki, Hiroshi Wakuya, Yukuo Hayashida, Nobuo Mishima

W04-04S Investigating How Technology May Negatively Affect the Academic Performance and Sleep Quality of Students
Cedric Miguel Chan, Josh Sarte, Allen Peter Sze, Jat Cedric Talampas, Judith Azcarraga

December 5

10:50-12:20 W07 - The 3rd Workshop on Innovative technologies for enhancing interactions and learning motivation — Room A

Session Chairs:

Dr. Jerry Chih-Yuan Sun, National Yang Ming Chiao Tung University, Taiwan
Dr. Hui-Chun Chu, Soochow University, Taiwan
Dr. Shih-Jou Yu, National Yang Ming Chiao Tung University, Taiwan
Dr. Chiung-Fang Chang, National Yang Ming Chiao Tung University, Taiwan

Session 1 Chair: Jerry Chih-Yuan Sun, Hui-Chun Chu, Shih-Jou Yu, Chiung-Fang Chang

Welcome session, workshop introduction, and group photo

Session 2 Chair: Jerry Chih-Yuan Sun

W07-02S Designing and Evaluating an Attention-Engagement-Error-Reflection (AEER) Approach to Enhance Primary School Students Artificial Intelligence Literacy and Learning-to-Learn Skills: A Pilot Study
Siu-Cheung Kong and Yin Yang

W07-04S Enhancing Trigonometry Learning through a Mobile App
Maria Alva Aberin, Ma. Louise Antonette De Las Penas, Agnes Garciano, Juan Carlo Mallari, Jumela F. Sarmiento, Mark Anthony Tolentino, and Debbie Marie Verzosa

W07-01F The Role of VR-Supported Co-Learning Environments in University Students' Self-Efficacy and Learning Engagement
Chiung-Fang Chang and Jerry Chih-Yuan Sun

December 5

09:00-12:20 DSC Room B

Session 1 Chair: Jayakrishnan Madathil Warriem

278 Exploring the Potential of Mobile Assisted Language Learning in Rural Area of Indonesian
Fais Nurul Hadi

311 Supporting Interactive Learning in Active Video Watching
Ehsan Bojnordi

342 Learning Habits Mining and Data-driven Support of Building Habits in Education
Chia-Yu Hsu, Izumi Horikoshi, Rwitajit Majumdar and Hiroaki Ogata

Session 2 Chair: Jayakrishnan Madathil Warriem

293 Exploring a Supportive Ecosystem for Creative Teaching in Higher Education
Weijing Han and Nur Aira Abdrahim

359 Applying Macro- and Micro-scripts to Facilitate Undergraduates' Interdisciplinary Competence
Guo Su

361 Exploring Business Students' STEM Literacy for Work Preparedness
De-Qi Zhang and Morris Siu-Yung Jong

December 5

09:00-12:20 W06 - The 16th Workshop on Technology Enhanced Learning by Posing/Solving Problems/Questions — Room C

Session 1 Chair: Shitanshu

W06-01S Evaluation of an Automatic Generation System for Tracing Tasks Based on Textbook Programs
Tomohiro MOGI, Yuichiro TATEIWA, Takahito TOMOTO & Takako AKAKURA

W06-03S Using a Three-Problem Framework to Understand How Nursing College Students Learn to Design Healthcare Animations
Chun-Hao CHANG

W06-06S The Effect of Revision-Making of Contextualized Student-Generated Questions on University Students' English Grammar Learning Performance
Chih-Chung LIN & Fu-Yun YU

W06-02F Development of a Semi-Active Learning Support System with Operation Index for the Mathematics of Vectors
Tomohito JUMONJI, Nonoka AIKAWA & Takahito TOMOTO

Session 2 Chair: Jon

W06-04F Focal: A Proposed Method of Leveraging LLMs for Automating Assessments
Peter Meyersa, Annette Hana, Razik Grewala, Mitali Potnisa & John Stampera

W06-05F Preliminary Use of a Learning Game for Arithmetic Word Problems with Elementary School Students
Yusuke HAYASHI, Kohei YAMAGUCHI & Tsukasa HIRASHIMA

W06-07F Review of the Literature on Goal-Oriented Self-Directed Learning Based on Question Posing
Sumitra SADHUKHAN, Shitanshu MISHRA & Sridhar IYER

December 5

09:00-12:20 W14 - Quantification of Learning in Virtual Learning Environments Room D

Session 1 Chair: Cheryl Wong

W14-07 Effectiveness of Synchronous and Asynchronous Online Learning in Bloom's Taxonomy Framework

Cheryl Sze Yin WONG, Lily HOANG & Chin Tuan TAN

W14-05 A Step toward Characterizing Student Collaboration in Online Knowledge Building Environments with Machine Learning

Alwyn Vwen Yen LEE , Chew Lee TEO & Aloysius ONG

W14-03 An Exploratory Study on Effects of WeChat-Assisted Self-Regulated English Writing Instruction on EFL Learners' Motivation

Ying ZHAO, Di ZOU, Haoran XIE, Pei LIU

Session 2 Chair: Tan Chin Tuan

W14-06 Student Engagement Detection: Case Study on Using Peer-to-Peer Emotion Comparison with Context Regularization

Geyu LIN, Manas GUPTA, Cheryl Sze Yin WONG & Huayun ZHANG

W14-01 Dynamic Facial Expression Recognition through Partial Label Learning and Federated Learning

Mohammad Alif DAFFA, Manas GUPTA, Hao CHEN & Cheryl Sze Yin WONG

W14-02 An Empirical Investigation on Google Classroom: Use Behaviour of Malaysian School Teachers

Priscilla MOSES, Jacqueline Chung Ling LAU, Phaik Kin CHEAH, Phoebe Soong Yee YAP, Mas Nida Md KHAMBARI, Su Luan WONG

December 5

09:00-12:20 W12 - The 1st International Workshop on Computational Thinking and Programming Education(CTPE) Room E

Session 1 Chair: Ting-Chia Hsu

W12-01F The Impact of an Educational Board Game on Students' Learning Achievement and Flow State in Media and Information Literacy
Ya-Xuan ZHANG, Ting-Chia HSU

W12-09F Explainable AI in the Real World: Challenges and Opportunities
Dora HORVAT, Ivica BOTICKI, Peter SEOW & Antun DROBNJAK

W12-10F Empowering Students Computational Thinking through Robotics-enabled STEM Education
Daner SUN, Peiyao TIAN, Kam Yuen LAW, Wai Han CHEUK

Session 2 Chair: Kai-Yu Tang

W12-02F Game-Based Learning of AI Image Recognition on Computational Thinking and Self-Efficacy of Undergraduates
Hui-Wen HSUEH, Ting-Chia HSU

W12-04S Review of TAM used in Educational Technology Research: A Proposal Framework
Kai-Yu TANG, Chun-Hua HSIAO

W12-05S Exploring Motivational Differences in Competitive and Cooperative Game-Based Learning through Educational Board Games
Yuan-Yao Chiang, Ting-Chia HSU

W12-06S Developing Computational Thinking: Using TurtleStitch and Physical Computing
Peter SEOW, Chin-Lee KER & Haoran XUE

December 5

09:00-12:20 W10 - The 12th International Workshop on ICT Trends in Emerging Economies (WICTTEE 2023) — Room F

Session 1 Chair: Thanyaluck Ingkavara

W10-23010F Analyzing Sentiments of ChatGPT Users: Philippine Setting
Gisele DIZON & Dr. Ma. Rowena R. CAGUIAT

W10-23022F Application of Blended Learning with PhET Simulation to Encourage Learning in Mathematics of Fractions
Atcharaporn ASSAWAPHUM, Sasivimol PREMTHAISONG & Pawat CHAIPIDECH

W10-2301S Factors Affecting Sustainable Use of Minecraft-based Lessons
Dominique Marie Antoinette B. MANAHAN & Maria Mercedes T. RODRIGO

W10-2304S A Mathematical App for the Conceptual Understanding of Area and Perimeter
Jumela F. SARMIENTO, Debbie Marie B. VERZOSA, Maria Alva Q. ABERIN, Ma. Louise Antonette N. DE LAS PEÑAS, Agnes D. GARCIANO, Juan Carlo F. MALLARI, & Mark Anthony C. TOLENTINO

December 5

09:00-12:20 W10 - The 12th International Workshop on ICT Trends in Emerging Economies (WICTTEE 2023) Room F

Session 2 Chair: Thanyaluck Ingkavara

W10-2305S Design of a Mobile App to Promote Understanding and Fluency in Finding the Equation of a Line
Agnes D. GARCIANO, Maria Alva Q. ABERIN, Ma. Louise Antonette N. DE LAS PEÑAS, Juan Carlo F. MALLARI, Jumela F. SARMIENTO, Mark Anthony C. TOLENTINO & Debbie Marie B. VERZOSA

W10-2309S Towards Identifying the Learning Affordances of Social Media as Telemedicine Platforms among Physicians in a Developing Economy
Michelle BERNABE, Rowena CAGUIAT & Ryan EBARDO

W10-23021S Implementing a Gamified Inquiry-based Learning with Mobile Learning Perspective to Promote Primary Students' Attitude toward Mathematics Learning
Sakda CHALEEPLIAM, Sasivimol PREMTHAISONG & Pawat CHAIPIDECH

W10-23026S Design and Development of a Personalized Recommender System of Student Question-Generation Exercises for Programming Courses
Chih-Hung LAI, Pham-Duc THO

W10-23027S A Chatbot for Image Recommendation in Mobile Language Learning
Mohammad Nehal HASNINE, Huyen T. T. BUI & Hiroshi UEDA

December 5

12:20-13:20 **Lunch**

13:20-14:50 **W07 - The 3rd Workshop on Innovative technologies for enhancing interactions and learning motivation** **Room A**

Session 3 Chair: Chiung-Fang Chang

W07-03S Exploring the Benefits of Chatbots Game-based Learning in Science Learning Outcomes and Motivation
Ching-Huei Chen

W07-05S What's Going on Behind the Scenes? Peer Assessment as a Strategy for Enhancing Students' Commitment and Learning Motivation in Working Collaboratively
Nur Aira Abd Rahim, Norliza Ghazali, Zakiah Ponrahono, Sharifah Intan Sharina Syed Abdullah, Fadzilah Mohamad, and Syahidatul Khafizah Mohd Hajaraih

W07-06F The Effect of Enhancing Students' Learning Motivation on Bilingual Class with Integrating Augmented Reality in a Multimodality Learning Environment
Yi-Fang Lo and Jerry Chih-Yuan Sun

W07-08F The Course Learning Experience as a Forerunner in IT Internship: Assessment from the Student and the Host Training Establishment
Arlene Mae Celestial-Valderama

W07-09F Examining Different Affective Factors in Learning with Virtual Reality
Hsing-Ying Tu, Silvia Wen-Yu Lee, and Ting-Yueh Hsu

15:10-17:40 **Student Wing**

December 5

13:20-16:40 DSC Room B

Session 3 Chair: Alwyn Vwen Yen Lee

371 Using meaningful gamification to redesign simulation-labs for engaging learners in science inquiry practices
Archana Rane

294 Gamification to Train Soft Skills of Software Professionals Through Active Video Watching
Pasan Peiris

299 An Empirical Study of the Computational Thinking Learning Game, “Online Robot City”
Tai-Ping Hsu and Ting-Chia Hsu

Session 4 Chair: Alwyn Vwen Yen Lee

291 Learning Effectiveness of Integrating Peer Assessment and Board Games in a Computational Thinking and Artificial Intelligence Unit: Taking Speech Recognition as Examples
Mu-Sheng Chen and Ting-Chia Hsu

310 Integrating Explainable Artificial Intelligence in Active Video Watching
Raul Vincent Lumapas

317 The design and use of conversational intelligent tutoring systems and computer simulation for the use of students of technology entrepreneurship
Joseph Benjamin Ilagan

December 5

13:20-17:40 **W13 - ICCE Workshop on "Towards the Practice of Seamless Interest-Driven Creators (SIDC) Theory with Technological Supports"** **Room C**

Session 1 Chair: Lung-Hsiang Wong

W13-02F MEGA World – A Platform of Multiplayer Educational Game for All
Maiga Chang

Panel discussion 1:

Fusing Ideas for Engaging Learning: From Interest-Driven Creator Theory to Seamless Interest-Driven Co-Creator Theory for Learning Design

Chair: Su Luan Wong

Panelists: Maiga CHANG, Wenli CHEN, Ju-Ling SHIH, Longkai WU

December 5

13:20-17:40 **W13 - ICCE Workshop on "Towards the Practice of Seamless Interest-Driven Creators (SIDC) Theory with Technological Supports"** **Room C**

Session 2 Chair: Lung-Hsiang Wong

W13-01S Role of Seamless Learning in Enhancing Interest-Driven Creator Theory
Su Luan Wong, Mas Nida Md Khambari and Sai Hong Tang

W13-03S Web-based VR Education Contents Supporting VR-goggles and User Study
Yoshihiro Okada, Kosuke Kaneko and Wei Shi

W13-04S Development of TETPR: Technology-Enhanced Total Physical Response for Elementary Students to Learn English Vocabulary in Indonesia
Riska Saputra

Panel discussion 2:
Global 'Harwell' Goal as the Global Educational Goal: How it May be Achieved through SIDC Research and Practice Progressively?

Chair: Ben Chang
Panelists: Weiqin CHEN, Maria Mercedes T. RODRIGO, Ying-Tien WU, Shengquan YU

December 5

13:20-16:40 W02 - The 7th Computer-Supported Personalized and Collaborative Learning — Room D

Session 3 Chair: Huang-Yao Hong

W02-10(320-F) Analysis of Students' Action Decisions about SDGs Issues in Open Inquiry Activity with Real Open Data
Yu-Hao Lu, Chia-Chun Tseng and Ju-Ling Shih

W02-11(326-F) Empowering Language Learners: Harnessing Computer-Based Writing for Enhanced Chinese Language Proficiency
Lung-Hsiang Wong, Guat Poh Aw, Wenli Chen, Yin Ling Cheung and Seok Hwa Sim

W02-12(332-F) Reader Characteristics, Reading Order, and Facial Emotions Expressed in Reading Science Texts
Yu-San Hsiang, Zheng-Hong Guan and Sunny S.J. Lin

W02-04(289-F) Implementation of collaborative project-based learning approach: Spherical video-based virtual reality creation
Husni Mubarok, Gwo-Jen Hwang, Chi-Jen Lin and Darmawansah Darmawansah

W02-14(336-F) Exploring Student Engagement and Teacher-Student Interaction Patterns in Collaborative STEM PBL courses through Epistemic Network Analysis
Ting Yen Kuo, Ssu Kuang Chen and Sunny S. J. Lin

December 5

13:20-16:40 W02 - The 7th Computer-Supported Personalized and Collaborative Learning — Room D

Session 4 Chair: Huang-Yao Hong

W02-02(287-F) Development and Usability Evaluation of an Intelligent Personalized Erhu Pitch and Rhythm Learning System
Gwo-Haur Hwang, Ping-Tsung Tsai, Jenn-Kaie Lain and Shiuan-Han Huang

W02-03(288-F) Impact of Gender on Students' Classroom Engagement, Flow Experience and Learning Outcomes When Game-Based Answering Activities Are Integrated into the Curriculum
Gwo-Haur Hwang and Yu-Cheng Lin

W02-15(349-F) The Effect of Genres and Reading Orders on Interest, Reading Comprehension, and Process: Evidence from Eye Movement of Multiple-text Reading
Ching-Yu Luan, Zheng-Hong Guan and Sunny S. J. Lin

W02-16(325-S) Develop and Analysis of Educational Board Game <The Golden Silk Road> on Cultural Cognition
Hsin-Ju Wang, Shaun-Wen Chen and Ju-Ling Shih

December 5

13:20-14:50 **W12 - The 1st International Workshop on Computational Thinking and Programming Education(CTPE)** **Room E**

Session 3 Chair: Liang-Yi LI

W12-03S Using a four-step learning activity in a programming course: classroom participation, learning performance, and attitude
Liang-Yi LI, Wen-Lung HUANG & Chien-Ping CHUNG

W12-07S Applying cooperative learning with role division to learn recursion
YungYu ZHUANG, Hong-Wei CHEN, Jen-Hang WANG & Gwo-Dong CHEN

W12-08S Design Scaffolding Inquiry-based instruction to Promote Non-engineering students in STEM Learning
Chia-Jung Chang

13:20-14:50 **SIG-09 Community Building Session (EUPQ)** **Room F**

15:10-17:40 **Interactive Event** **Room E**

Metaverse in Education: Design, Applications, and Challenges

Yanjie SONG, The Education University of Hong Kong, Hong Kong, China
Ping LI, Hong Kong Polytechnic University, Hong Kong, China
Siu Cheung KONG, The Education University of Hong Kong, Hong Kong, China
Qing LI, Hong Kong Polytechnic University, Hong Kong, China
Xuesong ZHAI, Zhejiang University, China
Chengjiu YIN, Kyushu University, Japan
Peter Hiu Fung NG, Hong Kong Polytechnic University, Hong Kong, China

December 6

09:00-10:00	**Opening Ceremony**	**Hall**
10:00-10:20	**Coffee/Tea break**	
10:20-11:20	**Keynote Speaker** **Chair: Ju-Ling Shih** *'Global Harwell' as the ultimate educational goal: Can and should we pursue this goal through SIDC research and practice in the 'Seamless AI World'?* Tak-Wai Chan, National Central University, Taiwan	**Hall**
11:30-12:40	**Panel** *Towards a Collaborative Vision for Redesigning Education for Harmonious and Thriving Educational Futures in Asia and Beyond: will Seamless IDC Theory lead us there?* **Chair:** Chee-Kit Looi, Education University of Hong Kong **Panelist:** Siu-Cheung Kong, Education University of Hong Kong Ronghuai Huang, Beijing Normal University, China Hiroaki Ogata, Kyoto University, Japan Jon Mason, Charlese Darwin University, Australia Hyo-jeong So, Ewha Womans University, South Korea Lung-Hsiang Wong, Nanyang Technological University, Singapore	**Hall**

December 6

11:30-12:40 CSCL-1 Chair: Alwyn Lee — Room A

BSPN - 21F Tackling Unserious Raters in Peer Evaluation: Behavior Analysis and Early Detection with Learner Model
Changhao Liang, Izumi Horikoshi, Rwitajit Majumdar and Hiroaki Ogata
51S The Development and Evaluation of the Platform for Online High-Level Cooperative Games
Feng-Lung Liu, Geng-De Hong, Ju-Ling Shih and George Ghinea
72S A Thematic Analysis Exploring Flexibility in Programming-based Mathematical Problem Solving
Huiyan Ye, Oi-Lam Ng and Zhihao Cui

11:30-12:40 CUMTEL-1 Chair: Jerry Chih-Yuan Sun — Room B

BSPN - 50F Fostering Students' Dialogic Engagement with the Use of Visual Learning Analytics as a Teaching Assistant Tool in Primary School Classrooms
Fan Chen, Pengjin Wang, Deliang Wang and Gaowei Chen
145S Advancing Education through Stakeholder Engagement: An Evaluation of the Learning Butler Chatbot's Impact on Instructors, and Learners
Chih-Yang Peng, Su-Hang Yang, Pei-Yu Ho, Jen-Hang Wang and Gwo-Dong Chen
196S Effects of Audio and Tactile Biofeedback Based on EEG Attention Levels on University Students' Relaxation
Shih-Jou Yu, Wai Ki Rebecca Cheng, Yi-Hsuan Chen and Jerry Chih-Yuan Sun

December 6

11:30-12:40 AIED/ITS-1 Chair: Tanja Mitrovic — Room C

BSPN - 35F An Efficient and Generic Method for Interpreting Deep Learning based Knowledge Tracing Models
Deliang Wang, Yu Lu, Zhi Zhang and Penghe Chen
71S Developing a Video-based e-Learning System Incorporating a Fill-in-the-blank Question-type Concept Map
Takumi Hasegawa and Tessai Hayama
75S Exploring Students' Adoption of ChatGPT as a Mentor for Undergraduate Computing Projects: PLS-SEM Analysis
Swapna Gottipati, Kyong Jin Shim and Venky Shankararaman

11:30-12:40 EGG-1 Chair: Ning Wang — Room D

BOPN - 17F Design and Implementation of an Educational Game for Teaching Artificial Intelligence to High School Students
Ning Wang, Ryan Montgomery, Eric Greenwald and Maxyn Leitner
13S Enhancing Learning Experience in University Engineering Classes with Kahoot! Quiz Games
Zilu Liang
40S Executive Functions Training-oriented Digital Games: Effectiveness and Experience
Chi-Fang Huang, Hui-Ling Hsu and Zhi-Hong Chen

12:40-13:30 Lunch

December 6

13:30-14:30 **Theme Speaker** **Chair: Ying-Tien Wu** **Hall**

Game On! Leveraging the Benefits of Game-Based Learning in the Digital Age

Kaushal Kumar Bhagat, Indian Institute of Technology Kharagpur, India

13:30-14:30 **Meet the APSCE Executive Committee** **Room A**

13:30-14:30 **SIG-02 Community Building Session (CSCL)** **Room B**

13:30-14:30 **AIED/ITS-2** **Chair: Michelle Banawan** **Room C**

66F Studying Memory Decay and Spacing within Knowledge Tracing
Cristina Maier, Isha Slavin, Ryan Baker and Steve Stalzer
76F Deep Knowledge Tracing is an implicit dynamic multidimensional item response theory model
Jill-Jênn Vie and Hisashi Kashima

13:30-14:30 **EGG-2** **Chair: Gwo-Dong Chen** **Room D**

89F Effects of different embodied scaffoldings on students' spatial abilities in digital game-based learning
Junyi Zhou, Jialing Zeng, John B. Black and Junjie Shang
91F Exploring the Impact of Designing a Robot as a Pet with Interdependence Theory on Long-Term Relationships and Learning Performance
Vando Gusti Al Hakim, Su-Hang Yang, Jen-Hang Wang, Yu-Chen Chang, Hung-Hsuan Lin and Gwo-Dong Chen
232S Enhancing Learner Satisfaction in Simulation-Based Learning: The Impact of Learner Characteristics and Expectancy
Steven Ck Ng, Li Fern Tan and Poh Nguk Lau

December 6

14:40-15:40 POSTER Room P

AIED/ITS

58P Recommending Learning Actions Using Neural Network
Hirokazu Kohama, Yuki Ban, Tsubasa Hirakawa, Takayoshi Yamashita, Hironobu Fujiyoshi, Akitoshi Itai and Hiroyasu Usami

59P An agent-based modeling and simulation tool as a learning aid for diffusion of innovations
Joseph Benjamin Ilagan, Jose Ramon Ilagan and Maria Mercedes T. Rodrigo

92P Immediate Feedback in Computational Thinking: Generating hints using a Knowledge Graph
Nitesh Kumar Jha, Plaban Kumar Bhowmik and Kaushal Kumar Bhagat

149P Activity Analysis Support System by Causal Relation Check Between Sub-activities
Kota Kunori and Tomoko Kojiri

153P Method for Estimating Learning Strategies from Tools Using Bayesian Network
Kento Kuwajima, Atsushi Ashida and Tomoko Kojiri

CSCL

31P Future City: A Simulation for Making SDGs Action Decisions
Pin-Chen Chen, Yu-Hao Lu and Ju-Ling Shih

90P Multimodal analysis of learners' communications in CSCL of a mathematical proof
Masataka Kaneko, Hironori Egi and Takeo Noda

147P Assessing college students’ sense of community for advancing community knowledge
Chih Hui Seet, Yi-Ning Tsai, Guo-Tsai Hung and Huang-Yao Hong

148P Teachers developing more creative learning views via online knowledge building activities
Mei-Ju Chen, Chao-Yu Guo and Huang-Yao Hong

December 6

14:40-15:40 POSTER Room P

ALT

113P Toward a Virtual Human Exhibit for Public AI Education
Ning Wang, Tim Hurt, Ari Krakowski, Eric Greenwald, Omkar Masur, Boxi Fu and Chirag Merchant

123P Analyzing Learning Patterns and Potential Interventions in First-Year Compulsory Course at an Online University
Yasuhisa Kato

129P Measuring Self-regulated Learning Processes in Computer Science Education
Elizabeth Cloude, Ryan Baker and Maciej Pankiewicz

139P Construction of a Japanese Language Learning Support System for Learning Semantic Negotiation
Satoru Kogure, Akira Yoshida, Yasuhiro Noguchi, Koichi Yamashita, Tatsuhiro Konishi and Makoto Kondo

CUMTEL

201P Estimating Physical Interactions with Neighboring Student for Detecting Active Learners in the Computer Classroom
Takahiro Yoshino, Shin Ueno and Hironori Egi

206P Effect of Active Breaks during e-Learning and Mental Arithmetic Tasks
Masaki Kodaira, Tatsuya Hamada and Hironori Egi

219P Chronotypes of Learning Habits in Weekly Math Learning of Junior High School
Chia-Yu Hsu, Mandukhai Otgonbaatar, Izumi Horikoshi, Huiyong Li, Rwitajit Majumdar and Hiroaki Ogata

December 6

14:40-15:40 POSTER Room P

EGG

7P Relationship Between Students' Minecraft Re-engagement Metrics and STEM Interest
Maria Mercedes T. Rodrigo, Jonathan Casano and Mikhail Fuentes

100P Analysis to Creation: Using the ADDIE Model to Develop an Educational Game for Children
Yufan Zhang, Nurul Nadwa Zulkifli, Ahmad Fauzi Mohd Ayub and Zewen Shang

118P Case study-based research on understanding app user engagement to develop environmental literacy of urban residents
Ewa Duda

169P GaMINLab - Meaningful gamification to engage students in science inquiry practices through simulation labs
Archana Rane, Sahana Murthy and Sasikumar M.

TELL

103P Tracking Knowledge for Learning Japanese as a 2nd Language
Tomoko Okimoto, Matthew Johnson, Huy Nguyen, Steven Moore, Michael Eagle and John Stamper

131P Constructing a Natural Conversation Learning Activity to Improve Students' English-Speaking Skills
Hong-Min Tu, Chang-Yen Liao and Te-Yang Chou

December 6

14:40-15:40 POSTER Room P

PTP

38P How Teachers' Conceptions of Student Engagement Influenced their Actual Strategy Implementation, and Student Online Engagement
Gulipari Maimaiti and Khe Foon Hew

WIPP

19WIPP Task-based Robot-assisted learning to support L2 Speaking Practice
Cheng Yueh Jao, Huichin Yeh, Shih-Hsien Yang, Ming-Chang Wu and Chen-Fu Wang
29WIPP Designing an IoT-based Biorobotic Complex Board Game <Eurasia Channel>
Song-Lin Chen, Ju-Ling Shih and Shaun-Wen Chen
52WIPP Application of ChatGPT in the Role-play Game of Modeled United Nations
Zhen Hung Tsai, Ju-Ling Shih and Geng-De Hong

December 6

14:40-15:40 WIPP Room P

85WIPP IOT-integrated SDGs Scenario-based Games in the Classrooms
Ching-Chieh Lin, Ju-Ling Shih and Yu-Hao Lu

285WIPP Pupils' perceived immersion, attitudes, and learning effectiveness in virtual field trips: A comparison between immersive and projective environments
Kun-Hung Cheng

290WIPP Ethical and Privacy Concerns in Artificial Intelligence Dialogue Systems: Do Students in Higher Education Really Care About Them?
Chunpeng Zhai, Santoso Wibowo and Lily Li

295WIPP Resistance Training Support System with Pose Estimation
Koki Yamada, Naka Gotoda and Ryota Akagi

300WIPP Evaluation of Simulators to Promote the Understanding of Bioaccumulation among Elementary School Students
Yuka Matsuyama, Shinichi Kamiyama, Hideo Funaoi and Tomokazu Yamamoto

301WIPP App-Infused Preschoolers' Storyline Concept-Driven Numerical Curriculum Design
Ruei-Cheng Yen and Ben Chang

302WIPP A Proposal and Evaluation of Learning Advising using a Generative AI
Yasuomi Takano, Taketo Tsurube, Haruki Ueno and Hiroshi Komatsugawa

303WIPP The Roles of Students' Help-seeking Profiles and Self-efficacy in the AI-assisted Game-based Learning
Ching-Huei Chen

312WIPP Question-Driven Design Process for XAI in Active Video Watching
Raul Vincent Lumapas, Antonija Mitrovic, Matthias Galster, Sanna Malinen, Pasan Peiris and Jay Holland

December 6

14:40-15:40 WIPP Room P

313WIPP Enhancing Mobile Learning App for Revamped Blended Learning Class in Beginner's Chinese Course
Yuichi Ohkawa, Xiumin Zhao, Takashi Mitsuishi, Wen Gui and Xuan Wang
319 WIPP Investigating Players' Social Interactions in IOT Board Games
Yueh-Chi Wang, Ju-Ling Shih and Shaun-Wen Chen
322 WIPP Method to Promote Social Facilitation of Learners by Presenting Writing Sounds
Tatsuya Ueda, Tatsuya Hamada and Hironori Egi
370WIPP How to "Unboxing" Gamer Competencies: via Systematic Literature Reviews to get Analytical Framework is workable?
Tieh-Huai Chang and Mingfong Jan

December 6

14:40-15:40 SATELUC — Room P

SATELUC-23-01 Promotion of ERD Design Comprehension Using Recomposing Method Putra Prima ARHANDI, Bani Satria ANDOKO, Tsukasa Hirashima **(Indonesia)**

SATELUC-23-02 Designing Educational Personas using Generative AI
Ivan TERZIC, Antun DROBNJAK & Ivica BOTICKI **(Croatia)**

SATELUC-23-03 Timorese University Students' Perception on E-learning: A Case Study
Agostinho Dos Santos GONÇALVES*, Sebastião PEREIRA, Saida ULFA **(Timor Leste)**

SATELUC-23-06 Technology-Enhanced Environmental Learning: Co-design of Educational Mobile Application Case
Ewa DUDA, Helena ANACKA, Jolanta KOWAL, Iwona NOWAKOWSKA & Hanna OBRACHT-PRONDZYŃSKA **(Poland)**

SATELUC-23-07 Urban Living Lab Enhanced by a Mobile Application as a New Way to Educate Towards Green and Inclusive Cities
Ewa DUDA, Łukasz GONTAR, Maksymilian KOCHAŃSKI & Mari Hanssen KORSBREKKE **(Poland)**

SATELUC-23-08 Supporting Engineering Degree Student Wellbeing with Compulsory Lessons on Stress Management
Marc BEARDSLEY **(Spain)**

December 6

14:40-15:40	**IPC Meeting**	**Room B**
14:40-15:40	**SIG-10 Community Building Session (LAEDM)**	**Room C**
15:40-16:00	**Coffee/Tea break**	
16:00-18:20	**Interactive Event** *The G3 of Writing and Publishing: Gentle Guidelines, Great Stories, and Gigantic Gains* Curtis J. Bonk, Indiana University Meina Zhu, Wayne State University Feng-Ru Sheu, Kent State University	**Hall**

December 6

16:00-18:20 CSCL-2 Chair: Daniel Bodemer — Room A

47F Multimodal assessment of an ultra-brief practice of progressive muscular relaxation adapted for the classroom
Marc Beardsley, Batuhan Sayis and Marta Portero Tresserra
BOPN - 78F Epistemic Network Analysis to assess collaborative engagement in Knowledge Building discourse
Aloysius Ong, Chew Lee Teo, Alwyn Vwen Yen Lee and Guangji Yuan

CSCL-3 Chair: Daniel Bodemer

102F Development and Evaluation of a Matching System to Facilitate Online Collaborative Learning
Haruka Tada and Fumihide Tanaka
192S The role of individual preparation for knowledge construction in collaborative argumentation: An Epistemic Network Analysis
Wenli Chen, Junzhu Su, Qianru Lyu, Siew Cheng Aileen Chai, Xinyi Li, Guo Su and Eng Eng Ng
214S Students know more than they can tell: Understanding learners' ideas of heat transfer via model revision activities
Rajashri Priyadarshini, Chandan Dasgupta and Sahana Murthy
376ES Posthumanizing Creativity and Material Histories
Alekh V and Chandan Dasgupta

December 6

16:00-18:20 TELL-1 Chair: Kit Ling Lau — Room B

43F Relations between Instructional Factors and Student Acceptance of Flipped Learning in Chinese Language Learning
Kit Ling Lau and Quan Qian
BOPN - 56F Experimental Comparison of Promotion Effect for EFL Reading Comprehension between Conventional Summarization and Toulmin Argument Reconstruction
Banni Satria Andoko, Rosa Andrie Asmara, Vivin Ayu Lestari, Deasy Sandhya Elya Ikawati, Arief Prasetyo, Tsukasa Hirashima and Yusuke Hayashi

TELL-2 Chair: Kit Ling Lau

114F The Effect of Timing Differences in Online Corrective Feedback on Adult Verbal English Learners' Learning Engagement: A Micro-genetic Study.
Wanying Liang, Guang Chen and Wei Cheng
8S Using Flipped Classroom Approach to Integrate SRL Instruction in Classical Chinese Reading Instruction: Insights from the First-Year Results
Kit Ling Lau
54S The AI-Supported Instructional Design in PBL Integrating Chinese Language Learning and Multimedia Creation
Satoko Sugie
256S Design and Development of a Sentence Construction Game for Deaf and Hard of Hearing (DHH) Users: A Qualitative Usability Study
Arjun Prasad, Sunny Prajapati, Utkarsh and Vishwas Badhe
101S Enabling Visually Impaired People’s Chinese Literacy learning through Information Technology
Shelley Shwu-Ching Young and Jen-Li Wang

December 6

16:00-18:20 PTP-1 Chair: Jayakrishnan Madathil — Room C

133F Assessment of Intelligent Teaching Preparation of EFL Teachers: Based on Two-Year Data Comparison
Xin An, Xi Shen, Jiannan Bai and Yushun Li
200F Exploring the Relationship between 21st Century Skills and Motivation: A Study Using Contextual Inquiry Project-based Learning
Jirapipat Thanyaphongphat, Preeyada Tapingkae, Kannika Daungcharone and Krittawaya Thongkoo

PTP-2 Chair: Weiqin Chen

65S ICCE 2023 Exploring the Social Media Discourse: the Impact of ChatGPT on Teachers' Roles and Identity
Yuchun Zhong, Davy Tsz Kit Ng and Samuel Kai Wah Chu
70S Designing Faculty Development Programs by a Team from Different Majors
Yukari Kato, Yukihiko Yamashita, Hisashi Hatakeyama and Toshiya Oishi
274S Supporting Content Creators in Creating Accessible Digital Materials in Higher Education
Eirik Hansen and Weiqin Chen
324ES Preservice Teachers' Video-Based Reflection Supported by the Teacher Dashboard: An Epistemic Network Analysis
Huiying Cai, Linmeng Lu and Xiaoqing Gu

December 6

16:00-18:20 ALT-1 Chair: Michelle Cheong — Room D

6F ChatGPT's Performance in Spreadsheets Modeling Assessments based on Revised Bloom's Taxonomy
Michelle Cheong
BOPN - 11F Promoting Middle School Students' Achievement and Attitude toward Science Learning through Sphere Recognition-Based AR Application
Ruixue Liu, Lijun Liang and Xiaodong Wei

ALT-2 Chair: Ezekiel Adriel Lagmay

14F Preparation for Future Lockdowns: A Comparison of Student LMS Activity During and After COVID-19
Ezekiel Adriel Lagmay and Maria Mercedes Rodrigo
15S Using Augmented Reality to Facilitate Music Learning for Preschool Children
Xiaodong Wei, Rui Qiu and Ruixue Liu
27S Comparing Perceived Cognitive Load while Learning Online with AI Chatbots, Pre-recorded Videos, and Live Lectures
Haixi Sheng, Xinran Zhou, Yue Zhao and Guoqing Zhao
240S Development of a Learning Support System for playing Ryuteki in Gagaku for Beginners
Yasushi Ueno and Masato Soga

18:30-18:45 Move to EC meeting Venue (Walk/Bus)

19:00~22:00 APSCE EC meeting

December 7

09:00-10:00 Keynote Speaker **Chair: Weiqin Chen** — Hall

Computers in Education: how can we support teachers?

Davinia Hernández-Leo, Universitat Pompeu Fabra, Barcelona

10:00-10:20 Coffee/Tea break

10:20-11:20 Theme Speaker **Chair: Akihiro Kashihara** — Hall

Challenges and Opportunities of Educational Data Science for Reading Systems

Brendan Flanagan, Kyoto University, Japan

10:20-11:20 AIED/ITS-3 **Chair: Swapna Gottipati** — Room C

97F Composite Score for ChatGPT Prompt Efficiency: A Computational Linguistic Analysis of Engineered Chatbot Prompts
Michelle Banawan
BOPN - 115F Large Language Models (GPT) for automating feedback on programming assignments
Maciej Pankiewicz and Ryan Baker

10:20-11:20 ALT-3 **Chair: Zablon Pingo** — Room D

64F Process Evaluation for Concept Map Building and Its Experimental Evaluation
Ridwan Rismanto, Aryo Pinandito, Banni Satria Andoko, Yusuke Hayashi and Tsukasa Hirashima
94F On-demand lectures with humor and questions using avatars
Satoshi Toyota and Asuka Terai

December 7

11:30-12:40 Panel — Hall

Mobile Learning: Reflections on the Past and Visions for the Future

Chair:
Lung-Hsiang WONG, Nanyang Technological University (NTU), Singapore
Panelist:
Daner SUN, The Education University of Hong Kong
Hiroaki OGATA, Kyoto University, Japan
Hyo-Jeong SO, Ewha Womans University, South Korea
Xiaoqing GU, East China Normal University, China
Ting-Chia HSU, National Taiwan Normal University, Taiwan

11:30-12:40 EGG-3 Chair: Cristina Maier — Room A

BTDPN - 126F Design and development of a game to improve self-efficacy: A case study of addressing modes learning
Fuzheng Zhao, Danqing Luo, Etsuko Kumamoto and Chengjiu Yin
53S Incorporating tangible rewards into gamification increases students' identified regulation in fully online learning
Ya Xiao and Khe Foon Hew
130S Investigating Cognitive Biases in Self-Explanation Behaviors during Game-based Learning about Mathematics
J. M. Alexandra Andres, Elizabeth Cloude, Ryan Baker and Seiyon Lee

December 7

11:30-12:40 CUMTEL-2 Chair: Pei-Shan Tsai — Room B

BOPN - 154F Building Students' Learning Habits on Slack: An Application of the IDC Theory
Veenita Shah, Sahana Murthy and Sridhar Iyer
183S The Effects of Visualization Strategies on Students' Learning Outcomes in Augmented Reality Contexts
Pei-Shan Tsai
174S Using the Self-regulated Based Personalized Online Learning System for Learning Factorization in Mathematics
Thanyaluck Ingkavara, Patcharin Panjaburee and Wararat Wongkia

11:30-12:40 AIED/ITS-4 Chair: Jill-Jenn Vie — Room C

121F Improved Automated Labeling of Mathematical Exercises in Japanese
Taisei Yamauchi, Ryosuke Nakamoto, Yiling Dai, Kyosuke Takami, Brendan Flanagan and Hiroaki Ogata
176S Object Identification Training Support System for Object-Oriented Design with Cooking Recipes
Daiki Maeda, Kota Kunori and Tomoko Kojiri
212S Learning Support System to Understand Others Through Dramatic Script Reading and Its Evaluation
Hanano Okamoto, Yuki Hayashi and Kazuhisa Seta

December 7

11:30-12:40 ALT-4 Chair: Antonija Mitrovic — Room D

144F Creating Meaningful Connections: The Role of Simultaneous Multi Situational Learning in Knowledge Contextualization and Application
Chih-Yen Chen, Su-Hang Yang, Meng-Xuan Xie, Yi-Chuan Fan, Jen-Hang Wang and Gwo-Dong Chen
32S Do the Same Rules Apply? Transferring MOOC Success Behaviors to University Online Learning
Clarence James Monterozo and Maria Mercedes Rodrigo
309ES Evaluating the Assessment of Comment Quality in Learning Communication Skills using Active Video Watching
Raul Vincent Lumapas, Antonija Mitrovic, Matthias Galster, Sanna Malinen, Jay Holland and Negar Mohammadhassan
365ES Metaverse and Education: A Bibliometric Analysis Based on the Past Twenty Years
Chien-Liang Lin, Zeren Zhu, Yushun Su, Juan Zhou and Yu-Sheng Su

11:30-12:40 SIG-07 Community Building Session (PTP) — Room P

12:40-13:30 Lunch

December 7

13:30-14:30 Theme Speaker **Chair: Siu Cheung Kong** — Hall

Exploring the Evolution of Mobile Learning Environments

Daner Sun, Education University of Hong Kong, Hong Kong

13:30-14:30 SIG-06 Community Building Session (TELL) — Room B

13:30-14:30 PTP-3 **Chair: Chengjiu Yin** — Room C

BTDPN - 205F Data-Driven Competency Assessment Supporting System for Teachers
Taito Kano, Izumi Horikoshi, Kento Koike and Hiroaki Ogata
213F Visualization of Instructional Patterns from Daily Teaching Log Data
Kohei Nakamura, Izumi Horikoshi, Rwitajit Majumdar and Hiroaki Ogata

13:30-14:30 ALT-5 **Chair: Yasuhisa Kato** — Room D

182F Automatic Detection of Negotiation in Collaborative Complex Problem Solving Interactions
Daevesh Singh, Ulfa Khwaja, Sahana Murthy and Ramkumar Rajendran
198F Towards Automated Evidence Extraction: A Case of Adapting SAM to Real-World Educational Data
Koki Okumura, Izumi Horikoshi, Kento Koike and Hiroaki Ogata

14:40-15:40 Keynote Speaker **Chair: Hiroaki Ogata** — Hall

Building a Research Data Platform and Education

Masaru Kitsuregawa, Research Organization of Information and Systems, Japan

December 7

15:40-16:00 Coffee/Tea break

16:00-17:00 POSTER — Room P

AIED/ITS

188P Development of Learning Support System for Critical Reading of Academic Papers
Aota Nishida, Kazuhisa Seta and Yuki Hayashi

199P Overcoming Barriers to Sustainable Dissemination of L2 Learning Resources: An Integrated Framework for Creating and Distributing Dialogue Scenarios
Emmanuel Ayedoun, Yuki Hayashi and Kazuhisa Seta

237P Development of Estimation Method for Learner's Emotional Concealment During Learning Using Biometric Information and Feedback Model
Koichi Shinohara, Keiichi Muramatsu and Tatsunori Matsui

244P An Adaptive Learning Support System based on Ontology of Multiple Programming Languages
Lalita Na Nongkhai, Jingyun Wang and Takahiko Mendori

249P Examination of the robot's role as a helper in learning situations
Makoto Shiraishi and Tatsunori Matsui

269P A Bio-Inspired Method for Personalized Learning Path Recommendation Problem
Yaqian Zheng, Deliang Wang, Yaping Xu, Ziqi Mao, Yaqi Zhao and Yanyan Li

December 7

16:00-17:00 POSTER Room P

AIED/ITS

276P Developing Effective Educational Chatbots with ChatGPT: Insights from Preliminary Tests in a Case Study on Social Media Literacy
Cansu Koyuturk, Mona Yavari, Emily Theophilou, Sathya Bursic, Gregor Donabauer, Alessia Telari, Alessia Testa, Raffaele Boiano, Alessandro Gabbiadini, Davinia Hernandez-Leo, Martin Ruskov and Dimitri Ognibene

CSCL

178P Mathematic Learning-by-teaching:Video Creation and Cross-Schools Staging
Te-Yang Chou, Yen-Cheng Yeh and Hong-Ming Tu

223P Impact of 360°VR on Pre-Service Teachers' Empathy——Taking Educational Equity as an example
Yanjun Chen, Yiling Hu and Bian Wu

225P Enhancing student teachers' collaborative interdisciplinary design through knowledge-building activities
Pei-Yi Lin

246P Exploring Group Formation Strategies in Computer-Supported Collaborative Learning: A Systematic Review
Jiamin Tang, Huihan Zhou, Yajing Tan and Guang Chen

December 7

16:00-17:00 POSTER Room P

ALT

215P What does process mining of feedback-behavior reveal about problem-solving in chemistry undergraduates?
Anveshna Srivastava and Chandan Dasgupta

216P ICCE 2023 Learning Outcomes of Computer Programming and Information Technology - Integrated Courses for Non-Computer Science Majors: Case Study of a Public Research University in Taiwan
Che-Yu Hsu, Feng-Nan Hwang, Tseng-Yi Chen and Chia-Hui Chang

261P Supporting Learning Through Affordance-Based Design: A Comparative Analysis of "BioVARse" and a Standard Textbook Companion Application in Biology Education
Devanshu Saindane, Sunny Prakash Prajapati and Syaamantak Das

263P Investigating Programming Performance Predictability from Embedding Vectors of Coding Behaviors
Ikkei Igawa, Yuta Taniguchi, Tsubasa Minematsu, Fumiya Okubo and Atsushi Shimada

EGG

179P A Skill Tracing Model for Player Character Control in STG
Peizhe Huang, Wanxiang Li, Wen Gu, Kouichi Ota and Shinobu Hasegawa

252P Exploring the Impact on Student Reading Preferences in Gamified Reading Portfolio
Hsiao-Tung Yang, Chang-Yen Liao, Ciao-Min Syu and Tak-Wai Chan

268P Improving Teamwork through a Decision-Theoretic Coach in a Minecraft Search-and-Rescue Game
David Pynadath, Nik Gurney, Sarah Kenny, Rajay Kumar, Stacy Marsella, Haley Matuszak, Hala Mostafa, Pedro Sequeira, Volkan Ustun and Peggy Wu

December 7

16:00-17:00 POSTER Room P

TELL

135P Analysis of topic sentences of classification paragraphs and development of a diagnostic function
Kandai Ishikawa and Hidenobu Kunichika

257P Using T-Robot Board Games to Enhance Learning Gains of Rural Elementary School Students
Yu-Wei Wu, Wen-Yu Ye, Wen-Chi Vivian Wu and Rong-Jyue Wang

PTP

146P The Impact of Preschool Teacher Training on STEAM Education: Professional Preparedness and Confidence
Wan-Chen Chang

166P Design-Based Implementation Research: A Collaborative Approach to Educate Out-of-School Children
Faisal Badar and Jon Mason

175P A Study of Versatile Tutor Training Programs for Universities in Japan
Yumi Ishige, Kazuhiro Kabeya, Kayoko Nagao and Hirotoshi Tanigawa

184P Support for fitting Chromebooks to the child with cerebral palsy: A practical study on incorporating advice from ICT specialists
Tomohito Yamazaki and Toyokazu Mizuuchi

243P Incorporation of Robotics in AI Education: Barriers and Enablers as Perceived by K-12 Teachers
Miao Yue, Siu-Yung Jong, Yun Dai, Tsun-Hin Luk and Ma. Jenina N. Nalipay

December 7

16:00-17:00 WIPP Room P

323WIPP Designing Learning Companions for Enhancing Students' Writing Habits
Chang-Yen Liao

330WIPP Practices of ARCS Chinese language instructional design with MR application participation
Zhenni Shi, Yuto Nagata and Yusuke Morita

339WIPP The Impact of Metaverse Worlds on International Collaborative Learning for Cross-Cultural Understanding
Masako Hayashi, Takehiro Suzuki, Yuki Kawata and Keisuke Goto

341WIPP Designing an Online Course on Learning Analytics for Educators: Preliminary Insights from a Scoping Review
Nurbiha A Shukor, Norah Md Noor, Aini Marina Ma'Rof, Noor Dayana Abd Halim, Matthew Mclain, Phillip Rothwell, Graham Downes and Frances Tracy

343WIPP Development of a Music Educational Board Game with Mobile Device: Learning Musical Theory and Emotional perception through Gameplay
Song-Zhu Xiao, Chih-Chen Kuo and Huei Tse Hou

344WIPP Designing a Virtual Reality Game for Religious Culture Guided Tour by Combining Voice Guided Scaffolding and Situated Learning Mechanism
Jui-Jong Wang, Chih-Chen Kuo and Huei Tse Hou

345WIPP Design and Preliminary Evaluation of an Educational Board Game on Urban Culture and History with Mobile Conceptual Scaffolding
Hau-An Yu, Chih-Chen Kuo and Huei Tse Hou

December 7

16:00-17:00 WIPP Room P

346WIPP A Preliminary Evaluation of Using Realistic Virtual Space in Designing Gamification Training Activities for Museum Interpreters
Shen-Yang Ni, Shu-Wei Liu and Huei Tse Hou
347WIPP Unmanned Robotic Online Laboratory with an Intelligent Cloud Teacher
Dongkun Han and Martin Yun-Yee Leung
356WIPP Learning Concentration on Virtual Reality Learning: Scale Development and a Pilot Study
Yi Hsuan Wang, Chun-Ping Wu, Kuan You Pan and Yu Hui Chen
357WIPP Methodology for the Participatory Design of a Learner-Facing Analytics Dashboard
Marie-Luce Bourguet
360WIPP Estimation of Features and Skills of Drawing Experts by Tracing Figures
Yasuhisa Tamura, Kazunari Kaizu and Akito Hamano
364WIPP Logical Expression Tutoring System for Controlling Smart Devices in Multi-User Environments
Tomoya Takahashi, Yuko Murakami, Hidenobu Watanabe and Kouji Nishimura
366WIPP Proposing a Processing Distribution System for Cross-Organizational Use of Educational Data
Takahiro Morita, Yuko Murakami, Hidenobu Watanabe and Kouji Nishimura
367WIPP Catalyzing Python Learning: Assessing an LLM-based Conversational Agent
Daevesh Singh, Indrayani Nishane and Ramkumar Rajendran
377WIPP A Novel Interpretation of Classical Readability Metrics: Revisiting the Language Model Underpinning the Flesch-Kincaid Index
Yo Ehara
378WIPP Experimental study for a computational model in ITS to predict the learners' state
Yoshimasa Tawatsuji, Keiichi Muramatsu and Tatsunori Matsui

December 7

16:00-17:00 WIPP — Room P

379WIPP Gamified Learning Objects for Inclusive Programming and Science Education
Saumay Garg, Seema Mittal and Mukta Goyal
380WIPP Exploring the Possibility of Harnessing Drones in Geography Education in High Schools
Morris Siu-Yung Jong, Chin-Chung Tsai and De-Qi Zhang
381WIPP Impact of Augmented Reality App on EFL Young Learners' Vocabulary Learning Engagement in a Seamless Learning Environment
Yanjie Song, Jianfeng Zhou and Yin Yang
385WIPP Optimization of Personalized Content Providing Function for Adult Learners with Diverse Backgrounds
Chikako Nagaoka, Masako Furukawa, Yuan Sun and Kazutsuna Yamaji

17:15-18:30 Move to Dinner Banquet Venue (Bus)

19:00~21:00 Dinner Banquet

December 8

09:00-10:00 Keynote Speaker **Chair: Chee-Kit Looi** **Hall**

Time to Wake Up from Our Innovative Learning Dreams and Make Smarter Learning a Reality

Curtis J. Bonk, Indiana University, USA

10:00-10:20 Coffee/Tea break

10:20-11:20 ALT-6 **Chair: Yoshimasa Tawatsji** **Hall**

150S ECLAIR: A Centralized AI-Powered Recommendations System in a Multi-Node EXAIT System
Isanka Wijerathne, Brendan Flanagan, Yiling Dai and Hiroaki Ogata
163S Sharing Learning Log while maintaining privacy over blockchain: Heuristic Evaluation of BOLL
Patrick Ocheja, Rwitajit Majumdar, Brendan Flanagan and Hiroaki Ogata
164S Program Visualization System Supporting Teacher-Intended Stepwise Refinement
Koichi Yamashita, Hiroki Soma, Satoru Kogure, Yasuhiro Noguchi, Raiya Yamamoto, Tatsuhiro Konishi and Yukihiro Itoh

December 8

10:20-11:20 EGG-4 Chair: Alex Wing Cheung Tse — Room A

207F The Impact of Digital Game-based Learning with a Mathematical Game Application on Calculation Abilities of Grade 4 Students
Yinbei Liu and Alex Wing Cheung Tse
BSPN - 209F The Impact of Gamified Assessment on the Learning Burnout of Undergraduate Computing Students: a Quasi-experimental Research
Beilei Zhang and Alex Wing Cheung Tse

10:20-11:20 AIED/ITS-5 Chair: Ning Wang — Room B

138F Can We Ensure Accuracy and Explainability for a Math Recommender System?
Yiling Dai, Brendan Flanagan and Hiroaki Ogata
BTDPN - 160F ExGen: Ready-To-Use Exercise Generation in Introductory Programming Courses
Duong Ta, Hua Gia Phuc Nguyen and Swapna Gottipati

10:20-11:20 PTP-4 Chair: Mas Nida Md Khambari — Room C

141S Using Learning Design Technologies for Teachers' Practice-Driven Research
Marc Beardsley, Davinia Hernandez-Leo and Roberto Sánchez-Reina
228S A Preliminary Study: Exploring Teachers' Perspectives on the Role of Gathering Information in Supporting Teachers' Digital Learning Agility
Kamilah Abdullah, Mas Nida Md Khambari, Nur Dania Mohd Rosli, Su Luan Wong, Noor Syamilah Zakaria, Siti Raba'Ah Hamzah and Priscilla Moses
351ES Embracing Synchronicity in Distance Education: Unraveling the Paradox
Kumiko Aoki

December 8

10:20-11:20 CSCL-4 Chair: Daniel Bodemer Room D

245S Remembering the knowledge of experts and novices in computer-supported collaborative learning: A multinomial processing tree approach
Oktay Ülker and Daniel Bodemer
247S A Comparative Analysis on the Effects of Cognitive Tools in Data Inquiry Cultivation
Hui Zhang, Bian Wu, Yiling Hu and Yujie Xu
280S Argumentative Knowledge Construction and Certainty Navigation: A Comparison between Individual and Group Work
Wenli Chen, Eng Eng Ng, Guo Su, Junzhu Su, Xinyi Li, Siew Cheng Aileen Chai and Qianru Lyu

December 8

11:30-12:40 ALT-7 Chair: Maria Mercedes Rodrigo — Hall

41S Visual Attention Patterns in Processing Compiler Error Messages
Christine Lourrine Tablatin and Maria Mercedes Rodrigo
187S A page jump recommendation model based on digital textbook contents and student log data
Wenhao Wang, Natsumi Yamamoto, Fuzheng Zhao, Etsuko Kumamoto, Zicheng Kang and Chengjiu Yin
195S Concept Map Recomposition Approach for Advanced Formative Assessment in Large-Scale Online Course
Sho Yamamoto, Aryo Pinandito and Tsukasa Hirashima
BTDPN - 251S DLOT: An open-source application to assist human observers
Ashwin T S, Danish Shafi Shaikh and Ramkumar Rajendran

11:30-12:40 EGG-5 Chair: Curtis J. Bonk — Room A

208F Develop and validate STEM education activities using the “6E Design Teaching Model”: Taking “Dynamics and Energy Conversion in Sail Car Design” as an example
Chen Lu, Yang Yang and Chen Guang
193S The Design and Practice of Scientific Inquiry Activities for Children Aged 5-6 Based on an AR Flashcard Environment
Tian-Tian Gou, Min-Sheng Fan and Bin-Li Wang
197S Toward Game-Based Learning of Japanese Writing for Elementary School Students
Kazumasa Omura, Kei Kubo, Frederic Bergeron and Sadao Kurohashi

December 8

11:30-12:40 AIED/ITS-6 Chair: Cristina Maier — Room B

308ES Adding Interactive Mode to Active Video Watching
Ehsan Bojnordi, Antonija Mitrovic, Matthias Galster, Sanna Malinen and Jay Holland
350ES A holistic visualisation solution to understanding multimodal data in an educational metaverse platform – Learningverse
Yanjie Song, Jiaxin Cao, Lei Tao and Dragan Gašević
358ES A systematic review on the competences of human-AI collaboration
Youngjin Yoo, Young Hoan Cho and Jeewon Choi
363ES Influence of Robot Roles on Self-Review
Shunsuke Sada and Akihiro Kashihara
369ES An Interactive Robot Lecture System for Attention and Understanding Recovery
Toshiyuki Shimazaki and Akihiro Kashihara

11:30-12:40 PTP-5 Chair: Su Luan Wong — Room C

BSPN - 248F Collaborative design of a simulation-based math classroom: Contradictions and solutions between teaching and research
Wenxin Guo, Bian Wu and Dong Li
229S The Role of Flexibility in Shaping Teachers' Digital Learning Agility: A Preliminary Study
Nur Dania Mohd Rosli, Kamilah Abdullah, Mas Nida Md. Khambari, Su Luan Wong, Noor Syamilah Zakaria, Priscilla Moses and Siti Raba'Ah Hamzah
253S The Impact of Development-questioning Activities on Students' Pre-writing Ideas
Jia Ling Hong, Chang-Yen Liao, Tak-Wai Chan and Jui-Fen Chang

December 8

11:30-12:40 TELL-3 Chair: Daner Sun — Room D

BSPN - 125F Using Self-Regulated Digital Storytelling in Primary Students' English Learning: An Exploratory Factor Analysis
Yunsi Tina Ma, Siu Cheung Kong and Daner Sun
221S Impact of Self-analysis Behaviors in GOAL for Japanese High School EFL Learners
Zixu Wang, Rwitajit Majumdar and Hiroaki Ogata
231S AI-powered Collaborative Activities for Chinese Vocabulary Learning
Xinyu Guo and Yun Wen
328ES Interaction Patterns between Learners and AI Tools for English Writing
Yun-Shu Xie, Jin-Ho Jang, Su-Yeon Kim and Young Hoan Cho

12:40-13:30 Lunch

December 8

13:30-14:30 ALT-8 Chair: Ramkumar Rajendran — Hall

BSPN - 266F Unveiling Learners' Interaction Behavior in Virtual Reality Learning Environment
Antony Prakash and Ramkumar Rajendran
277F Keeping Teams in the Game: Predicting Dropouts in Online Problem-Based Learning Competition
Aditya Panwar, Ashwin T S, Ramkumar Rajendran and Kavi Arya

13:30-14:30 CSCL-5 Chair: Daniel Bodemer — Room A

161F Unveiling University Students' Data Literacy: A Case Study on Modeling Reasoning in Data Mining Projects
Tianqi Zhang
227F From Individual Ideation to Group Knowledge Co-Construction: Comparison of High- and Low-performing Groups
Wenli Chen, Guo Su, Xinyi Li, Qianru Lyu, Junzhu Su, Siew Cheng Aileen Chai and Eng Eng Ng

13:30-14:30 CUMTEL-3 Chair: Brendan Flanagan — Room B

BTDPN - 190S Teaching Analytics with xAPI: Learning Activity Visualization with Cross-platform Data
Izumi Horikoshi, Yuko Toyokawa, Kohei Nakamura, Changhao Liang, Rwitajit Majumdar and Hiroaki Ogata
306ES Learner Perceptions on Gamifying Active Video Watching Platforms
Pasan Peiris, Matthias Galster, Antonija Mitrovic, Sanna Malinen and Raul Lumapas

December 8

13:30-14:30 PTP-6 Chair: Akihiro Kashihara — Room C

222F Sustaining Students' Interest in an Instructional System Design Course by Leveraging Interest-Driven Creator Theory
Vishwas Badhe, Sunita Raste, Sahana Murthy and Sridhar Iyer
BOPN - 224F Supporting science teachers to select quality edtech learning solutions for their context
Shruti Jain, Sheeja Vasudevan, Madhuri Mavinkurve and Sahana Murthy

13:30-14:30 TELL-4 Chair: Lung-Hsiang Wong — Room D

BTDPN - 69S Effects of a Machine Learning-empowered Chinese Character Handwriting Learning Tool on Rectifying Legible Writing in Young Children: A Pilot Study
Lung-Hsiang Wong, Guat Poh Aw, He Sun, Ching-Chiuan Yen, Chor Guan Teo and Yun Wen
82S Using TAASSC to Investigate Fine-Grained Grammatical Complexity in Reading Texts of Two High-Stakes English Tests in China
Shengshu Lin
83S Using Multidimensional Analysis to Investigate the Extrapolation Inference of a High-Stakes Test
Shengshu Lin

December 8

14:40-16:00 ALT-9 Chair: Kae Nakaya — Hall

107S Adapting Noticing Framework to Analyze Learner's Reasoning in VR-simulated complex scenarios
Herold Pc and Chandan Dasgupta
112S Analysis of algorithmic strategy development in the development of computational thinking of upper elementary school students
Xiaowen Wang, Pinqi Hu and Guang Chen
124S A Comparative Study of Traditional and Augmented Reality-Based Engineering Drawing Instruction: Effects on Visualization Skills and Cognitive Load
Ajay Shankar Tiwari and Kaushal Kumar Bhagat
327ES Extraction of Characteristic Answering Behavior Using Handwritten Log Data
Junya Atake, Taito Kano, Kohei Nakamura, Chia-Yu Hsu, Izumi Horikoshi and Hiroaki Ogata

December 8

14:40-16:00 CSCL-6 Chair: Ben Chang — Room A

84S Investigating Trustworthiness and Conflict in Historical Multiple Texts: From Eye-Tracking Data of Source and Content Processing
Zheng-Hong Guan and Sunny S. J. Lin

230S Discussion support agent system to promote equalization of speech among participants
Ryunosuke Nishimura, Risa Iharada, Yuya Sugamoto, Yutaka Ishii, Toshio Mochizuki and Hironori Egi

238S Experimental Verification of "Peer-ness" Formation by a Learning Companion Robot — Possibility of inducing a sense of competition through long-term nonverbal interaction
Koki Honda, Yoshimasa Tawatsuji and Tatsunori Matsui

242S Study on The Development of Computational Thinking Decomposition Strategies for Senior Primary Students
Mengtao Li, Yaxin Guan and Guang Chen

December 8

14:40-16:00 PTP-7 Chair: Peter Seow — Room B

128S Investigating Student Teachers' Learning Experience and Choice of Participation Modalities in a HyFlex Course: A Mixed Methods Approach
Liang Jing Teh, Su Luan Wong, Mohd Zariat Abdul Rani, Mas Nida Md Khambari and Sai Hong Tang
258S Promoting Teachers' Digital Literacy Achievement: A Nationwide Survey of Education Informatization in China
Ziyan Che, Jiumei Yang, Longkai Wu and Di Wu
265S Learning with Conversational AI and Personas: A Systematic Literature Review
Antun Drobnjak, Ivica Boticki, Peter Seow and Ken Kahn
155S Matching Intervention Messages Considering Complex Personality Types of High School Students
Taisei Yamauchi, Yuta Nakamizo, Kyosuke Takami, Rwitajit Majumdar and Hiroaki Ogata

14:40-16:00 PTP-8 Chair: Natalia Demeshkant — Room C

87S What digital tools teachers are ready to use in kindergarten – international comparative study with early childhood pre-service teachers
Natalia Demeshkant, Siri Sollied Madsen, Aleksander Janeš, Andreja Klančar, Rita Brito, Ahmet Sami Konca, Sergey Krasin, Heidi Iren Saure, Jane O'Connor, Mustafa Jwaifell, Steinar Thorvaldsen and Sławomir Trusz
88S Democratising AI Education: Teaching Autoencoders to Out-of-School Children from Low-income Backgrounds
Saumay Garg
96S Informatics Education for University Students based on Text Input Time
Yuko Murakami and Tomohiro Inagaki

December 8

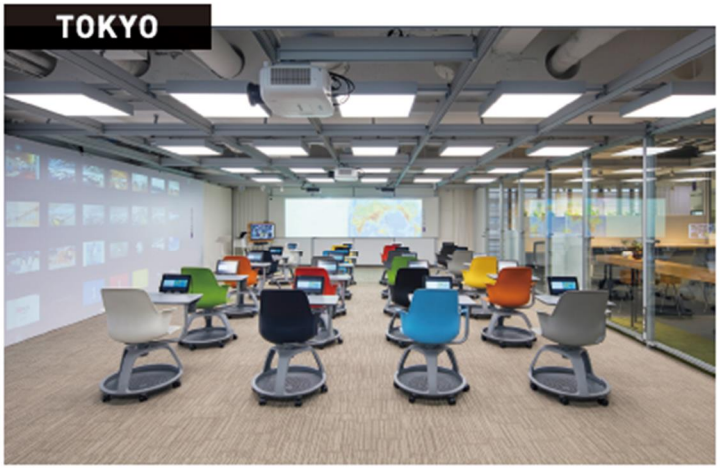
14:40-16:00 TELL-5 Chair: Brendan Flanagan — Room D

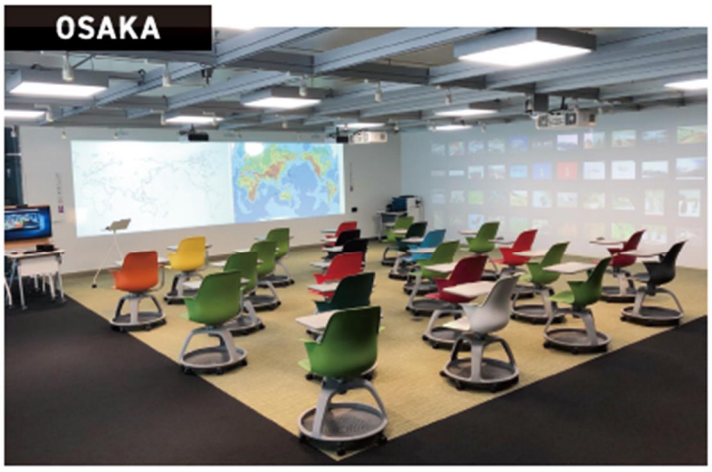
151S Construction of an English Grammar Quiz Recommendation System Using Explanation by a Knowledge Map
Kensuke Takii, Naomichi Tanimura, Brendan Flanagan and Hiroaki Ogata

152S Educational System of English Tense for Japanese Learners by Forming Temporal Constraints on Tense
Haruto Nagata, Tatsuhiro Konishi and Makoto Kondo

191S Exploring the use of chatbot to promote online EFL students' behavioral, cognitive, and emotional engagements
Xinyi Luo, Weijiao Huang, Khe Foon Hew, Chengyuan Jia and Xiangjie Cao

16:00-17:00 Closing Ceremony — Hall





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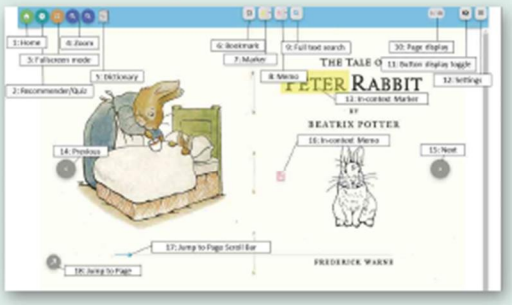
Individual optimization & Class improvement

LEAF
Learning and Evidence Analytics Framework

The LEAF system aims to use educational data to provide students with individually optimized instruction and environment for each student, and to reduce the teachers' burden through DX in education.

BookRoll



ログパレ
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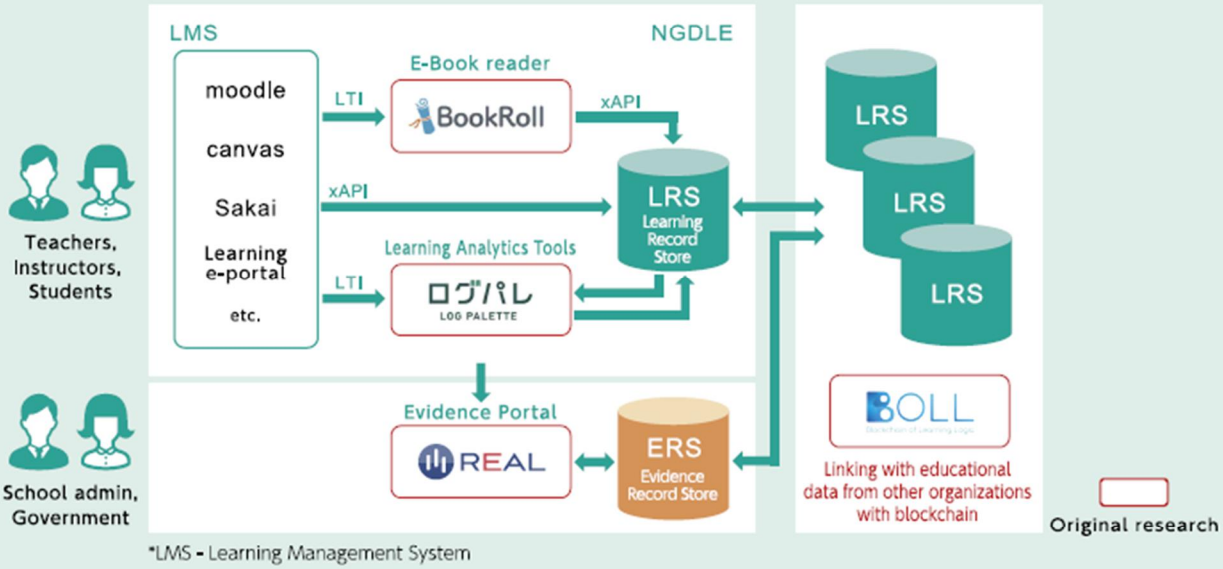
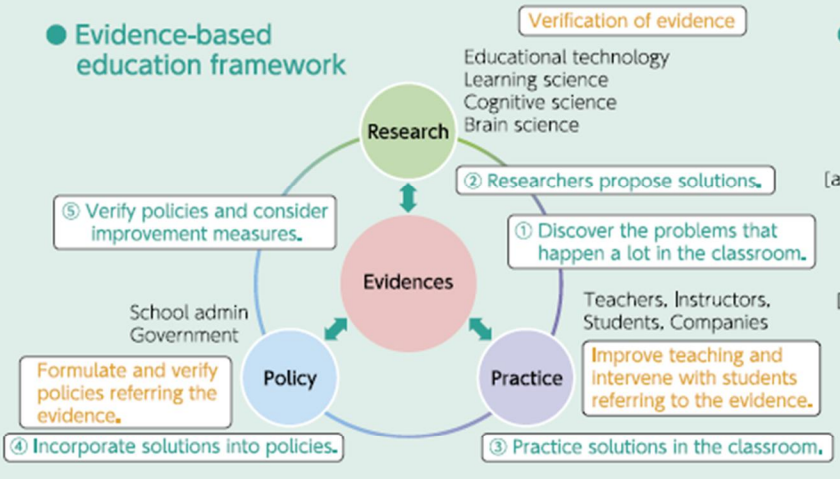
Concept of the LEAF System

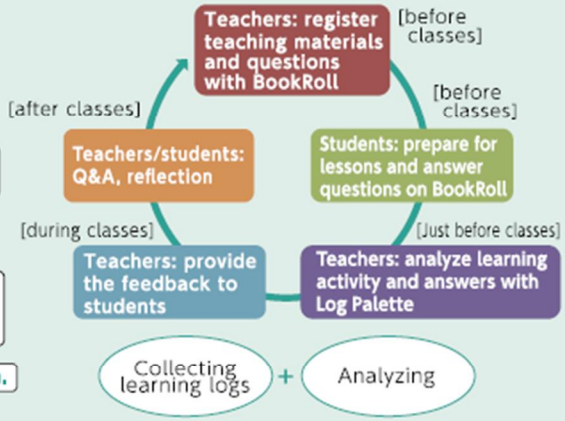


*LMS - Learning Management System

● Evidence-based education framework



● Teaching models using LEAF system



Learning and Educational Technologies Research Unit

BookRoll / Log Palette Office
Ogata Laboratory Academic Center for Computing and Media Studies, Kyoto University
E-Mail : contact@let.media.kyoto-u.ac.jp / https://www.let.media.kyoto-u.ac.jp

EDE
Research Council of Evidence-Driven Education
E-Mail : info@ederc.jp / https://www.ederc.jp

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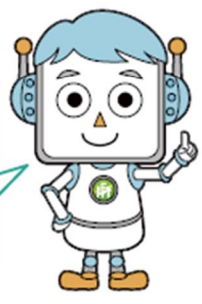


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ICCE 2023
December 4-8
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