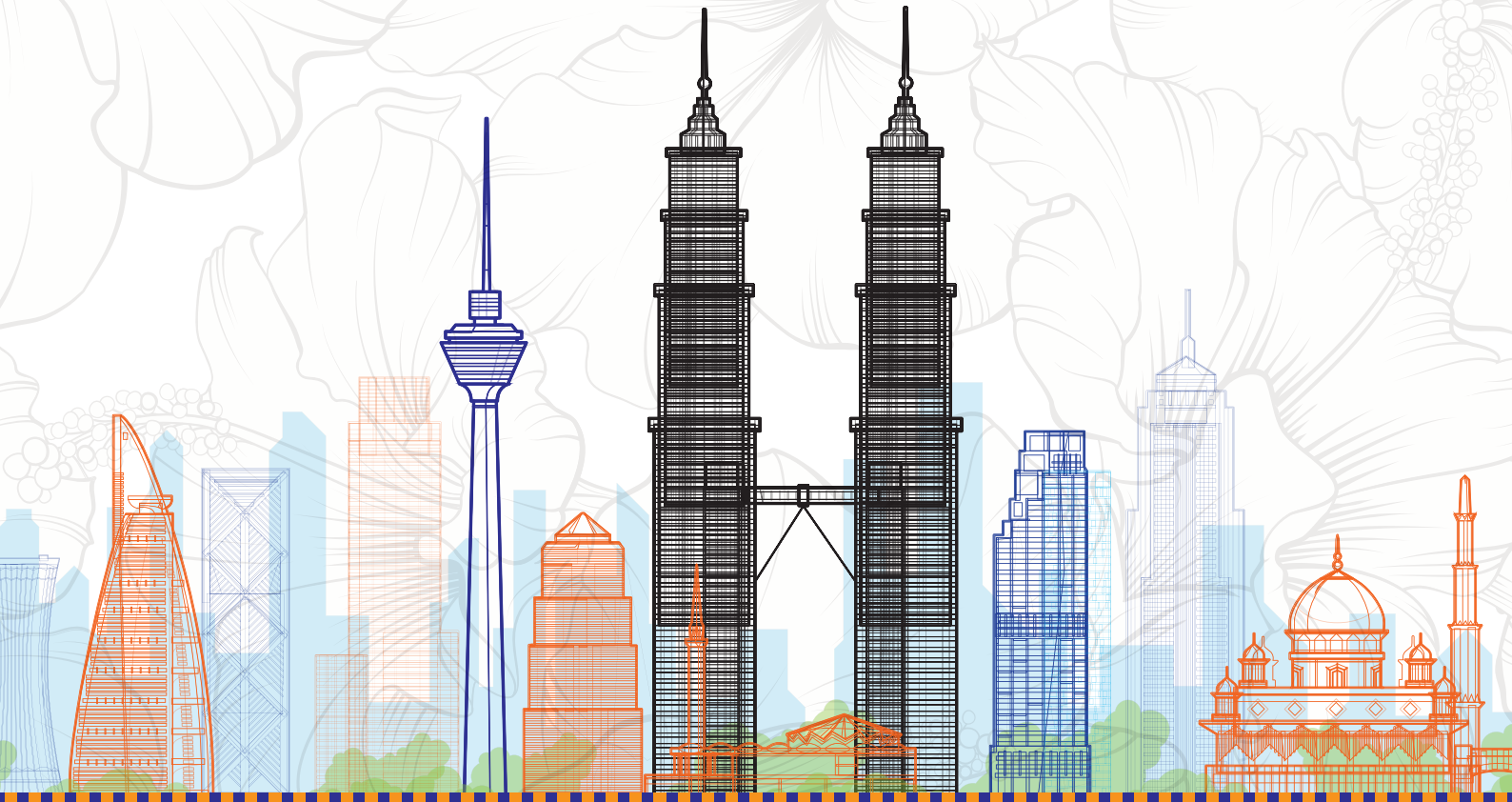
30TH INTERNATIONAL CONFERENCE ON COMPUTERS IN EDUCATION

ICCE 2022

KUALA LUMPUR, MALAYSIA

28 NOVEMBER - 2 DECEMBER 2022

PROGRAM BOOK



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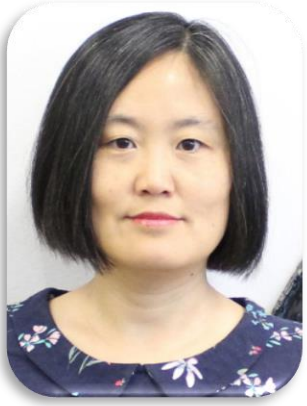
MESSAGE FROM THE CONFERENCE CHAIR



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 30th International Conference on Computers in Education (ICCE) 2022, the flagship conference series of the Asia-Pacific Society for Computers in Education (APSCE). After two years of virtual conferences in 2020 and 2021, this year we have our first hybrid conference with both in-person and online participants. ICCE is coming back to beautiful Malaysia that has successfully hosted ICCE 2010. Malaysia, with its pristine beaches, breath-taking islands and its diverse culture and rich history, will undoubtedly give participants a unique experience. The conference theme of ICCE 2022, "Optimising technology for sustainable quality education in the new norm" signifies the importance of sustainable learning augmented by technological innovations in the post-COVID era.

Four outstanding keynote speakers will share their insights across varying areas in the field of computers in education. Gwo-Dong Chen from the National Central University, Taiwan, will present how Digital Theater, an alternative approach to existing digital realities such as AR and VR, can support situational learning in the classroom. Rebecca Ferguson from the Open University, UK, will share with us innovative pedagogical models relevant for remote teaching and learning. Ryan Baker from the University of Pennsylvania, United States, will explicate machine-learned detectors in AIED systems and evidence and situations for successful model generalization. Su Luan Wong from

Universiti Putra Malaysia (UPM) will talk about how students' interest in educational technology can be developed through learning activities designed based on Interest Driven Creator (IDC) theory. There will also be three equally inspiring theme-based invited speeches. Hyo-Jeong So from Ewha Womans University, Korea, will discuss possibilities and challenges for mobile learning to make use of learner data in learning design and analysis. Jan van Aalst from the University of Hong Kong will share with us his insights and reflections on knowledge building as an educational model in the post-truth era. Yu-Ju Lan from the National

Taiwan Normal University will talk about new paradigm of language learning supported by emerging digital technologies. These speeches connect with the essence of the conference theme in different ways and will stimulate reflections and inspire us to rethink sustainable quality education in the new normal post-COVID era.

Indeed, organizing such a large-scale conference requires the orchestrated efforts and unwavering support from the conference organizing committee members and conference paper reviewers. The hybrid mode of ICCE 2022 also poses new challenges that we have not experienced previously. 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 Committees (LOC) chair and team members, International Program Coordination (IPC) chairs, Sub-conference chairs, Program Committee (PC) members and reviewers, organizers of Workshops, Tutorials, Work-In-Progress Posters (WIPP), Doctoral Student Consortiums (DSC), Posters, Early Career Workshops (ECW), and Executive Summaries (ES) 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 least, I would like to express my heartfelt appreciation to the Managing Secretary of APSCE Pham-Duc Tho for all he has done for the conference, 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 hope that you will have a productive and fun-filled time at this very special conference and leave Kuala Lumpur - a vibrant city with rich and amazing heritage—with beautiful, affectionate memories.

Thank you!

MESSAGE FROM THE INTERNATIONAL PROGRAM COORDINATION CHAIRS

Sridhar IYER
International Program Coordination Chair
Indian Institute of Technology, India

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

Welcome to the 30th International Conference on Computers in Education (ICCE)! Organized by the Asia-Pacific Society for Computers in Education. ICCE 2022 is being held physically in Kuala Lumpur, Malaysia, from November 28 to December 2, 2022. The conference is in hybrid mode, so those who are unable to attend physically can do so virtually.

ICCE 2022 continues the meta-conference tradition of the previous ICCEs. As such, the conference is organized into seven sub-conference programs specializing specific themes:

- **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)

In addition to the main program with seven sub-conferences, ICCE 2022 includes various program components, such as Keynote Speeches, Theme-based Invited Speeches, Workshops, Tutorials, Work-in-Progress Posters (WIPP), Extended Summaries (ES), Doctoral Student Consortiums (DSC), and Early Career Workshops (ECW). All the papers in these program components are compiled and published in a separate volume with its own ISBN. Pre-conference events are held on the first two days of the conference, including workshops, tutorials, panels, DSC, ECW, APSCE Student Wing Workshops, and SIG community building sessions.

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.

ICCE 2022 received a total of 153 submissions (120 full, 27 short, and 6 posters) from 36 different countries or economies. Top five countries with the highest number of submissions are Japan, Malaysia, Taiwan, India and China. Submissions were also received from the Middle East, Europe, America and Africa, which signals the international interest toward ICCE 2022.

All papers were subjected to a rigorous review process by at least three reviewers from the respective Sub-Conference program committees. After the reviews were completed, a meta-review was provided for each paper. In total, 544 reviews and 153 meta-reviews were received.

After the 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 32 full papers, 60 short papers, and 27 posters accepted across seven Sub-Conferences. The overall acceptance rate for full papers is 26.6%, which reflects our efforts to continue the maintenance of the quality of presentations at ICCE 2022.

The complete statistics of paper acceptance is shown in Table 1.

Table 1: Paper Acceptance Statistics

	Total Submissions	Submitted as Full Only	Accepted as Full	Full Only (%)	Accepted as Short	Accepted as Poster	Total Accepted	Overall Accepted (%)
C1 - AIED/ITS	31	26	7	26.92	15	1	23	74.19
C2 - CSCL/LS	22	13	4	30.77	7	7	18	81.82
C3 - ALT/LA	27	24	4	16.67	7	10	21	77.78
C4 - CUMTEL	13	9	3	33.33	6	1	10	76.92
C5 - EGG	18	15	4	26.67	7	2	13	72.22
C6 - TELL	11	8	3	37.50	4	3	10	90.91
C7 - PTP	31	25	7	28.00	14	3	24	77.42
Totals	153	120	32	26.67	60	27	119	77.78

The submission statistics by country, across all submissions (Main Conference, Workshops, WIPP, ES) is shown in Table 2.

Table 2: Submissions by country

Country	Submissions	Country	Submissions	Country	Submissions
Japan	62	Sweden	4	UAE	1
Malaysia	31	Spain	3	Italy	1
Taiwan	25	South Korea	3	Oman	1
India	23	Estonia	2	New Caledonia	1
China	22	Indonesia	2	UK	1
Philippines	21	Switzerland	2	Austria	1
United States	20	Croatia	2	Brunei Darussalam	1
Hong Kong	16	Germany	2	Nepal	1
Thailand	14	Poland	2	New Zealand	1
Singapore	12	France	2	Norway	1
Canada	6	Tunisia	2	Peru	1
Australia	5	Vietnam	2	South Africa	1

We are grateful to all who contributed to ICCE 2022's success. We thank all the paper authors for choosing ICCE 2022 as the venue to present their 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 sharing inspiring research with the ICCE 2022 participants. We are grateful to the APSCE community for continuing to make the valuable contributions to education that will help shape the minds, hearts, and spirits of future generations.

MESSAGE FROM THE LOCAL ORGANIZING COMMITTEE CHAIR

Mas Nida MD KHAMBARI
Local Organizing Committee Chair
Universiti Putra Malaysia, Malaysia

Selamat Datang, Welcome to Malaysia!

On behalf of the organising committee, I would like to extend my warm welcome to all delegates of the 30th International Conference on Computers in Education (ICCE 2022), held for the third time in Malaysia.

It is a great pleasure and honour to host ICCE 2022 as it recommences physically this year — adopting the hybrid mode. I am sure many of us are excited to meet each other again. ICCE 2022 is an important and timely event for researchers, educators, and practitioners to reconnect after having to meet virtually for the past two years (ICCE 2020 & ICCE 2021). The theme of the conference, "Optimising technology for sustainable quality education in the new norm," aptly reflects what we had recently experienced and looking forward to, in the future. Digital technologies adoption has taken an exponential leap during the global COVID-19 pandemic – transforming education in the new norm. When digital education ensues, technologies are widely optimised for learning. Universiti Putra Malaysia, along with other Research Universities in Malaysia, has taken an ardent role in ensuring the sustainability of education during the pandemic. Extensive efforts were taken to equip academics and students with digital literacy and competency, and digital devices. This process was progressive as we extended the efforts to equip classrooms with hyflex facilities to support the transactional distance caused by COVID-19. Universiti Putra Malaysia

especially, has built Putra Future Classroom, Putra Hybrid Classrooms, Putra® Smart Classroom, to name a few.

It is a great privilege to share our beautiful country with you. I hope you will be able to enjoy Kuala Lumpur, one of the most vibrant cities in Asia that possesses a distinct and charming character. Situated in the Golden Triangle, Impiana KLCC, our conference venue, is adjacent to the Petronas Twin Towers, the world-renowned icon of the country. Fondly known for its authentic Malaysian hospitality, this hotel is an oasis for business and leisure travellers. There are many possibilities for sightseeing and experiencing Kuala Lumpur and Malaysian culture before and after the conference; all of which are within a 10-minute walking distance via the sky-bridge. I encourage you to explore our website page for tourist information where you will find useful information on places to go.

I would like to thank the APSCE Executive Committee for giving us this wonderful opportunity. Our sincere thanks to all the sponsors, the standing committee, the International Program Committee, reviewers, authors, participants and student volunteers. We trust all of you will enjoy the conference, and take home great memories from Kuala Lumpur, Malaysia.

Till Later, Sampai Bertemu Lagi!

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Oslo Metropolitan University and University of Bergen, Norway

International Program Coordination Chair
Sridhar IYER
Indian Institute of Technology, India

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

Local Organizing Committee Chair
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Universiti Putra Malaysia, Malaysia

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Pham Duc THO, Asia-Pacific Society for Computers in Education HQ

Sub-Conference

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

PC Executive Chair
Patcharin PANJABUREE, Mahidol University, Thailand
PC Co-Chairs
Ryan BAKER, University of Pennsylvania, United States
Sabine SEUFERT, University of St. Gallen, Switzerland

C2: Computer-supported Collaborative Learning (CSCL) and Learning Science

PC Executive Chair
Sahana MURTHY, Indian Institute of Technology Bombay, India

PC Co-Chairs
Daniel BODEMER, University of Duisburg-Essen, Germany
Camillia MATUK, New York University, United States
Chew Lee TEO, Nanyang Technological University, Singapore
Kate THOMPSON, Queensland University of Technology, Australia

C3: Advanced Learning Technologies (ALT), Learning Analytics and Digital Infrastructure

PC Executive Chair
Rwitajit MAJUMDAR, Kyoto University, Japan

PC Co-Chairs
Mohammed SAQR, University of Eastern Finland, Finland
Gökhan AKCAPINAR, Hacettepe University, Turkey
Khalid KHAN, Charles Darwin University, Australia
Lakshmi GANESH, Kotak Education Foundation, India

C4: Classroom, Ubiquitous, and Mobile Technologies Enhanced Learning (CUMTEL)

PC Executive Chair
Daner SUN, The Education University of Hong Kong, Hong Kong

PC Co-Chairs
Martina HOLENKO DLAB, University of Rijeka, Croatia
Grace QI, Massey University, New Zealand
Yuqin YANG, Central China Normal University, China

C5: Educational Gamification and Game-based Learning (EGG)

PC Executive Chair
Mouna DENDEN, University of Tunis, Tunisia

PC Co-Chairs
Jewoong MOON, University of Alabama, United States
Hafed ZARZOUR, Souk Ahras University, Algeria
Junfeng YANG, Hangzhou Normal University, China

C6: Technology Enhanced Language Learning (TELL)

PC Executive Chair
Liliana CUESTA, Universidad de La Sabana , Colombia

PC Co-Chairs
Carl ANDERSON, Universidad de La Sabana, Colombia
Michelle MARSEE, Chandler-Gilbert Community College, United States
Rosa Dene DAVID, Universidad de La Sabana, Colombia

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

PC Executive Chair
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PC Co-Chairs
Ivica BOTICKI, University of Zagreb, Croatia
Dan KOHEN-VACS, Holon Institute of Technology, Israel
Jayakrishnan MADATHIL, Indian Institute of Technology Madras, India

Workshops/ Interactive Events

Chair
Chiu-Lin LAI, National Taipei University of Education, Taiwan

Co-Chairs
Atima KAEWSA-ARD, Mae Fah Luang University, Thailand
Shwu Pyng HOW, Universiti Putra Malaysia, Malaysia

Tutorials

Chair
Kaushal Kumar BHAGAT, Indian Institute of Technology Kharagpur, India

Co-Chair
Sagaya AMALATHAS, University of Southampton, Malaysia campus, Malaysia

Work-in-Progress Posters (WIPP)

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Mi Song KIM, University of Western Ontario, Canada

Co-Chairs
Atima KAEWSA-ARD, Mae Fah Luang University, Thailand
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Siti Khadijah ALI, Universiti Putra Malaysia, Malaysia
Mohd Hazwan MOHD PUAD, Universiti Putra Malaysia, Malaysia

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Nor Azni ABDUL AZIZ, Universiti Putra Malaysia, Malaysia

Early Career Workshops (ECW)

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Extended Summaries (ES)

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Arnida ABDULLAH, Universiti Putra Malaysia, Malaysia

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Nur Aira ABD RAHIM, Universiti Putra Malaysia, Malaysia

Special Interest Groups (SIG) 2022-2023

S1: Artificial Intelligence in Education/Intelligent Tutoring Systems/Adaptive Learning (AIED/ITS/AL)
May Marie TALANDRON-FELIPE
University of Science and Technology, Phillipines

S2: Computer-supported Collaborative Learning and Learning Sciences (CSCL)
Elizabeth KOH
Nanyang Technological University, Singapore

S3: Advanced Learning Technologies, Learning Analytics, Platforms and Infrastructure (ALT)
Eunice SARI
UX, Indonesia

S4: Classroom, Ubiquitous, and Mobile Technologies Enhanced Learning (CUMTEL)
Daner SUN
The Education University of Hong Kong, Hong Kong

S5: Educational Gamification and Game-based Learning (EGG)
Ahmed TLILI
Beijing Normal University, China

S6: Technology Enhanced Language Learning (TELL)
Vivian WU
Asia University, Taiwan

S7: Practice-driven Research, Teacher Professional Development and Policy of ICT in Education (PTP)
Mas Nida MD KHAMBARI
Universiti Putra Malaysia, Malaysia

S8: Development of Information and Communication Technology in the Asia-Pacific Neighborhood (DICTAP)
Patcharin PANJABUREE
Mahidol University, Thailand

S9: Educational Use of Problems/Questions in Technology-Enhanced Learning (EUPQ)
Takahito TOMOTO
Tokyo Polytechnic University, Japan

S10: Learning Analytics and Educational Data Mining (LAEDM)
Ramkumar RAJENDRAN
Indian Institute of Technology Bombay, India

S11: Computational Thinking Education & STEM Education (CTE&STEM)
Chee Kit LOOI
Nanyang Technological University, Singapore

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Zhi-Hong Chen, National Taiwan Normal University, Taiwan
Boussaha Karima, Universite Badji Mokhtar Annaba, Algeria
Hiroyuki Mitsuhara, Tokushima University, Japan
Ju-Ling Shih, National Central University, Taiwan
Amina Zedadra, University of Guelma, Algeria
Chih-Pu Dai, Florida State University, United States
Jorge Simões, Institute Superior Politécnico Gaya, Portugal
Susan Gwee, English Language Institute of Singapore, Singapore
Abdelmalek Bouguettaya, Research Centre in Industrial Technologies (CRTI), Algeria
JaeHwan Byun, Wichita State University, United States
Luke West, Florida State University, United States
Khaled Halimi, Universite 8 Mai 1945 Guelma, Algeria
Kaoru Sumi, Future University Hakodate, Japan
Liz Bacon, Abertay University, Scotland
Jina Kang, University of Illinois Urbana-Champaign, United States
Gi Woong Choi, University of Cincinnati, United States
Mohamed Koutheaïr Khribi, Mada-Qatar Assistive Technology Center, Qatar
Mahnane Lamia, University of Badji Mokhtar, Annaba, Algeria
Ting-Wen Chang, Beijing Normal University, China
Jakub Swacha, University of Szczecin, Poland
Yassine Safsouf, LIMIE Laboratory, ISGA Group, Morocco
Sungwoong Lee, University of West Georgia, United States
Hafidi Mohamed, University of Badji Mokhtar, Algeria

Yanjun Pan, Florida State University, United States
Samia Drissi, Univeristé de Souk Ahras, Algeria
Fezile Ozdamli, Near East University,Turkey
Gheorghita Ghinea, Brunel University, United Kingdom
Ana Manzano-León, University of Almería, Spain
Sabine Graf, Athabasca University, Canada

C6 PC Members

Oi Misato, Kyushu University, Japan
Brendan Flangan, Kyoto University, Japan
Ju-Ling Shih, National Central University, Taiwan
Sahana Murthy, Indian Institute of Technology Bombay, India
Michelle Marsee, Chandler-Gilbert Community College, United States
Yanjie Song, The Education University of Hong Kong, Hong Kong
Agnieszka Palalas, Athabasca University, Canada
Apostolos Koutropoulos, University of Massachusetts Boston, United States
Alex Boulton, University of Lorraine, France
Xin Chen, Indiana University, United States
Yasushige Ishikawa, Kyoto University of Foreign Studies, Japan
Jiahang Li, Michigan State University, United States
Yanhui Han, The Open University of China, China
Jie-Chi Yang, National Central University, Taiwan

C7 PC Members

Ahmed Mohammed, Linnaeus University, Sweden
Ajita Deshmukh, MIT-ADT University, Pune
Anabil Munshi, Vanderbilt University, United States
Arriel Benis, Holon Institute of Technology, Israel
Ashutosh Raina, Indian Institute of Technology Bombay, India
Bernard Yett, Vanderbilt University, United States
Brendan Flanagan, Kyoto University, Japan
Caitlin Snyder, Vanderbilt University, United States
Eran Gal, Holon Institute of Technology, Israel
Gayithri Jayathirtha, University of Pennsylvania, Philadelphia
H. Ulrich Hoppe, University Duisburg-Essen / RIAS Institute Duisburg, Germany
Hayley Weigelt-Marom, Holon Institute of Technology, Israel
Joke Voogt, University of Amsterdam, Netherlands
Kapil Kadam, Indian Institute of Technology Bombay, India
Lucian Vumilia Ngeze, Indian Institute of Technology Bombay, India
Marc Jansen, University of Applied Sciences Ruhr West, Germany
Marcelo Milrad, Linnaeus University, Sweden
Martina Holenko Dlab, University of Rijeka, Croatia
Narasimha Swamy, Indian Institute of Technology Bombay, India
Navneet Kaur, Indian Institute of Technology Bombay, India

Pankaj Chavan, Deogiri Institute of Engineering and Management Studies, India
Rotem Israel-Fishelson, Tel Aviv University, Israel
Shu-Shing Lee, Nanyang Technological University, Singapore
Veenita Shah, Indian Institute of Technology Bombay, India
Winnie Wai Man Lam, The Education University of Hong Kong, Hong Kong
Yogendra Pal, NIIT University, India

ABOUT THE CONFERENCE

The 30th International Conference on Computers in Education (ICCE 2022) is organized by the Asia-Pacific Society for Computers in Education (APSCE) and hosted by Universiti Putra Malaysia. ICCE 2022 will be held as a hybrid conference (virtual and physical), with the physical conference conducted in Kuala Lumpur from November 28 to December 2, 2022 (Monday to Friday). Pre-conference events (workshops and tutorials) will be conducted on the first two days. The main conference will begin on November 30, 2022.

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 Theme

Optimising technology for sustainable quality education in the new norm Digital technologies adoption has taken an exponential leap during the global COVID-19 pandemic – transforming education in the new norm. When digital education ensues, technologies are widely optimised for learning. Although it has brought extraordinary challenges, it also presents opportunities to sustain learning by allowing learners to learn despite educational institution closures. In the aftermath of the pandemic, more educational institutions continue to adopt digital technologies to sustain learning. This has accelerated innovations in learning design which augment quality and meaningful learning. In the new norm, sustainable quality education is possible to achieve with the optimisation of technology thus reaffirming the belief that education is one of the most powerful and proven vehicles for sustainable development.

Conference Venue

The conference will be held at Impiana KLCC, Kuala Lumpur.

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.

HYBRID CONFERENCE GUIDELINES

ICCE 2022 is hybrid, which means that on-site and online participants will be assigned to a physical room at the conference venue. The video conferencing platform for online presentations and participation is Zoom, and the platform for poster presentation is Gathertown.

1. Online participants will have to log on to Zoom to join the on-site participants in the physical room for presentation. Each physical room is equipped with Zoom as well so that on-site participants can communicate with online participants.

2. The link to individual online sessions is announced on the Virtual ICCE Interactive Program at the Location field when seeing the sessions details (or the link below the sessions title at the main interactive page). Please take note that Your Local timestamps on the Interactive Program page only works if JavaScript is enabled.

ONLINE PRESENTATION GUIDELINES

1. Prior to the conference, all online presenters (and participants) are required to install the Zoom client software on their computers, and make sure their webcams and microphones are properly functioning.

2. The link to individual online sessions is announced on the Virtual ICCE Interactive Program at the Location field when seeing the sessions details (or the link below the sessions title at the main interactive page). Please take note that Your Local timestamps on the Interactive Program page only works if JavaScript is enabled.

3. Presenters must logon and join the assigned Zoom room **15 minutes** prior to the presentation sessions with computers or devices that could display their presentation materials (MS PowerPoint, PDF, or software to demonstrate, etc.). Do take note that such materials might not be able to be properly displayed on smartphones.

4. Presenters are required to turn on their webcams, share the screen, and show their faces during their presentations and the subsequent Q&A activities.

5. One Technical Support Assistant will be assigned to each room to assist the authors on technical matters. Authors also can contact the Technical Supporters via technical@icce2022.apsce.net.

6. Please check in with your Session Chair before the session in which your presentation begins.

7. Video camera, microphones, data projectors (HD) with HDMI and VGA input are provided in each session room. A standard Windows 10 laptop with MS Office will be set and connected to the data projector. You may copy your presentation file (MS Powerpoint or PDF) to this laptop.

8. You may also bring your own laptop but it must be installed with Zoom. If you wish to use your own laptop, you must log on to Zoom so that you can share your screen with the online participants.

9. Please set up and test your presentation in the designated room prior to your session.

10. If there is a cancellation of a presentation, please do not start earlier. You must wait until the scheduled time.

Hybrid Conference Guidelines

30th International Conference on Computers in Education

This year, ICCE is conducted in a hybrid mode, which means on-site and online participants will be assigned to a physical room at the conference venue. This also means that all on-site and online participants can present their work in the same session. Here's how you can prepare yourself for the hybrid conference mode.

1 Activate ID

Participants will receive an email to activate their ID on the ICCE 2022 Website. This ID is given to all on-site and online participants so that they can have access to all hybrid events.

Install & Logon Zoom 2

Online participants will have to log on to Zoom to join the on-site participants in the physical room for presentation. Each physical room is equipped with Zoom as well so that on-site participants can communicate with online participants.

3 Finding Your Online Room

The link to individual online sessions is announced on the Virtual ICCE Interactive Program at the Location field when seeing the sessions details (or the link below the sessions title at the main interactive page). Please take note that Your Local timestamps on the Interactive Program page only works if JavaScript is enabled.

Presentation 4

Online presenters must logon and join the assigned Zoom room 15 minutes prior to the presentation sessions with computers or devices that could display their presentation materials (MS PowerPoint, PDF, or software to demonstrate, etc.). Do take note that such materials might not be able to be properly displayed on smartphones.

5 Poster Presentations

The main platform for online poster presentations will be GatherTown. The poster presentations comprise two components, (1) online sharing of digital posters and five-minute pre-recorded oral presentations (for on-site and online presenters); (2) live interaction with online participants during a designated poster presentation session via the Gathertown platform (for online presenters).

https://zoom.us/download

Participants need to install the Zoom client software on their computers, and make sure the webcam and microphone are properly functioning.

Gather

https://www.gather.town/

Participants are encouraged to logon to GatherTown prior to ICCE to familiarize themselves with the environment, and make sure the webcam and microphone are properly functioning.

Contact

The LOC Technical Team can be contacted via technical@icce2022.apsce.net

POSTER PRESENTATION GUIDELINES

On-site Poster Presentation Guidelines

1. Your poster should be within 594mm (width) x 841 mm (height). The orientation of posters is Portrait.

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

3. 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.

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

5. Wi-Fi Internet connection will be provided.

Online Poster Presentation Guidelines

1. The main platform for online poster presentations is Gathertown. Each online poster presenter will get a link to access their Digital Booth. This link will be emailed to the online presenters.

2. Poster presenters must name their avatar when entering Gathertown to the following format: <Poster ID><Presenter Name>

3. Online poster presenters must prepare a digital poster. Digital posters must be a .png or .jpg file.

4. Use a 16:9 aspect ratio: Minimum width is 1000 px (24.46 cm) and Minimum height is 600 px (15.88 cm)

5. Landscape is preferable to view the full image, but portrait can be used with scrolling.

6. You can use PowerPoint, Canva, or another third-party application to design and save a 16:9 image.

7. You can use the same file for the preview image, but for the best view, we recommend an image that is half the width and height of the image.

8. Please note that the maximum file size is 3 MB.

9. Please do not use a transparent background at all for your poster.

10. Digital posters must be emailed to info@icce.apsce.net before/by November 20, 2022. Please name the poster file as follows: <Poster ID>

11. The poster presentations comprise two components:

    a. Online sharing of digital posters and five-minute pre-recorded oral presentations;

       Online sharing. Digital posters will be displayed on the Digital Booth in Gathertown from November 28 to December 2. On-site and online participants can view the posters during the conference.

       Pre-recorded presentations. Please record a five-minute presentation and upload it on youtube.com. Email the URL of the presentation on Youtube to info@icce.apsce.net before/by November 23, 2022.

    b. Live interaction with online participants digital posters will be held on November 30, 2022 at 12:30-1:30pm (GMT+8). Presenters are expected to be at their Virtual Poster Booth at least 15 minutes prior to the presentation time.

Online Social Site

There will be three sites on Gathertown for online participants to socialize. On-site participants may also access the Online Social Site to meet online participants.

Each site comprises one poster hall and one lounge. Participants may choose to socialize in any of these rooms. There will also be interactive items embedded in each room for participants to explore.

REGISTRATION

Registration
Upon first arrival at the Conference, proceed to the Registration Desk or the Secretariat Room at the Business Center, located on the Level 1 of Impiana KLCC Hotel. Please show any ID that indicates your name and collect your conference kit.

Registration dates and times:
November 27 & 29: 20:00 – 22:00 (GMT+8)
November 28, 29 & 30: 08:00–16:00 (GMT+8)

Meals
Snacks and buffet lunches will be served with labels.
All meal is Halal and vegetarian meal will be served with labels.

Social Events
The Welcome Cocktail Reception (evening of November 29, 2022) will be held at the Cedar@15, located at Level 15, Impiana KLCC.

The Banquet (evening of December 1, 2022) will be held at the Grand Ballroom, located at Level 3, Impiana KLCC.

Prayer Room
A prayer room is provided near the conference halls. Please ask our conference volunteers to guide you to the room.

Conference Secretariat
If you need information and assistance, please visit the Registration Desk or the Secretariat Room at the Business Center, located at Level 2, Impiana KLCC.
Email: info@icce2022.apsce.net

LOCAL INFORMATION

Weather/Climate
Malaysia has a tropical monsoon climate. There are high chances of precipitation in the months of November and December. The average temperature in these months falls between 22°C and 32°C.

Language
Malaysia, especially Kuala Lumpur, is generally bilingual (English and Bahasa Melayu). Provinces and regions across the country also speak a variety of dialects.

Electrical Voltage
In Malaysia the power plugs and sockets are of type G. The standard voltage is 240V and the standard frequency is 50 Hz.

Telecommunications
Prepaid mobile SIM cards are widely accessible in airports, malls, and convenience stores. ICCE 2022 recommends the services of Celcom and Maxis.

Smoking
The ICCE 2022 Conference Venue is generally non-smoking.

Getting Around

When travelling from the airport, or any other place in Kuala Lumpur, there are several options for transportation. ICCE 2022 recommends the following:

➔ **Airport Taxi**

Airport Limo (M) Sdn. Bhd. (Airport Limo), provides reliable taxi, first-class chauffeured airport transportation and limousine service from KLIA to selected areas in Kuala Lumpur and Selangor

Type of Taxi / Limo	Model	Capacity	Fares
Budget taxi	Deawoo Tacuma	3 to 4 passengers only	RM3.00 for the first 1 km or first 3 minutes, RM0.10 for each consequent 115 meters or consequent 21 seconds. 50% surcharge from 12 am - 6 am
	Proton Wira	3 passengers only	
Premier Limo	Renault Enviro	4 to 5 passengers only	RM6.00 for first 1 km or first 2 minutes, RM0.20 for each consequent 150 meters or consequent 45 seconds. 50% surcharge from 12 am - 6am
	Mercedes E220	4 passengers only	
Super Luxury	Jaguar S-Type	3 passengers only	
Family Service	Kia Pregio Van	8 passengers only	

The taxi and limo services operate through a coupon system that can be purchased at the locations below:

- International Arrival Hall (just after Customs, before the public arrival area)
- Domestic Arrival Hall (public area after Domestic Baggage Clearance)
- Domestic Baggage Reclaim, Arrival Level

➔ **Metered Taxi**

Available at Level 1 and Level 3 of the Main Terminal Building, metered taxis offer an alternative for travellers to get around. Passengers need to purchase a coupon of RM 2.00 prior to boarding these taxis.

➔ eHailing: Grab

- Download the mobile application and register for an account. This service requires and internet connection.
- Specify your pick-up point and your destination.
- If coming from the airport, specify the airport terminal as the pick-up point.
- The application will display an estimated fare to be paid. Payment may be made in cash (Malaysia Ringgit) or charged to your credit card or debit card.
- The application displays a notification with the vehicle and driver information. Most vehicles accommodate four passengers and two medium-sized luggage.

➔ Car Rental

Below are the car rental companies in KLIA, located at the Main Building Terminal:

Company	Location	Operation Hours	
Kasina Baru	Counter B16 Arrival Hall	7.00 am – 10.00 pm	(Sun & Public Holidays): 8.30 am - 5.00 pm
Hertz Car Rental	Counter B10 Arrival Hall	(Mon - Sat): 7.30 am – 10.00 pm	
Pantas Rent A Car	Lot CR17, Block 'D', Car Park	7.30 am – 10.30 pm	(Sun & Public Holidays): 9.00 am - 5.00 pm
Mayflower Car Rental	Counter C1 Arrival Hall	7.00 am – 11.00 pm	
Orix Car Rental	Counter C2 Arrival Hall	7.00 am – 11.00 pm	(Sat, Sun & Public Holidays): 8.00 am - 6.00 pm
Insas Pacific Rent A Car	Counter C4 Arrival Hall	7.00 am – 10.00 pm	
Avis Car Rental	Counter C6 Arrival Hall	7.00 am – 10.00 pm	

For more airport information, visit
https://airports.malaysiaairports.com.my/

Time Zone
Malaysia follows the GMT+8 time zone.

Currency
The Malaysia Ringgit (MYR) is the national currency of Malaysia. Foreign Currency Exchange centers and banks are easily accessible in most parts of the country.

Shopping and Dining
The areas surrounding Impiana KLCC cater multiple shopping malls, with stores and restaurants.

- Suria KLCC
- Quill City Mall
- SOGO
- Pertama Complex First Shopping Center
- The Intermark Mall
- The Linc

Tourist Attractions
ICCE 2022 invites participants to explore the most magnificent sights and hidden – treasures the city has to offer. Participants may make their own arrangements and bookings at their own cost, according to their own schedules. The LOC recommends the following tourist attractions around the hotel:

Esplanade – Lake Symphony
Distance: 450 meters away, 6 minutes
Show Time: KLCC Lake Symphony Light and Sound Water Fountain – 8 pm, 9 pm, and 10 pm daily
Show Time: KLCC Lake Symphony Water Fountain (Light only) – 7.30 pm, 8.30 pm, and 9.30 pm daily

Petrosains Discovery Centre – High-tech Science Discovery Centre
Distance: 450 meters away, 6 minutes
Location: Level 4, Suria KLCC
Operation hours: Monday to Friday – 9.30 am to 5.30 pm (Last admission: 4.00 pm)
Weekend, public holiday & school holiday – 9.30 am to 6.30 pm (Last admission: 5.00 pm)

Skybridge Petronas Twin Towers – An amazing bird's eye view of the city
Distance: 450 meters away, 6 minutes
Location: Levels 41 and 42, Suria KLCC
Operation hours: Tuesday to Sunday (Monday – closed) – 9 am to 9 pm

Aquaria KLCC – An Ocean of Discovery
Distance: 180 meters away, 3 minutes
Operation hours: 10.00 am to 7.00 pm
(last entry 6.00 pm)

Suria KLCC – Malaysia's Premier Shopping Centre
Distance: 450 meters away, 6 minutes
Operation hours: 10.00 am to 10.00 pm

Pavillion Kuala Lumpur – Modern Shopping Mall and Restaurants
Distance: 700 meters away, 10 minutes
Operation hours: 10.00 am to 10.00 pm
The LOC also recommended a cultural tour around Kuala Lumpur. We will update you on the travel agency you can get in touch with to learn more about the tour. The cultural tour will include these tourist attractions in Kuala Lumpur.

Petronas Twin Towers
The 88-storey Petronas Twin Towers are the 11th tallest buildings in the world. These twin towers are a landmark and icon of Kuala Lumpur, along with the nearby Kuala Lumpur Tower. You can take a ride up to the observation deck, which is 557 feet (170 meters) above ground, and marvel at the cityscape while taking in the view from the Skybridge.

Craft Complex
The Kuala Lumpur Craft Complex is a tourist stopover destination with an iconic art concept located in the middle of the city center. This local craft center offers tourism-related products such as art and craft-based products, for local and overseas visitors. This complex, which is characterized by Terengganu Malay architecture, brings together traditional and modern contemporary handcraft products from all corners of the country.

Petaling Street Chinatown
Petaling Street (Jalan Petaling) is a Chinese settlement area (Chinese Town) in Malaysia during the British colonial era. For many years, Jalan Petaling has been a place of business and maintains the traditions and culture of the Chinese community in Malaysia, with Buddhist temples and shops selling plugs, traditional medicine, and Chinese eateries. In the early evening until late at night, hawkers will sell their wares on the street with various items for sale. You can stroll the streets and shop alleyways packed with food stalls selling a wide range of foods and local goods.

Central Market Kuala Lumpur
Central Market (Pasar Seni) is an interesting art indoor bazaar around the city of Kuala Lumpur, Malaysia. The location is located near the Klang River which is not far from

Petaling Street, Chinatown. The spacious market offers a variety of foods and distinctive souvenirs along with traditional Malaysian goods.

Merdeka Square (Dataran Merdeka)

Merdeka Square, formerly known as Padang Kelab Selangor, is located in the old administrative centre of Kuala Lumpur. It is situated in front of the Sultan Abdul Samad Building which is the most important landmark built by the British. It is a symbol of Malaysian independence and one of the most picturesque squares in the world. A 95-metre flagpole, one of the tallest in the world, marks the site with a circular slab of black marble. Take some beautiful photos and be amazed by both the traditional and modern architectural masterpieces of this place.

National Mosque (Masjid Negara)

The National Mosque is the main mosque in Malaysia, one of the most stunning structures in Kuala Lumpur which was constructed in 1965 and has 48 smaller domes scattered across the Mecca-inspired courtyard in addition to a magnificent main dome covered in green and blue tiles. It is located in a strategic area of Kuala Lumpur City Center next to the Malaysian Railway Station, Daya Bumi Building, Malaysian Post Office, Islamic Art Museum, Kuala Lumpur Bird Park, and close to Perdana Lake Park, Kuala Lumpur. This mosque was built in 1963 and inaugurated on 27 August 1965. This mosque is a symbol of the majesty of Islam as the official religion in Malaysia.

National Monument (Tugu Negara)

The National Memorial (also known as the National Monument) was completed on February 8, 1966 in honor of more than 11 thousand soldiers who died in Malaysia's struggle for freedom, principally against the Japanese occupation during World War II and the Malayan Emergency, which lasted from 1948 until 1960. It is located in the capital, Kuala Lumpur near the Parliament building.

National Museum

The National Museum is one of the unique buildings in Malaysia. The National Museum is a museum located in Jalan Damansara, Kuala Lumpur, Malaysia. The museum is located near Perdana Lake Garden. This National Museum has a combination of traditional Malay palace design combined with modern taste. The National Museum was officially opened on August 31, 1963. It exhibits collections of weapons, traditional clothing, and works of art from the past as well as the present for public exhibition.

CONFERENCE PROGRAM

Program at a Glance

<table>
<tr><th>TIME</th><th colspan="2">Nov 28th
Monday</th><th colspan="2">Nov 29th
Tuesday</th><th>TIME</th><th>Nov 30th
Wednesday</th><th>TIME</th><th>Dec 1st
Thursday</th><th>TIME</th><th>Dec 2nd
Friday</th></tr>
<tr><td>08:30-
09:00</td><td colspan="2">Registration
Foyer Level 1</td><td colspan="2">Registration
Foyer Level 1</td><td>08:30-
09:00</td><td>Registration
Foyer Level 1</td><td>08:30-
09:00</td><td>Registration
Foyer Level 1</td><td>08:00-
09:00</td><td>Keynote 4
Room A + B</td></tr>
<tr><td rowspan="5">09:00 -
10:30</td><td rowspan="5">Workshops</td><td>W02 – 1:
Room A</td><td colspan="2">Tutorial 1-1:
Room A</td><td rowspan="4">09:00-
9:40</td><td rowspan="2">SIG Leaders
Meeting:
Room C</td><td rowspan="5">09:00
- 10: 00</td><td rowspan="5">Keynote 2
Room A+B</td><td rowspan="5">09:00
- 10: 00</td><td>Theme-based
Talk 3
Room A + B</td></tr>
<tr><td>W04 – 1:
Room B</td><td rowspan="4">Workshops</td><td>DSC – 1:
Room B</td><td rowspan="2">PTP – 6:
Room C</td></tr>
<tr><td>W05 – 1:
Room C</td><td>W01 – 1:
Room C</td><td rowspan="2">Sponsor
Workshop by
OpenLearning
Room E</td></tr>
<tr><td>W07 – 1:
Room D</td><td>W03 – 1:
Room D</td><td rowspan="2">AIED/ITS – 6:
Room D</td></tr>
<tr><td>W09 – 1:
Room E</td><td>W06:
Room E</td><td>9:40-
10:00</td><td>Coffee/Tea</td></tr>
</table>

TIME	Nov 28th Monday		Nov 29th Tuesday		TIME	Nov 30th Wednesday	TIME	Dec 1st Thursday	TIME	Dec 2nd Friday
10:30 - 10:50	Coffee/Tea break		Coffee/Tea break		**10:00 - 11:20**	Opening Ceremony & DRA Speech Room A + B	**10:00 - 10:20**	Coffee/Tea break	**10: 00 – 11:00**	EGG – 4: Room A+B
							10:20 - 11:20	Keynote 3 Room A+B		PTP – 7: Room C
										AIED/ITS – 7: Room D
										ALT/LA - 4: Room E
									11:00 - 11:20	Coffee/Tea break
10:50 - 12:20	Workshops	W02 – 2: Room A	Tutorial 1-2: Room A		**11:20 - 12:30**	Keynote 1 (Room A + B)	**11:20 - 12:30**	AIED/ITS – 3: Room A	**11:20 - 12:20**	Closing Ceremony Room A + B
		W04 – 2: Room B	Workshops	DSC – 2: Room B				Poster Setup: Room B		
		W05 – 2: Room C		W01 – 2: Room C				CSCL/LS - 1: Room C		
		W07 – 2: Room D		W03 – 2: Room D				EGG – 2: Room D		
		W09 – 2: Room E		W06: Room E				ALT/LA - 2: Room E		
12:20 - 13:20	Lunch break		Lunch break		**12:30 - 13:30**	Lunch break Posters + WIPP Online: GatherTown	**12:30 - 13:30**	Lunch break Posters + WIPP Onsite: Room B	**12:20**	Closing Lunch
	W	W02–3: Room A	Interactive 1-1: Online			IPC Meeting: Room A		AIED/ITS – 4: Room A		

TIME	Nov 28th Monday		Nov 29th Tuesday		TIME	Nov 30th Wednesday	TIME	Dec 1st Thursday	TIME	Dec 2nd Friday
13:20 - 14:50			Room A		**13:30 - 14:50**		**13:30 - 14:50**			
		W04 – 3: Room B	Workshops	DSC – 3: Room B		AIED/ITS - 1: Room B				
		W05 – 3: Room C				PTP – 1: Room C		PTP – 4: Room C		
		W08 – 1: Room D				TELL – 1: Room D		EGG – 3: Room D		
		W10 – 1: Room E		W06: Room E		CUMTEL - 1: Room E		CSCL/LS - 2: Room E		
14:50 - 15:10	Coffee/Tea break		Coffee/Tea break		**14:50 - 15:10**	Coffee/Tea break	**14:50 - 15:10**	Coffee/Tea break		
15:10 - 16:40	Student Wing: Room A		Interactive 1 - 2: Online Room A		**15:10 - 16:30**	SIG CB session (CSCL): Room A	**15:10 - 16:30**	AIED/ITS – 5: Room A		
	Workshops	W04 – 4: Room B				AIED/ITS – 2: Room B		SIG-4 (CUMTEL): Room B		
		W05 – 4: Room C				PTP – 2: Room C		PTP – 5: Room C		
		W08 – 2: Room D				EGG – 1: Room D		ALT/LA - 3: Room D		
		W10 – 2: Room E				ALT/LA - 1: Room E		CSCL/LS - 3: Room E		
16:40 - 17:40	Work				**16:30 - 17:40**	Theme based Talk 1: Room A	**16:30 - 17:40**	Theme based Talk 2: Room A		

TIME	Nov 28th Monday	Nov 29th Tuesday	TIME	Nov 30th Wednesday	TIME	Dec 1st Thursday	TIME	Dec 2nd Friday
	W04 – 5: Room B			CUMTEL – 2: Room B		CUMTEL – 3: Room B		
	W05 – 5: Room C			PTP – 3: Room C		TELL – 2: Room C		
				SIG CB session (CTE-STEM): Room D		SIG CB session (PTP): Room D		
	W10 – 3: Room E			SIG CB session (AIED): Room E		SIG CB session (DICTAP): Room E		
18:00-21:00		Welcome Reception Cedar@15 Level 15	**17:30 - 18:30**	ECW – (online) (closed door)	**19:00 - 22:00**	Conference Banquet Grand Ballroom Level 2		
			18:30 - 22:00	APSCE EC meeting Cedar@15				

Monday, November 28th

TIME	Room A	Room B	Room C	Room D	Room E
08:30 - 09:00	Registration				
09:00 - 10:30	W02	W04	W05	W07	W09
10:30 -10:50	Coffee/Tea break				
10:50 - 12:20	W02	W04	W05	W07	W09
12:20 - 13:20	Lunch break				
13:20 - 14:50	W02	W04	W05	W08	W10
14:50 - 15:10	Coffee/Tea break				
15:10 - 16:40	Student Wing	W04	W05	W08	W10
16:40 -17:40		W04	W05		W10

Tuesday, November 29th

TIME	Room A	Room B	Room C	Room D	Room E
08:30 - 09:00	Registration				
09:00 - 10:30	Tutorial 1	DSC	W01	W03	W06
10:30 -10:50	Coffee/Tea break				
10:50 - 12:20	Tutorial 1	DSC	W01	W03	W06
12:20 - 13:20	Lunch break				
13:20 - 14:50	Interactive Event 1	DSC			W06
14:50 - 15:10	Coffee/Tea break				
15:10 - 16:40	Interactive Event 1				
18:00 -21:00	Welcome Reception				

Wednesday, November 30th

TIME	Room A	Room B	Room C	Room D	Room E
08:30 - 09:00	Registration				
09:00 - 09:40			SIG Leaders Mtg		Sponsor Workshop: OpenLearning
09:40 -10:00	Coffee/Tea break				
10:00 - 11:00	Opening Ceremony				
11:00 - 11:20	DRA Speech				
11:20 - 12:30	Keynote 1				
12:30 - 13:30	Posters + WIPP (Online)	Lunch break			
13:30 - 14:50	IPC Meeting	AIED/ITS - 1	PTP – 1	TELL – 1	CUMTEL - 1
14:50 - 15:10	Coffee/Tea break				
15:10 - 16:30	SIG CB session (CSCL)	AIED/ITS – 2	PTP – 2	EGG – 1	ALT/LA - 1
16:30 - 17:40	Theme-based Talk 1	CUMTEL – 2	PTP – 3	SIG-11 CB session (CTE-STEM)	SIG CB session (AIED)
17:30 – 18:30	ECW Online (closed door)				
18:30 – 22:00	APSCE EC Meeting (closed door)				

Thursday, December 1st

TIME	Room A	Room B	Room C	Room D	Room E
08:30 - 09:00	Registration				
09:00 - 10:00	Keynote 2				
10:00 -10:20	Coffee/Tea break				
10:20 - 11:20	Keynote 3				
11:20 - 12:30	AIED/ITS – 3	Poster Setup	CSCL/LS - 1	EGG – 2	ALT/LA - 2
12:30 - 13:30	Lunch break	Posters + WIPP (Onsite: Room A)	Lunch break		
13:30 - 14:50	AIED/ITS – 4		PTP – 4	EGG – 3	CSCL/LS - 2
14:50 - 15:10	Coffee/Tea break				
15:10 - 16:30	AIED/ITS – 5	SIG-4 (CUMTEL): Room B	PTP – 5	ALT/LA - 3	CSCL/LS - 3
16:30 - 17:40	Theme-based Talk 2	CUMTEL – 3	TELL – 2	SIG CB session (PTP)	SIG CB session (DICTAP)
19:00 – 22:00	Conference Dinner Banquet				

Friday, December 2nd

TIME	Room A	Room B	Room C	Room D	Room E
08:00 - 09:00	Keynote 4				
09:00 - 10:00	Theme-based Talk 3		PTP – 6	AIED/ITS – 6	
10:00 - 11:00	EGG – 4		PTP – 7	AIED/ITS – 7	ALT/LA - 4
11:00 -11:20	Coffee/Tea break				
11:20 - 12:20	Closing Ceremony				
12:20 - 13:30	Closing lunch				

ICCE 2022 – Conference Program Details

Monday, November 28th

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 – 25 minutes + 5 minutes Q & A
S: Short Paper – 15 minutes + 5 minutes Q & A
E: Extended Summary – 10 minutes + 5 minutes Q & A

DSC: 15 minutes + 15 minutes discussion
Poster – Shared session (60 minutes) ; WIPP – Shared session (60 minutes)
All times below are in Kuala Lumpur Time Zone

TIME	DETAILS	ROOM
08:30-09:00	Registration	Foyer Level 1
09:00 - 10:30	W02-1 The 9th ICCE workshop on Learning Analytics and Evidence-based Education Chair: Huiyong LI **W02-001 (257-Full)** - Relating Student Performance and Procrastination Behavior in Online Discussion Forums Ezekiel Adriel Lagmay, Maria Mercedes Rodrigo **W02-005 (259-Full)** - A Quality Data Set for Data Challenge: Featuring 160 Students' Learning Behaviors and Learning Strategies in a Programming Course Owen H.T. Lu, Anna Y.Q. Huang, Brendan Flanagan, Hiroaki Ogata, Stephen J.H. Yang **W02-006 (260-Short)** - Cultivating and Supporting Learning Analytics Literacy using 3M analytical framework Min Lee, Alwyn Vwen Yen Lee	A

TIME	DETAILS	ROOM
	W02-004: Analysis of the Connection of United Nations Sustainable Development Goals with the Hong Kong High School Technology Curriculum (Poster) Chi-Un Lei	
09:00 - 10:30	W04-1 The 11th International Workshop on ICT Trends in Emerging Economies (WICTTEE 2022) Chair: Patcharin Panjaburee **W04-243 (243-Full)** - Teachers' Perceived Usefulness on the Utilization of Mobile-Learning Approach in Teaching High School Biology: A Case from the Philippines John Lorence VILLAMIN, Catherine Genevieve LAGUNZAD and Carlos OPPUS **W04-244 (244-Full)** - Exploring the behavior patterns of students accessing online learning material in online course: A Case Study at Hung Vuong University Pham-Duc THO, Chih-Hung LAI **W04-245 (245-Full)** - Factors Influencing Teachers' Use of Digital Technology: A Structural Model Siti Syuhada ABU HANIFAH, Norliza GHAZALI, Ahmad Fauzi MOHD AYUB	B
	W05-1 The 10th Workshop on Technology-Enhanced STEM Education (TeSTEM Workshop) Chair: Sasithorn Chookaew **W05-01 (266-Full)** - Support Structures and Activities for Teachers Preparing for Game-Based Learning Dominique Marie Antoinette B. MANAHAN & Maria Mercedes T. RODRIGO **W05-03 (268-Short)** - Implementing STEM Integrated Inquiry-Based Cooperative Learning of Smart Factory System Rakchanoke YAILEEARNG, Suppachai HOWIMANPORN b Santi HUTAMARN, Sasithorn CHOOKAEW **W05-04 (269-Short)** - Learning Factory: A Proposed Framework for Engineering Learning Ecology by Automated Manufacturing System Kits Panupong RAIJAIDEE, Watcharapong KHANTHINTHARA, Suppachai HOWIMANPORN, Warin SOOTKANEUNG ,Sasithorn CHOOKAEW **W05-06 (201-Short)** - The role of epistemic curiosity in 3D virtual game for science learning Hsing-Ying TU, Silvia Wen-Yu Lee	C

TIME	DETAILS	ROOM
09:00 - 10:30	W07-1 The 2nd ICCE workshop on EMBODIED Learning: Technology Design, Analytics & Practices Chair: Aditi Kothiyal **W07-001 (283-Full)** - Grounding Embodied Learning using online motion-detection in The Hidden Village Ariel Fogel, Michael Swart, Matthew Grondin, Mitchell Nathan **W07-002 (284-Full)** - Investigating the role of gesture and embodiment in Natural Sciences learning using immersive virtual reality Mafor PENN, Umesh RAMNARAIN	D
	W09-1 The 6th Computer-Supported Personalized and Collaborative Learning Chair: Sunny S. J. Lin **W09-01 (305-Full)** - A Descriptive Study on the Translation of the Seamless Science Learning Model for Wider Diffusion Lung-Hsiang WONG, Chee-Kit LOOI, Xin Pei VOON **W09-04 (215-Short)** - High-level Cooperative Behavior Model of Online Summit Games Geng-De HONG, Ju-Ling SHIH, Yu-Hao LU **W09-05 (220-Short)** - Issue-based Guided Inquiry Model with Real Socioscientific Open Data <City Auncel> Yu-Hao LU, Ju-Ling SHIH, Geng-De HONG	E
10:30 - 10:50	Coffee/Tea Break	Foyer Level 1 & 2
10:30 - 10:50	Poster 197: Knowledge Building Approach to Teacher Professional Development Feng Lin	Foyer Level 1

TIME	DETAILS	ROOM
10:50 - 12:20	W02-2 The 9th ICCE workshop on Learning Analytics and Evidence-based Education Chair: Huiyong LI **W2-007 (261-Short)** - Repurposing Existing Data Towards Institutional Learning Analytics: A Review of Outcome-mapping Data of HEIs in India Debarun Sarkar, Anitha Kurup **W2-008 (262-Short)** - Modeling Students' Ability to Recognize and Review Graded Answers that Require Immediate Attention Yancy Vance Paredes, Sharon Hsiao **W2-011 (263-Short)** - Automated Test Set Quiz Maker Optimizing Solving Time and Parameters of Bayesian Knowledge Tracing Model Extracted from Learning Log Kyosuke Takami, Gou Miyabe, Brendan Flanagan, Hiroaki Ogata **W2-013 (264-Full)** - Performance Prediction of Learning Programming - Machine Learning Approach Thien Wan Au, Salihin Rahim, Saiful Omar	A
10:50 - 12:20	W04-2 The 11th International Workshop on ICT Trends in Emerging Economies (WICTTEE 2022) Chair: Patcharin Panjaburee **W04-246 (246-Full)** - Elementary School Students' Understanding of Nature of Scientific Inquiry: A Preliminary Results and Proposed Practical Framework Sasivimol PREMTHAISONG, Wacharaporn KHAOKHAJORN, Pawat CHAIPIDECH, Niwat SRISAWASDI **W04-247 (247-Full)** - Trends and Development of Artificial Intelligence in Game-based Learning from 2011 to 2022: A Promising for Digital Citizenship Behaviors in Thailand Patcharin PANJABUREE, Gwo-Jen HWANG, Ungsinun INTARAKAMHANG, Niwat SRISAWASDI, Sasipim POOMPIMOL **W04-248 (248-Short)** - Blended Learning Practices Among Chinese Secondary School Teachers: The Untold Stories Lin Wang, Muhd Khaizer Omar, Noor Syamilah Zakaria, Nurul Nadwa Zulkifli **W04-249 (249-Short)** - The Use of Constructivism Flipped Classroom to Promote Analytical Thinking in the Technology Course Ratthaya KHAMSAENGMAT, Issara KANJUG	B

TIME	DETAILS	ROOM
	W05-2 The 10th Workshop on Technology-Enhanced STEM Education (TeSTEM Workshop) Chair: Sasithorn Chookaew **W05-02 (267-Full)** - Development of an App and Videos to Support the Fraction Learning Trajectory from Grades 1-7 Debbie Marie B. VERZOSA, Ma. Louise Antonette N. DE LAS PEÑAS, Maria Alva Q. ABERIN, Agnes D. GARCIANO, Jumela F. SARMIENTO, Juan Carlo F. MALLARIb, Mark Anthony C. TOLENTINO **W05-08 (272-Short)** - Plastic Island Game: A Digital Game for Facilitating Citizen Inquiry Pedagogy in School Science Education Arum ADITA, Niwat SRISAWASDI **W05-09 (204-Short)** - A Case Study of Secondary Students' Perceptions of STEM Education Chunyu HOU, Biyun HUANG, Morris Siu-Yung JONG **W05-10 (205-Short)** - Four-bar Linkage Quadruped Biorobotic Instructions: Gamified Design and Development Shaun-Wen CHEN, Ju-Ling SHIH, Yan-Ming CHEN	C
10:50 - 12:20	W07-2 The 2nd ICCE workshop on EMBODIED Learning: Technology Design, Analytics & Practices Chair: Aditi Kothiyal **W07-003 (285-Short)** - LA-ReflecT: A Platform Designed for Data-informed Reflections in Micro-learning tasks Rwitajit MAJUMDAR, Hiroaki OGATA, Jayakrishnan M Warriem, NPTEL, Prajish PRASAD **W07-004 (286-Full)** - Multiple Solution Pathways of Learners' Embodied Problem-solving Processes in Designing Authentic Computational Tasks Spruha SATAVLEKAR, Shitanshu MISHRA, Sridhar IYER	D

TIME	DETAILS	ROOM
	W09-2 The 6th Computer-Supported Personalized and Collaborative Learning Chair: Sunny S. J. Lin **W09-03 (175-Full)** - A Computer-Supported Personalized and Collaborative Learning to Improve Professional Learners' Performance In Advanced Cardiac Life Support Training Kuang-Yi Chang, Gwo-Haur Hwang, Ching-Yi Chang **W09-06 (226-Short)** - Proposing a Collaborative Multi-agents System for English Learning Support Tetsufumi Nakata, Emmanuel Ayedoun, Masataka Tokumaru **W09-07 (227-Short)** - Reshaping Teachers' Professional Identity Through Technology-based Integrated Pedagogy Ashok Sapkota	E
12:20 - 13:20	Lunch Break	Tonka Bean Cafe
13:20 - 14:50	W02-3: The 9th ICCE workshop on Learning Analytics and Evidence-based Education Chair: Huiyong LI **W2-015 (265-Full)** - A Framework for Behavior Analysis of an Essay Writing for Understanding Learners' Thinking Process Wasan Na Chai, Taneth Ruangrajitpakorn, Nattapol Kritsuthikul, Thepchai Supnithi **W2-016 (229-Full)** - Classification and analysis of learners' proficiency level in marker use based on learning logs Taito Kano, Izumi Horikoshi, Hiroaki Ogata **W2-017 (230-Full)** - Nudge Messages for E-Learning Engagement and Student's Personality Traits: Effects and Implication for Personalization Taisei Yamauchi, Kyosuke Takami, Brendan Flanagan, Hiroaki Ogata	A

TIME	DETAILS	ROOM
13:20 - 14:50	W04-3 The 11th International Workshop on ICT Trends in Emerging Economies (WICTTEE 2022) Chair: Patcharin Panjaburee **W04-209 (209-Full)** - A Systematic Review of Trends and Educational Research Issues of Digital-Supported Writing: A Promising English Learning Environment for Thai Higher Education Mi Chan HTAW, Patcharin PANJABUREE, Sabine SEUFERT, Chailerd PICHITPORNCHAI, Siegfried HANDSCHUH **W04-250 (250-Short)** - Design of Collaborative Ubiquitous Learning in Promoting Digital Education: Integrating History, Science, Technology in Reflection Class Chitphon YACHULAWETKUNAKORN, Ratthakarn NA PHATTHALUNG, Jarukit CHIANGJAN, Jintana WONGTA, Kongkarn VACHIRAPANANG **W04-251 (251-Short)** - Impact of Prolonged COVID 19 Pandemic on the Social Networking Sites Usage and Psychological Distress among University Students Liang Jing THE, Su Luan WONG **W04-252 (252-Short)** - Identifying the Supports to Foster Teachers' Development of Learning Design Practices Ishika, Sahana MURTHY	B
	W05-3 The 10th Workshop on Technology-Enhanced STEM Education (TeSTEM Workshop) Chair: Sasithorn Chookaew **W05-05 (270-Full)** - Implementation of Smart Manufacturing System Learning Kit: Study of Engineering Teachers' Performance and Engagement Ornanong TANGTRONGPAIROS, Suppachai HOWIMANPORN , Pornjit PRATUMSWAN, Panupong RAIJAIDEE, Watcharapong KHANTHINTHARA, Yuthapong SEEMUANG, Sasithorn CHOOKAEW **W05-11 (219-Short)** - Leveraging IEC and others' viewpoints presentation to support creativity Yusuke Sakabe, Emmanuel Ayedoun, Masataka Tokumaru **W05-12 (224-Short)** - Enhancing Students' Interest in STEM- Related Subjects at Omani Post-Basic Schools through Application of Augmented Reality Adnan Abdallah ALBURAIKI, Sharifah Intan Sharina SYED ABDULLAH, Mas Nida MD KHAMBARI	C

TIME	DETAILS	ROOM
	W08-2 Innovative Technology and Human Factors in Educational Games Chair: Ju-Ling Shih **W8-182 (182-Full)** - Exploring the Impact of Game-based Learning on Students' Creativity from the Perspective of Interest, Relationship and Opportunity Zhou Jin, Yingxin Li, Chien-Liang Lin, Chi-Heng Li **W8-221 (221-Full)** - The Development of EthoshuntTM to Transform Teaching and Learning Practices of Counseling Ethics Education Noor Syamilah Zakaria, Neerushah Subarimaniam, M. Iqbal Saripan, Alyani Ismail	D
	W10-1 The Applications of Information and Communication Technologies (ICTs) in Adult and Continuing Education Chair: Xibei Xiong **W10-001 (302-Full)** - From Rejection to Delight: The Change of College Ideological and Political Teachers' Attitude Towards Blended Learning Jun-Feng Diao, Jia-Wei Gu **W10-002 (306-Short)** - Health Anxiety, Information Anxiety and Internet Self-Efficacy on Cyberchondria among Filipino Young Professionals during the COVID-19 Pandemic Jypzie Catedrilla, Ryan Ebardo, Laiza Limpin, Christine Jan Dela Vega, Lumer Jude Doce **W10-003 (210-Short)** - The Acceptance of Online Continuous Professional Development (CPD) among Remedial Education Teachers' in Pahang, Malaysia Azlan Ahmad, Marzni Mohd Mokhtar, Su Luan Wong	E
14:50 – 15:10	Coffee/Tea Break	Foyer Level 1 & 2

TIME	DETAILS	ROOM
	Student Wing Chair: Hiroaki Ogata 1. Talks from 2 invited speakers: a. Building a good scholar profile: research, publish and review - (Hiroaki Ogata or Ulrich Hoppe) b. Research topics and hypothesis: defining and managing expectations, and handling results (Brendan Flanagan or Masanori Yamada) 2. Interactive discussion for students to share experiences and challenges faced in their research and/or academic life - (Alwyn, Li and Emily) 3. Informal recreational activities	A
15:10 – 16:40	W04-4 The 11th International Workshop on ICT Trends in Emerging Economies (WICTTEE 2022) Chair: Patcharin Panjaburee **W04-223 (223-Full)** - Behind-the-Scenes: Challenges to Integrate Google Classroom in Teaching and Learning Priscilla MOSES, Phaik Kin CHEAH, Phoebe Soong Yee YAP, Mas Nida MD KHAMBARI, Su Luan WONG **W04-253 (253-Short)** - Evidence over Intuition: Identifying factors that determine the success and failure of large scale EdTech initiatives Ram Das RAI, Sahana MURTHY **W04-254 (254-Short)** – Interactive Analysis of Children's Video Game Products Yufan ZHANG, Nurul Nadwa ZULKIFLI, Ahmad Fauzi MOHD AYUB **W04-255 (255-Short)** - The Effect of Online Collaborative Learning Environment with Integration of Technological Tools Towards Student' Achievement Muhammad Zahhar MOHD HATTA, Noor Dayana ABD HALIM, Nurul Nadwa ZULKIFLI	B

TIME	DETAILS	ROOM
15:10 – 16:40	W05-4 The 10th Workshop on Technology-Enhanced STEM Education (TeSTEM Workshop) Chair: Sasithorn Chookaew **W05-07 (271-Full)** - Developing Pre-Service Science Teachers' TPACK Self-Efficacy of Chemistry Competencies through Case-based Learning Intervention Anggiyani Ratnaningtyas Eka NUGRAHENI, Niwat SRISAWASDI **W05-14 (273-Short)** - Proposing the ARCS Model of Motivating Learning and Problem-based Learning in Teaching Image Processing Piyanun RUANGURAI, Siwapong KINGKAEW, Chaiyaporn SILAWATCHANANAI **W05-15 (274-Short)** - Implementing STEM Project-based Learning and Scaffolding Strategy for Electrical Engineering Students in a Feedback Control Laboratory Course Piyanun RUANGURAI ,Chaiyaporn SILAWATCHANANAI	C
	W08-2 Innovative Technology and Human Factors in Educational Games Chair: Ju-Ling Shih **W8-207 (207-Short)** - Design Methodology of Bebras Thematic Game Yan-Ming Chen, Ju-Ling Shih, Shaun-Wen Chen **W8-211 (211-Short)** - Personality Matters? Learning Behavior Analysis of Complex Board Game Yi-Zhen Lin, Ju-Ling Shih	D
	W10-2 The Applications of Information and Communication Technologies (ICTs) in Adult and Continuing Education Chair: Xibei Xiong **W10-004 (213-Full)** - Computer Assisted Pronunciation Training (CAPT): A Systematic Review of Studies from 2012-2021 Xu Chen, Jie Mu, Tingting Zhang **W10-005 (214-Short)** - Factors Affecting the Acceptance of Asynchronous Video-Based Learning among Malaysian Secondary School Students Kamilah Abdullah, Mas Nida Md Khambari **W10-007 (307-Short)** - Using Social Network Analysis to Evaluate Individual Contributions in Online Collaborative Learning Communities: A Case Study of Reading Groups Rushi Gong, Jinghong Zhang, You Su	E

TIME	DETAILS	ROOM
16:40 – 17:40	W04-5: The 11th International Workshop on ICT Trends in Emerging Economies (WICTTEE 2022) Chair: Patcharin Panjaburee **W04-256 (256-Short)** - A Review: The Effectiveness of Using TikTok in Teaching and Learning Nurul Nadwa ZULKIFLI, Malathi LETCHUMANAN, Shafinah KAMARUDIN, Noor Dayana ABD HALIM, Suhaizal HASHIM **W04-203 (203-Short)** - Identifying the Dimensions of Teachers' Digital Learning Agility in the Age of Exponential Technology Use Mas Nida MD. KHAMBARI, Su Luan WONG, Noor Syamilah ZAKARIA, Kamilah ABDULLAH, Priscilla MOSES, Siti Raba'ah HAMZAH **W04-231 (231-Short)** - Multimodal Learning during the COVID-19 Pandemic: Exploring Students' Preferences Su Luan WONG, Mas Nida MD KHAMBARI	B
	W05-5 The 10th Workshop on Technology-Enhanced STEM Education (TeSTEM Workshop) Chair: Sasithorn Chookaew **W05-16 (275-Short)** - The ABC Workbook: Adapting online judge systems for introductory programming classes Aldrich Ellis ASUNCION, Brian Christopher GUADALUPE, Gerard Francis ORTEGA **W05-17 (276-Short)** - Developing Autonomous Mobile Robot navigation using Machine Vision System as a Learning Tool in Engineering Education Anawat JANTASEN, Sirasit NASAKAT, Piyanun RUANGURAI, Chaiyaporn SILAWATCHANANAI **W05-18 (277-Short)** - Developing a Low-cost Rotary Series Elastic Actuator for Mechatronics Engineering Students Chaiyaporn SILAWATCHANANAI, Piyanun RUANGURAI, Sunphong THANOK, Suppachai HOWIMANPORN	C

TIME	DETAILS	ROOM
16:40 - 17:40	W10-2 The Applications of Information and Communication Technologies (ICTs) in Adult and Continuing Education Chair: Xibei Xiong **W10-006 (222-Full)** - PLATER: The Use of Information Technology in Counselor Education Othman Mohamed, Noor Syamilah Zakaria, Neerushah Subarimaniam **W10-008 (308-Short)** - Research Status and Hotspots of Pre-service Teachers' ICT in Education Competencies—Visualization Research Based on Citespace Xibei Xiong, Ning Liu **W10-009 (309-Short)** - Blended Learning Facilitated Adult Training : A Case Study on Blended Learning and Application in Agricultural Meteorology Course Jinfang Hou	E

ICCE 2022 - Conference Program Details

Tuesday, November 29th

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Poster – Shared session (60 minutes) ; WIPP – Shared session (60 minutes)
All times below are in Kuala Lumpur Time Zone

TIME	DETAILS	ROOM
08:30 - 09:00	Registration	Foyer Level 1
09:00 - 10:30	Tutorial-1 Using social network analysis to analyze online learning interaction Nurbiha A Shukor, Universiti Teknologi Malaysia, Malaysia	A
	DSC-1 Chair: Bo JIANG Mentors: Gwo-dong Chen, Su Luan Wong, Maria Mercedes T. Rodrigo, Yanjie Song 158: Predicting Chinese Secondary School Students' Behavioral Intention to Use an Online Homework System Liu Chen 196: Modeling Off-task Behavior of Learners in Minecraft Maricel A. Esclamado	B

TIME	DETAILS	ROOM
	167: Using Digital Storytelling on Scratch to Support Primary School EFL/ESL Students' Writing: A Self-regulated Learning Approach Yunsi Tina Ma	
09:00 - 10:30	W01-1 Analysis and Design of Problems/Questions in the Digital Environment: The 15th Workshop on Technology Enhanced Learning by Posing/Solving Problems/Questions Chair: Takahito Tomoto **W1-01 (278-Full)** - A System that Supports Learners' Strategic Thinking for Solving High-school Mathematics Problems Takumi YAMADA, Tatsuhiro KONISHI **W1-03 (280-Full)** - Training System for Learning Tactics from E-sports Playing Video Based on Explanations Yusuke NAGAYA, Atsushi ASHIDA, Tomoko KOJIRI **W1-02 (279-Short)** - Enabling Physical- and Concept-Walk in VRbased Open-ended Historical Leaning Space Aoi MATSUURA, Kazuhisa SETA, Yuki HAYASHI	C
	W03-1 The 6th International Workshop on Information and Communication Technology for Disaster and Safety Education (ICTDSE2022) Chair: Hisashi HATAKEYAMA **W3-006 (289-Full)** - Prototype System of Evacuation Training in Metaverse Kaito Oe, Itsuki Tanioka, Hiroyuki Mitsuhara, Masami Shishibori **W3-007 (290-Full)** - Immersive Function for Allocating Disaster Situations for VR-based Evacuation Training System Kaito Oe, Itsuki Tanioka, Hiroyuki Mitsuhara, Masami Shishibori	D
	W06-1 The 2nd International Workshop on Metaverse and Artificial Companions in Education and Society (MetaACES 2022) Chair: Maiga Chang **W06-05 (235-Short)** - Enhancing Learner Models for Pedagogical Agent Scaffolding of Self-Regulated Learning Daryn Dever, Megan Wiedbusch, Roger Azevedo	E

TIME	DETAILS	ROOM
	W06-15 (242-Short) - Socio-technical infrastructure norms for fair use of artificially intelligent education companions Stella George W06-06 (236-Short) - Pedagogical companions to support teachers' interpretation of students' engagement from multimodal learning analytics dashboards Megan Wiedbusch, Nathan Sonnenfeld, James Henderson	
10:30 - 10:50	Coffee/Tea Break	Foyer Level 1 & 2
10:50 - 12:20	Tutorial-1: contd. Using social network analysis to analyze online learning interaction Nurbiha A Shukor, Universiti Teknologi Malaysia, Malaysia	A
	DSC-2 Chair: Bo JIANG Mentors: Gwo-dong Chen, Su Luan Wong, Maria Mercedes T. Rodrigo, Yanjie Song 172: The design and use of agent-based modeling computer simulation for teaching technology entrepreneurship Joseph Benjamin Ilagan 189: Investigating the impact of modeling in a CSILE on problem-solving strategies and scientific reasoning by students in complex chemical engineering problems Rajashri Priyadarshini 180: Developing student agency through feedback seeking practices in a CSCL environment Min Lee	B

TIME	DETAILS	ROOM
	W01-2 Analysis and Design of Problems/Questions in the Digital Environment: The 15th Workshop on Technology Enhanced Learning by Posing/Solving Problems/Questions Chair: Takahito Tomoto **W1-04 (281-Full)** - The Effect of Contextual Student-Generated Questions on EFL Learners' English Learning Performance, Language Learning Strategy Use, and Perceived Cognitive Load Chih-Chung LIN, Fu-Yun YU	C
10:50 - 12:20	W03-2 The 6th International Workshop on Information and Communication Technology for Disaster and Safety Education (ICTDSE2022) Chair: Hisashi HATAKEYAMA **W3-010 (291-Full)** - Learning Affordances of a Facebook Community of Older Adults: A Netnographic Investigation during COVID-19 Ryan Ebardo, Merlin Teodosia Suarez **W3-002 (288-Short)** - Prototyping and Evaluation of a Web Application Supporting Tourists in Trouble and Emergency Yasuhisa Okazaki, Akane Hasebe, Hiroshi Wakuya, Yukuo Hayashida, Nobuo Mishima	D

TIME	DETAILS	ROOM
10:50 - 12:20	W06-2 The 2nd International Workshop on Metaverse and Artificial Companions in Education and Society (MetaACES 2022) Chair: Maiga Chang **W06-02 (234-Short)** – Research Hotspots and Trends of Educational Ethics of Artificial Intelligence in China Jing Luo, Yu-Tuan Zhang, Yun-Yi Wang, Hua-Tao Tang and Lin Li **W06-07 (237-Short)** - Towards a Humorous and Empathetic Companion Dialogue System with a Cultural Persona for Older Adults Chunpeng Zhai, Santoso Wibowo **W06-13 (241-Short):** Design of a peer-to-peer network framework for the metaverse Yanjie Song, Kaiyi Wu, Jiaxin Cao and Yin Yang **W06-03 (233-Short)** - Ask4Summary Automatically Responds Student's Question with a Summary Assembled from Course Content Mohammed Saleh, Maiga Chang, Maria F. Iriarte **W06-08 (238-Short)** - When Calculus learning collides with the metaverse Jeff Wong, Mik Kei Kung	E
12:20 – 13:20	Lunch Break	Tonka Bean Cafe
13:20 - 14:50	Interactive Event 1: (virtual) "To learn by doing - AIGO program keeps AI talents going in competitions" 13:20-13:25 - Opening Remarks - Hsiao-Chien Tseng 13:25-13:35 - AIGO introduction - 'Industry Challenges X Talent Solutions' mechanism - Elvis Huang 13:35-13:55 - Applying AI in Smart Manufacturing: Finding Blackholes in Defect Galaxy - Chia-Yu Lin 14:00-14:20- Computer Vision Application: Stray Dogs Monitoring - Kuo-Chung Yu 14:25-14:45 - SQL-Based Chatbot for Government Household Statistics - Wen-Hwa Liao	A

TIME	DETAILS	ROOM
13:20 - 14:50	DSC-3 Chair: Bo JIANG Mentors: Gwo-dong Chen, Su Luan Wong, Maria Mercedes T. Rodrigo, Yanjie Song **185:** Learning log-based group work support: GLOBE framework and system implementations Changhao Liang **192:** Digitally Enhanced Active Reading in a Learning Analytics Enhanced Environment Yuko Toyokawa **177:** Interplay of Cognitive, Affective and Ecological Factors Influencing Teachers' Technology Integration Beliefs: A Contextualized Model P. A. Nandan	B
	Panel "Metaverse in Education" Chair: Siu-Cheung KONG, The Education University of Hong Kong, Hong Kong 13:25-13:40 - The trends and research designs of AR/VR/metaverse in education Gwo-Jen HWANG 13:40-13:55 - How to tag with policy recommendation on metaverse related social issues openly and publicly Siu-Cheung KONG 13:55-14:10 - Having chatbot living in an educational game world" Maiga CHANG	E
14:50 - 15:10	Coffee/Tea Break	Foyer Level 1 & 2
15:10 – 16:40	Interactive Event 1: (virtual) contd. "To learn by doing - AIGO program keeps AI talents going in competitions" 15:10-15:30 - Correction of English-translated Mail Addresses Using Natural Language Processing - Shih-Jung Wu 15:35-15:55 - Restaurant Location Selection based on Restaurant Vectors - Chih-Yung Chang 16:00-16:20 - Real-Time Prediction of Intradialytic Hypotension via GRU and Explainable AI - Che-Wen Chen 16:20-16:40 - The Talents driving AI commercialization - Shih-Yu Lu	A
18:00– 21:00	Welcome Reception	Cedar@15 Level 15

ICCE 2022 - Conference Program Details

Wednesday, November 30th

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 – 25 minutes + 5 minutes Q & A
S: Short Paper – 15 minutes + 5 minutes Q & A
E: Extended Summary – 10 minutes + 5 minutes Q & A

DSC: 15 minutes + 15 minutes discussion
Poster – Shared session (60 minutes) ; WIPP – Shared session (60 minutes)
All times below are in Kuala Lumpur Time Zone

TIME	DETAILS	ROOM
08:30 - 09:00	Registration	Foyer Level 1
09:00 - 09:40	SIG Leaders Meeting	C
	Sponsor Workshop by OpenLearning	D & E
09:40 - 10:00	Coffee/Tea Break	Foyer Level 1 & 2
10:00 - 11:00	Opening Ceremony	A + B

TIME	DETAILS	ROOM
11:00 -11:20	DRA Speech Maiga CHANG, Athabasca University, Canada Session Chair: Weiqin Chen	A+ B
11:20 - 12:30	Keynote Talk - 1 Ryan BAKER, University of Pennsylvania, USA When Might a Detector Generalize? Session Chair: Maria Mercedes T. Rodrigo	A + B
12:30 - 13:30	Lunch Break	Tonka Bean Cafe
12:30 - 13:30	Posters + WIPP (online) 004: Role of peer assessment in facilitating Computational Thinking among pre-service teachers Xin Pei Voon, Su Luan Wong, Lung Hsiang Wong, Mas Nida Md Khambari and Sharifah Intan Sharina Syed-Abdullah 018: The Development of Online Learning Readiness Scale for Junior Students (OLRS-J) in Taiwan Chien Chou, Ruo-Yu Li, Li-Fang Ko and Min-Ling Hung 021: Monitoring of Learners' Activities in Software Structure Design Exercises Yasuhiro Noguchi, Kanta Inoue, Satoru Kogure, Koichi Yamashita and Tatsuhiro Konishi 022: Evaluating the Performance of Chinese Multi-Label Grammatical Error Detection Using Deep Neural Networks Tzu-Mi Lin, Chao-Yi Chen, Lung-Hao Lee and Yuen-Hsien Tseng 025: Analysis of CSCL for mathematical proof based on the log data of learners' verbal and nonverbal communications Masataka Kaneko, Hironori Egi and Takeo Noda 040: Rural Teachers' Professional Development under the Model of "Internet plus" Volunteer Teaching in Normal College Jian Zhao and Wenjing Yang	GatherTown

TIME	DETAILS	ROOM

081: Construction of a Role-Play Style Japanese Learning Support System that Allows Teachers to Edit Dialogue Situations
Satoru Kogure, Yudai Kamata, Yasuhiro Noguchi, Koichi Yamashita, Tatsuhiro Konishi and Makoto Kondo
088: Rural Teacher ICT Literacy Professional Learning and Teaching Practice in China: A Multiple Case Study Investigation
Yanfen Huang, Sharifah Intan Sharina Syed Abdullah, Nurul Nadwa Zulkifli and Norliza Ghazali
092: Learning Support System Visualizing Relationships Among Classes and Objects Based on Teacher's Intent of Instruction
Koichi Yamashita, Yusuke Suzuki, Satoru Kogure, Yasuhiro Noguchi, Raiya Yamamoto, Tatsuhiro Konishi and Yukihiro Itoh
100: Combining Data and Human Intelligence through Predictive Visual Analytics to Improve Educational Assessments
Yancy Vance Paredes and Sharon Hsiao
119: Process Models Enhancement with Trace Clustering
Wiem Hachicha, Ronan Champagnat, Leila Ghorbel and Corinne Amel Zayani
126: GWpulse: Supporting Learner Modeling and Group Awareness in Online Forum with Sentiment Analysis
Yuta Nakamizo, Rwitajit Majumdar, Izumi Horikoshi, Changhao Liang, Brendan Flanagan and Hiroaki Ogata
130: A Learning Path Recommendation System for English Grammar Quiz Using Knowledge Map
Naomichi Tanimura, Kensuke Takii, Brendan Flanagan and Hiroaki Ogata
132: Impact of Gaming on the Mental Well-Being and Academic Performance among High School Students
Judith Azcarraga, Aaron James Capinpin, Roi Victor Roberto and Ramon Diego Tan
137: Instructional Design on Data Visualization Model of Using AR Sandbox Apps in Learning and Teaching Geography
Aaron Liu and Percy Kwok
153: A Curriculum Package of Social and Ethical Concerns In Metaverse Ecosystem In School Education Based On Bloom's Taxonomy
Percy Kwok, Joe Chen and Jordan Fung

TIME	DETAILS	ROOM
	159: A mobile learning approach to promoting students' learning performances in the era of the pandemic Gwo-Jen Hwang and Ching-Yi Chang 160: The development and evaluation of a gamified virtual heritage tour for cultural learning: a perspective of cognitive and affective immersive learning Kun-Hung Cheng and Ling-Ling Hsiao 163: In-Course Progressive Prediction and Recommendation for Supporting Personalized Learning Young Park 166: Educational Assistant Wireframe for the Elderly to Mitigate Urban Climate Health Risks May Kristine Jonson Carlon, Alvin Christopher Galang Varquez, Eden Mariquit Andrews and John Maurice Gayed 169: "Click it, when you need it": On-demand feedback for online settings Paraskevi Topali, René Hilgemann and Irene-Angelica Chounta 170: The Development and Preliminary Evaluation of an Educational Game for Online Flight Reservation Services That Involves Real Person-NPCs Yen-Ting Ho, Chih-Chen Kuo and Huei-Tse Hou 174: Design of an Online Educational Board Game for Membrane Technology Learning Jui-Jong Wang, Min-Hsiang Hung, Jia-Yi Yan, Jo-Chi Yang, Chang-Wei Fan, Wan-Ting Yu, Cai-Syuan Sung, Wei-Song Hung and Huei Tse Hou 176: The Development and Preliminary Evaluation of a Mobile Game for Pattern Recognition Learning Chi-Yu Chao, Yu-Chi Chen and Huei Tse Hou 186: Curriculum design system based on AR glasses for interest-driven learning Dan Wang, Mas Nida Md.Khambari and Qian Qiu 198: Evaluating Deep Transfer Learning Models for Assessing Text Readability for ESL Learners Yo Ehara	
13:30 - 14:50	IPC Meeting	A

TIME	DETAILS	ROOM
13:30 - 14:50	AIED/ITS – 1 Artificial Intelligence in Education/Intelligent Tutoring System (AIED/ITS) and Adaptive Learning Chair: Tanja Mitrovic **065F:** I will help you, but will you help me? How the perception of a Teachable Agent may influence performance **(BSPN)** Eva-Maria Ternblad, Magnus Haake and Betty Tärning **109F:** How Much Support is Necessary for Self-Regulated Learning? Tanja Mitrovic and Jay Holland **041S:** Using Unsupervised Machine Learning to Model Taiwanese High-School Students' Digital Distraction Profiles concerning Internet Gaming Disorder Yu-Lin Ho, Chien Chou, Chen-Hsuan Liao and Jiun-Yu Wu	B
	PTP – 1 Practice-driven Research, Teacher Professional Development and Policy of ICT in Education (PTP) Chair: Siu Cheung Kong **082F:** A Pedagogy in STEM Classrooms for Primary Students to Develop Knowledge of Electric Circuits and Problem-Solving Skills Siu Cheung Kong and Wai Ying Kwok **110F:** The Influence of an Online Community of Practice on Professional Development for Online Teaching: Case Study on Kindergartens Yuk Mui Heung and Alex Wing Cheung Tse **008S:** The Comparative Effects of 'What if/what if not' and 'Main Ideas' Scaffolding for Online Student Question-generation on Science Learning Fu-Yun Yu and Hsiu-Chen Chen	C

TIME	DETAILS	ROOM
	TELL – 1 Technology Enhanced Language Learning (TELL) Chair: Maiga Chang **113F:** Explainable English Material Recommendation Using an Information Retrieval Technique for EFL Learning Kensuke Takii, Brendan Flanagan, Huiyong Li, Yuanyuan Yang and Hiroaki Ogata **118F:** The Effects of Learning with Digital Storytelling on Classroom Engagement in a Grade 6 English Class **(BOPN)** Yingxue Liu and Alex Wing Cheung Tse **078S:** Ask4Summary: A Summary Generation Moodle Plugin Using Natural Language Processing Techniques Mohammed Saleh, Maria F. Iriarte and Maiga Chang	D
13:30 - 14:50	CUMTEL – 1 Classroom, Ubiquitous, and Mobile Technologies Enhanced Learning (CUMTEL) Chair: Sahana Murthy **077F:** Augmented Reality Applications in the Classroom: Teachers'Experience **(BOPN)** Hajar Al Omair, Antonette Mendoza, Marie Boden and Nilufar Baghaei **050S:** A technique for tracking the reading rate to provide learning feedback and identify students at risk of learning Fuzheng Zhao and Chengjiu Yin **111S:** Learning through patient stories: Fostering sensemaking in a technology enhanced learning environment for clinical diagnosis Sunita Raste and Sahana Murthy	E
14:50 - 15:10	Coffee/Tea Break	Foyer Level 1 & 2
15:10 – 16:30	SIG - CSCL: Community Building Chair: Elizabeth Koh	A

TIME	DETAILS	ROOM
	AIED/ITS – 2 Artificial Intelligence in Education/Intelligent Tutoring System (AIED/ITS) and Adaptive Learning Chair: Ryan Baker 042S: Use of Professor Comments in Predicting Student Success Timothy Bell, Christel Dartigues-Pallez, Florent Jaillet and Christophe Genolini 072S: Exploring Relationships Between Temporal Patterns of Affect and Student Learning Anthony F. Botelho, Seth Adjei, Vedant Bahel and Ryan Baker 091S: Engagement Estimation using Time-series Facial and Body Features in an Unstable Dataset Xianwen Zheng, Tran Minh-Tuan, Teruhiko Ota, Teruhiko Unoki and Shinobu Hasegawa 058S: Changing Students' Perceptions of a History Exploration Game Using Different Scripts Stefan Slater, Ryan Baker and David Gagnon	B
15:10 – 16:30	PTP – 2 Practice-driven Research, Teacher Professional Development and Policy of ICT in Education (PTP) Chair: Swapna Gottipati 006S: Authentic Assessments for Digital Education in the Higher Education Landscape: Emerging Technologies Shaping Assessment Practices Tristan Lim, Swapna Gottipati and Michelle Cheong 023S: Evaluation of the quality the educational software in the perspective of experiences Italian and Polish pre-service teachers Łukasz Tomczyk, Laura Fedeli, Michal Szyszka, Anna Włoch, Pierpaolo Limone, Piergiorgio Guarini, Monika Frania, Maria Lidia Mascia and Joanna Falkowska 051S: Exploring predictive indicators of reading-based online group work for group formation assistance Changhao Liang, Rwitajit Majumdar, Izumi Horikoshi, Brendan Flanagan and Hiroaki Ogata 064S: The Budding Botanist Paradox: Automating Human Inquiry with Immersive Technology Eric Hawkinson	C

TIME	DETAILS	ROOM
	EGG – 1 Educational Gamification and Game-based Learning (EGG) Chair: Jeff Bender 003F: Learning Computational Thinking Efficiently with Block-based Parsons Puzzles Jeff Bender, Alex Dziena and Gail Kaiser 011S: An Analysis of Filipino Primary School Learners' Game Experience and STEM Interest within Minecraft Jonathan Casano and Maria Mercedes T. Rodrigo 089S: Talk&Play: a VR application to improve volume and silences use in verbal communication María Esther Ruiz-Capillas, Alejandro Romero-Hernandez and Borja Manero	D
16:30 – 17:40	ALT/LA – 1 Advanced Learning Technologies (ALT), Learning Analytics and Digital Infrastructure Chair: Izumi Horikoshi 027F: Topic-Wise Representation of Learning Activities for New Learning Pattern Analytics Jinghao Wang, Tsubasa Minematsu, Yuta Taniguchi, Fumiya Okubo and Atsushi Shimada 090S: Detection of at-risk students in programming courses Ikkei Igawa, Yuta Taniguchi, Tsubasa Minematsu, Fumiya Okubo and Atsushi Shimada 115S: Extracting Students' Self-Regulation Strategies in an Online Extensive Reading Environment using the Experience API (xAPI) Chia-Yu Hsu, Izumi Horikoshi, Huiyong Li, Rwitajit Majumdar and Hiroaki Ogata 297E: Teaching Analytics across Multiple Systems: A Case Study at a Junior High School in Japan Kohei Nakamura, Izumi Horikoshi and Hiroaki Ogata	E
16:30 – 17:40	Theme-based Talk - 1 Yu-Ju LAN, National Taiwan Normal University, Taiwan New Research Trends in Emerging Technologies for Language Learning Session Chair: Juling Shih	A

TIME	DETAILS	ROOM
16:30 - 17:40	CUMTEL – 2 Classroom, Ubiquitous, and Mobile Technologies Enhanced Learning (CUMTEL) Chair: Sahana Murthy **134F:** Unpacking contextual parameters influencing the quality of Personalized Adaptive Learning EdTech applications Gomathy Soundararaj, Vishwas Badhe, Ishika Ishika, Meera Pawar, Chandan Dasgupta and Sahana Murthy **039S:** Research on Classroom Interaction Behavior in Mobile Tablet-based Unit Teaching Setting Jian Kang and Ruixue Liu **017S:** Modelling Physical Activity Behaviour Changes for Personalised Feedback using a Health Education Application Claudio Diaz, Olivier Galy, Corinne Caillaud and Kalina Yacef	B
	PTP – 3 Practice-driven Research, Teacher Professional Development and Policy of ICT in Education (PTP) Chair: Jayakrishnan Warriem **012F:** When the School Door Closes, Do Teachers Open a Window? Using Diary Method to Investigate Teachers' Online Teaching Practices and Momentary Experiences in Crisis **(BSPN)** Jo-Chi Hsiao, Chao-Yang Cheng and Sunny S. J. Lin **069S:** Coding Initiative Provides Different Approaches to Inspire Girls for Programming Sarina Gursch **147S:** Teachers' practices regarding classroom digital technology integration Doris Kristina Raave, Eric Roldan Roa, Margus Pedaste and Katrin Saks	C
	SIG – CTE-STEM : Community Building **Chair:** Chee Kit LOOI	D
	SIG – AIED : Community Building Chair: May Marie Talandron-Felipe	E

TIME	DETAILS	ROOM
17:30 - 18:30	ECW: Early Career Workshop (online; by invite only) Chair: Maiga CHANG Mentors: Akihiro KASHIHARA , Kae NAKAYA, Jingyun WANG ECW01: Analytics-Driven Motivation Nudges on Online Learning Platforms May Kristine Jonson Carlon	Online
18:30 - 21:00	APSCE EC meeting (closed door)	Cedar@15 Level 15

ICCE 2022 - Conference Program Details

Thursday, December 1st

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 – 25 minutes + 5 minutes Q & A
S: Short Paper – 15 minutes + 5 minutes Q & A
E: Extended Summary – 10 minutes + 5 minutes Q & A

DSC: 15 minutes + 15 minutes discussion
Poster – Shared session (60 minutes) ; WIPP – Shared session (60 minutes)
All times below are in Kuala Lumpur Time Zone

TIME	DETAILS	ROOM
08:30 - 09:00	Registration	Foyer Level 1
09:00 - 10:00	Keynote Talk - 2 Su Luan WONG, University Putra Malaysia, Malaysia From theory to practice: Igniting Students' Interest in Educational Technology through Interest Driven Creator (IDC) Theory Session Chair: Mas Nida Md. Khambari	A + B
10:00 - 10:20	Coffee/Tea Break	Foyer Level 1

TIME	DETAILS	ROOM
10:20 - 11:20	Keynote Talk - 3 Gwo-Dong CHEN, National Central University, Taiwan Digital theater for situational learning in the classroom Session Chair: Lung-Hsiang Wong	A + B
11:20 – 12:30	AIED/ITS – 3 Chair: Akihiro Kashihara 020F: Transferable Student Performance Modeling for Intelligent Tutoring Systems **(BOPN)** Robin Schmucker and Tom Mitchell 116S: Development of a Learning Companion Robot with Adaptive Engagement Enhancement Bowei Yao, Koichi Ota, Akihiro Kashihara, Teruhiko Unoki and Shinobu Hasegawa 142S: Transforming Brainwave Signals into Symbolic Strings Towards Academic Emotion Recognition Judith Azcarraga and Juan Francesco Salceda	A
	Poster Setup	B
	CSCL/LS – 1 Computer-supported Collaborative Learning (CSCL) and Learning Sciences Chair: Wenli Chen 138F: Investigating the Role of Students' Feedback-Seeking Actions in Harnessing and Adapting to the Distributed Competence Narasimha Swamy, Anveshna Srivastava and Chandan Dasgupta 053F: Interaction and monitoring matter: Comparison of High and Low-performing Groups in CSCL Wenli Chen, Junzhu Su, Wei Liang Toh and Qianru Lyu 099S: Unpacking Emergent Creativity in Online Collaborative Making Alekh V and Chandan Dasgupta	C

TIME	DETAILS	ROOM
11:20 – 12:30	EGG – 2 Educational Gamification and Game-based Learning (EGG) Chair: Hiroyuki Mitsuhara **136F:** Shelter Go! Multiplayer Location-based Game for Learning Evacuation Hiroyuki Mitsuhara and Masami Shishibori **055S:** Two-way Knowledge Transfer Among University Academics, Young Entrepreneurs, NGOs and Students in STEM and IoT Metaverses: Conceptual Framework, Research Agendas and Contextual Challenges Percy Kwok, Joe Chen and Jordan Fung **056S:** What do teachers want to know about game-based learning analytics: Cross-case study Yoon Jeon Kim and Jennifer Scianna	D
	ALT/LA – 2 Advanced Learning Technologies (ALT), Learning Analytics and Digital Infrastructure Chair: Rwitajit Majumdar **028F:** Assessment of at-risk students' predictions from e-book activities representations in practical applications **(BSPN)** Erwin Daniel Lopez Zapata, Tsubasa Minematsu, Yuta Taniguchi, Fumiya Okubo and Atsushi Shimada **024S:** Innovative and Effective Spreadsheet Tool for Learning Sentiment Analysis and Prediction Michelle Lf Cheong and Jean Chen **155S:** PyGuru: A Programming Environment to facilitate measurement of Cognitive Engagement Daevesh Singh, Ramkumar Rajendran and Hema Subramaniam	E
12:30 - 13:30	Lunch Break	Tonka Bean Cafe
12:30 - 13:30	Posters + WIPP (physical) **034:** Topic-Level Social Network and Language Correlation in Course Discussion Forums Ezekiel Adriel Lagmay and Maria Mercedes Rodrigo **070:** Understanding areas of parallelograms through virtual geometrical representations: A Pilot Study Eva-Maria Ternblad **084:** Efficacy of an Online Course to Build Mindfulness in Adolescents Renuka Rautela, Anurag Deep, Mayank Sharma and Nandini Chatterjee	B

TIME	DETAILS	ROOM
	103: Designing a Recommender System for Mobile Applications Focusing on Relative Importance Weights of Learner-related Variables Woorin Hwang, Hyo-Jeong So, Chiyoung Song and Hyeji Jang **104:** Support System for Understanding How Teammates Grasp Game Situations Kazuteru Sakamoto, Kota Kunori and Tomoko Kojiri **133:** Noticing critical information for productive uncertainty management during engineering design activity Navneet Kaur and Chandan Dasgupta **164:** Providing Adaptive User Interfaces in Deviceless Learning Environments Kozo Mizutani **171:** Aqualab: Establishing Validity of an Adventure Game for Middle School Science Yoon Jeon Kim, Shari Metcalf, Jennifer Scianna, Glenda Perez and David Gagnon **181:** Estimating Activity Conditions of Students in Class by Measuring Leg Movement Tatsuya Hamada, Yuuki Terui and Hironori Egi **184:** Design of an AI-powered Seamless Vocabulary Learning for Young Learners Yun Wen **187:** Effects of binaural audio on English vocabulary learning Kosuke Shimizu, Shogo Fukushima and Takeshi Naemura **188:** Development of a Chinese Language Learning Content Based on Mixed Reality Technology Zhenni Shi, Yuto Nagata and Yusuke Morita **191:** Motivation Estimation Method for Computer Supported Collaborative Learning Using Tablet Computer Ryo Funabashi, Kouhei Nabetani, Takeo Noda, Masataka Kaneko and Hironori Egi **193:** Interaction among Undergraduate Students in Graduation Research Seminars in Japan during the COVID-19 pandemic Go Shoji and Shigeto Ozawa **206:** Designing a Professional Development Program on Digital Accessibility and Inclusive Education for Faculty Members Weiqin Chen	

TIME	DETAILS	ROOM
13:30 - 14:50	AIED/ITS – 4 Chair: Patcharin Panjaburee 150F: Considerate, Unfair, or Just Fatigued? Examining Factors that Impact Teacher Ashish Gurung, Anthony F. Botelho, Russell Thompson, Adam C. Sales, Sami Baral and Neil T. Heffernan 123S: Practical Use of an Error-based Problem Presentation System in Mechanics Nonoka Aikawa, Shintaro Maeda, Tomohiro Mogi, Kento Koike, Takahito Tomoto, Isao Imai, Tomoya Horiguchi and Tsukasa Hirashima 154S: Adaptive Scaffolding to Support Strategic Learning in an Open-Ended Learning Environment Anabil Munshi, Gautam Biswas, Eduardo Davalos Anaya, Olivia Logan, Gayathri Narasimham and Marian Rushdy 293E: Design principles of the educational recommendation system in higher education Sun-Young Keum, Ye Jin Han, So Mi Park, Jin Ho Jang and Young Hoan Cho	A
	PTP – 4 Practice-driven Research, Teacher Professional Development and Policy of ICT in Education (PTP) Chair: Jayakrishnan Warriem 117F: Development and Validation of a brief Digital Pedagogy Competency Scale (DiPeCoS) Shraddha Rawat, Shreya Tiwari, Mayank Sharma and Nandini Chatterjee 145F: A First-order Action Research Study to Uncover Students' Conceptual Gaps in an Online Statistics Course using Extended Matching Questions Ishaan Taneja, Prajish Prasad and Jayakrishnan Warriem 122S: Digital competence for learning: how to support our students? Külli Kallas and Margus Pedaste	C

TIME	DETAILS	ROOM
13:30 - 14:50	EGG – 3 Educational Gamification and Game-based Learning (EGG) Chair: Gwo-Dong Chen 030F: Design a Robot as a Double with Micro-expression to Participate in a Virtual Situational Learning Environment and its Effect on Students' Learning Performance (BOPN) (BSPN) Vando Gusti Al Hakim, Su-Hang Yang, Jen-Hang Wang, Yi-Jing Li, Yi-Hsin Chen and Gwo-Dong Chen 005S: For People and Planet: A Pilot Study of an Educational Mobile Game on the Sustainable Development Goals Maria Mercedes T. Rodrigo, Louise Marie C Tulayba, Marianne U. Lim, Marlon C Moralejo, Ananea Arcega, Maria Celeste A. Marasigan-Lascano and Allyah Elizabeth Orio 294E: Handum: Developing a Learning Mobile Game on Health for Philippine Schools Mario Carreon, Samantha Jade Sadural, Alain Andrew Boquiren, Kathleen Gay Figueroa, Kiel Gonzales, Glenn Edward Ora, Francis Miguel Quilab, Janelle Rose Tan, Noel Nicanor Ii Sison, Erwin Dennis Umali and Susan Pancho-Festin	D
	CSCL/LS – 2 Computer-supported Collaborative Learning (CSCL) and Learning Sciences Chair: Chandan Dasgupta 098F: Understanding Sociomaterial Encounters in Collaborative Creative Making : A Case Study from a Makerspace in India (BSPN) Alekh V and Chandan Dasgupta 013S: Unveiling the process of collaborative learning through the use of digital whiteboard historical action logs Hua Leong Fwa 061S: Effects of Group Awareness Tools on Student Engagement and Enjoyment in Online Collaborative Writing Xiaohui Song, You Su, Jing Ren and Rushi Gong 144S: Understanding learners' negotiation processes during ill-structured engineering estimation problem-solving Ulfa Khwaja and Sahana Murthy	E
14:50 - 15:10	Coffee/Tea Break	Foyer Level 1 & 2

TIME	DETAILS	ROOM
15:10 – 16:30	AIED/ITS – 5 Chair: Eva-Maria Ternblad **068F:** 'I know that I clicked but not if I read': An exploratory study comparing data traces and self-reports on feedback engagement. Eva-Maria Ternblad, Agneta Gulz and Betty Tärning **124F:** Prerequisite-driven Q-matrix Refinement for Learner Knowledge Assessment: A Case Study in the Online Learning Context **(BTDPN)** Wenbin Gan, Yuan Sun, Minh-Son Dao and Koji Zettsu **101S:** Investigating How Achievement Goals Influence Student Behavior in Computer Based Learning J. M. Alexandra Andres, Stephen Hutt, Jaclyn Ocumpaugh and Ryan Baker	A
	SIG – CUMTEL : Community Building Chair: Daner SUN	B
	PTP – 5 Practice-driven Research, Teacher Professional Development and Policy of ICT in Education (PTP) Chair: Ivica Boticki **083S:** Computational Thinking Development: Validating an Instrument for Self-regulated Learning Using Animation Siu Cheung Kong, Ye Hu and Ming Lai **102S:** How Teachers Used ICT in Education in 2015 and 2022 in Croatia: A Longitudinal Study Ivica Boticki, Marcela Matas, Lana Jurak and Bruno Segvic **120S:** Development of Online Performance Assessment Management System for Elementary and Secondary Schools toward Assessment as Learning Eun Hye Ham, Tami Im and Seo Yeon Cho **139S:** Copyright in the Scope of Education Branko Kirin, Rwitajit Majumdar and Ivica Boticki	C

TIME	DETAILS	ROOM
15:10 – 16:30	ALT/LA – 3 Advanced Learning Technologies (ALT), Learning Analytics and Digital Infrastructure Chair: Rwitajit Majumdar **121F:** Peer Evaluation Behavior Analysis: Applicability and Reproducibility of the Method Across Systems and Activity Contexts **(BOPN)** Izumi Horikoshi, Changhao Liang, Rwitajit Majumdar and Hiroaki Ogata **151S:** Comparing Short-Term and Long-Term Online Courses Using the Kano Model and Neural Network Language Models Daniel Moritz Marutschke and Yugo Hayashi **295E:** Relationship Analysis between Listener Face Direction and Utterance in Group Discussion Nori Morishima, Izumi Horikoshi, and Yasuhisa Tamura **298E:** Analysis of the Impact Student-Facing Learning Analytics Dashboards on Learning Motivation and Behaviors according to the Motivational Type of Learners Tomoka Matsumoto, Yuna Ishii , Izumi Horikoshi, and Yasuhisa Tamura	D
	CSCL/LS – 3 Computer-supported Collaborative Learning (CSCL) and Learning Sciences Chair: Wenli Chen **052F:** The Impact of Individual Ideation before Discussion on Students' Collaborative Argumentation Process in a Primary Classroom **(BOPN)** Wenli Chen, Qianru Lyu and Junzhu Su **033S:** Estimating Divergence-or-Convergence in Discussion based on Abstractness of Words in Utterance Ryunosuke Nishimura, Taisei Muraoka, Risa Iharada and Hironori Egi **046S:** The Influence of Awareness of a Difference between Concept Maps on transfer: Experimental Investigation on the Efficacy in Collaborative Learning Shigen Shimojo, Yoshimasa Ohmoto, Junya Morita and Yugo Hayashi **131S:** Improving Spatial Perspective Taking Ability of Middle School Students Using Augmented Reality Anveshna Srivastava and Chandan Dasgupta	E
16:30 – 17:40	Theme-based Talk - 2 Jan, VAN AALST, The University of Hong Kong, Hong Kong What have we made? Examining Knowledge Building in the post-truth era. Session Chair: Jon Mason	A

TIME	DETAILS	ROOM
	CUMTEL -3 Classroom, Ubiquitous, and Mobile Technologies Enhanced Learning (CUMTEL) Chair: Daner Sun **093F:** Design and Effect of AR Sign Language Teaching Software Based on Natural Interaction **(BSPN)** Jiangxu Li, Peng Zhang, Junting Chang and Su Cai **062S:** An Evaluation of the Online Course on Climate Change Integrating a Social and Emotional Learning Approach Anurag Deep, Aditi Pathak and Nandini Chatterjee **143S:** Pupils' Learning Characteristics, Self-directed Learning Ability, and Mathematical Ability by Applying A Gamified Math Platform for Distance Learning Euphony F. Y. Yang and Tak-Wai Chan	B
	TELL – 2 Technology Enhanced Language Learning (TELL) Chair: Mi Song Kim **035F:** An Exploration of a Novice Kindergarten Teacher's Enactment of Multi-literacies Pedagogy during the Pandemic: A Case Study of a Virtual Kindergarten Classroom **(BSPN)** Fengchao Yu, Lian Chang and Mi Song Kim **043S:** Using Group Awareness Tools to Enhance Students' Behavioral and Cognitive Engagement with Peer Feedback in Online Collaborative Essay Writing Jing Ren, You Su, Xiaohui Song and Haizhen Guo **063S:** Research on activity design and application of AR gamification resources to promote children's second language learning Zhenhua Liu, Minsheng Fan and Binli Wang **096S:** What criteria are important for evaluating the quality of English language learning edtech products? Evidence from literature Minu Nandakumar, Leena Bhattacharya and Sahana Murthy	C
16:30 – 17:40	SIG - PTP: Community Building Chair: Mas Nida Md. Khambari	D
	SIG - DICTAP: Community Building Chair: Patcharin Panjaburee	E

TIME	DETAILS	ROOM
19:30 - 21:00	Conference Banquet	Grand Ballroom Level 2

ICCE 2022 - Conference Program Details

Friday, December 2nd

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 – 25 minutes + 5 minutes Q & A
S: Short Paper – 15 minutes + 5 minutes Q & A
E: Extended Summary – 10 minutes + 5 minutes Q & A

DSC: 15 minutes + 15 minutes discussion
Poster – Shared session (60 minutes) ; WIPP – Shared session (60 minutes)
All times below are in Kuala Lumpur Time Zone

TIME	DETAILS	ROOM
08:00 - 09:00	Keynote Talk - 4 Rebecca FERGUSON, Institute of Educational Technology (IET), The Open University, United Kingdom Pedagogies for today's world Session Chair: Sridhar Iyer	A + B
09:00 - 09:40	Theme-based Talk - 3 Hyo-Jeong, SO, Ewha Womans University, Republic of Korea When Mobile Learning and Learner Data Meet – Possibilities and Challenges Session Chair: Hiroaki Ogata	A + B

TIME	DETAILS	ROOM
09:00 - 10:00	PTP – 6 Chair: Arnida Abdullah **026F:** The Perspectives of Distance Learning in Higher Education: Lessons Learned from the COVID-19 Pandemic Dariusz Dymek, Mariusz Grabowski and Grażyna Paliwoda-Pękosz **292E:** Teachers' ICT Competency and Technology Leadership Practices for Pedagogical Digital Transformation Initiative Muhd Khaizer Omar, Lim Yen Teng, Arnida Abdullah and Soaib Asimiran **296E:** Chinese EFL Teachers' Reflections of Online English Teaching during the COVID-19 Pandemic: A Qualitative Study Yanjun Gao, Su Luan Wong, Mas Nida Md. Khambari, Nooreen Noordin and Jingxin Geng	C
	AIED/ITS – 6 Chair: Brendan Flanagan **045S:** Learning Algorithm Implementation Structures for Multilabel Classification via CodeBERT Karl Frederick Roldan, Gerd Lowell Jana, John Kenneth Lesaba and Joshua Martinez **059S:** Investigating Bloom's Cognitive Skills in Foundation and Advanced Programming Courses from Students' Discussions Joel Lim Jer Wei, Swapna Gottipati and Kyong Jin Shim **010S:** Investigation on Practical Effects of the Explanation in a K-12 Math Recommender System Yiling Dai, Kyosuke Takami, Brendan Flanagan and Hiroaki Ogata	D
10:00 – 11:00	EGG – 4 Educational Gamification and Game-based Learning (EGG) Chair: Juling Shih **044F:** It is Still Better to be Frustrated than Bored: Achievement, Behaviors, and STEM Interest of Frustrated and Bored Learners Using Minecraft **(BTDPN)** Maricel A. Esclamado, Maria Mercedes T. Rodrigo and Jenilyn A. Casano **015S:** Ludonotation: A Visualization System of Recording and Analyzing Interactive Strategic Gaming Behaviors Ju-Ling Shih	A+B

TIME	DETAILS	ROOM
	PTP – 7 Chair: Tiny Tey 029F: Media Exposure and Students' Attitude as Mediators Between Subjective Norms and Choice Intention for Science, Technology, Engineering, and Mathematics Careers Tiny Chiu Yuen Tey, Priscilla Moses and Phaik Kin Cheah 019S: Agile Learning on Computer Science Laboratory for Telematics Engineering Maria Francesca Roig-Maimó and Ramon Mas-Sansó 080S: An Integrative Evaluation of STEM Policy in Secondary Education: Empirical Reflections, Conceptual Discussions and Policy Implications Percy Kwok and Heidy Wang	C
	AIED/ITS – 7 Chair: Patcharin Panjaburee 032F: Automated Matching of Exercises with Knowledge components Zejie Tian, Brendan Flanagan, Yiling Dai and Hiroaki Ogata 007S: Metacognition in Homework Assignments and Time-limited Quizzes in a Database Course Huanyi Chen and Paul Ward 049S: NLP-Based Writing Tools in Higher Education: Current Features and Future Prospects Michael Burkhard, Sabine Seufert, Patcharin Panjaburee, Chailerd Pichitpornchai and Christina Niklaus	D
	ALT/LA – 4 Advanced Learning Technologies (ALT), Learning Analytics and Digital Infrastructure Chair: Tsukasa Hirashima 060F: Assessment of students' feedback behavior in a game-based automated feedback system – A cross-cultural replication study Annika Silvervarg, Kristen Blair, Maria Cutumisu and Agneta Gulz 108S: The Influence of a Virtual Physics Experiment Learning Environment on Grade 9 Students' Motivation towards Physics Learning **(BTDPN)** Yushi Huang and Alex Wing Cheung Tse 140S: Association Analysis on Open-Ended Concept Maps using Data Mining Didik Prasetya and Tsukasa Hirashima	E
11:00 -11:20	Coffee/Tea Break	Foyer Level 1 & 2

TIME	DETAILS	ROOM
11:20 - 12:20	Closing Ceremony	A + B
12:30 -13:30	Closing Lunch	Tonka Bean Cafe

APSCE FELLOW PROGRAM

Inaugurated in 2019, the APSCE Fellowship recognizes outstanding members of the Asia-Pacific Society for Computers in Education (APSCE) in the field of computers in education. The title of APSCE fellow indicates, (1) Sustained and distinguished academic contributions to the advancement of research in the field of computers in education at the international level; (2) A strong track record in academic networking and services within the Asia-Pacific region.

The full guidelines for APSCE Fellows are available here:

APSCE-Fellows-Program-Guidelines
https://new.apsce.net/wp-content/uploads/2022/10/APSCE-Fellows-Program-Guidelines.pdf

APSCE-Fellow-Nomination-Form
https://new.apsce.net/apsce-fellows/

Following a decision made by the APSCE Fellows Committee, Prof. Antonija Mitrovic (New Zealand) is inducted as the new APSCE Fellow for 2022.

Antonija MITROVIC
APSCE Fellow 2022
University of Canterbury, New Zealand

Biography

Dr Antonija (Tanja) Mitrovic is a full professor at the Department of Computer Science and Software Engineering at the University of Canterbury, Christchurch, New Zealand. She is the leader of ICTG (Intelligent Computer Tutoring Group). Dr Mitrovic received her PhD in Computer Science from the University of Nis, Yugoslavia, in 1994. She is an associate editor of the following journals: Practice in Technology Enhanced Learning (RPTEL), International Journal on Artificial Intelligence in Education (IJAIED) and Journal of Universal Computer Science (JUCS). She is a Distinguished member of ACM, and senior member of AAAI and IEEE. She was awarded the Distinguished Researcher Award in 2011 by APSCE.

Dr Mitrovic's primary research interests are in student modeling. ICTG has developed a number of constraint-based intelligent tutoring systems in a variety of domains, which have been thoroughly evaluated in real classrooms, and proven to be highly effective. These systems provide adaptive support for acquiring both problem-solving skills and meta-cognitive skills. Although most of the ITSs developed by ICTG support students learning individually in areas such as database querying (SQL-Tutor), database design (EER-Tutor and ERM-Tutor), data normalization (NORMIT), there are also constraint-based tutors for object-oriented software design and collaborative skills, various engineering topics (thermodynamics, mechanics), training to interpret medical images and language-learning. ICTG has also developed ASPIRE, a full authoring and deployment environment for constraint-based tutors. Her recent research focuses on AI-based support for active learning from videos.

DISTINGUISHED RESEARCHER AWARD WINNER

Maiga Chang
Professor
School of Computing and Information Systems,
Athabasca University, Canada

Dr. Maiga Chang is a Full Professor in the School of Computing and Information Systems at Athabasca University, Canada. Dr. Chang has given more than 135 talks and lectures in different events. He also has (co-)authored more than 240 book chapters, journal and international conference papers. He is an IEEE member since 1996.

Dr. Chang is currently the chair of the IEEE (Institute of Electrical and Electronics Engineers) Technical Community of Learning Technology (TCLT) as well as the editor-in-chief of Educational Technology and Society, which is indexed by Web of Science's Social Science Citation Index (SSCI). In addition, He is also the editor-in-chief of the International Journal of Distance Education Technologies (IJDET) and the Bulletin of Technical Committee on Learning Technology – both are open access publication indexed by Web of Science Emerging Sources Citation Index (ESCI).

Dr. Chang is now Vice President (2022~) of International Association of Smart Learning Environments (IASLE); Executive Committee member of Asia-Pacific Society for Computers in Education (APSCE, 2017~2024), IEEE Computer Society Technical & Conference Activities Board (2022), Global Chinese Society for Computing in Education (GCSCE,

2016~2025), IEEE Computer Society Special Technical Communities (2021~); and Chair (2021~) of Educational Activities Committee, IEEE Northern Canada Section. Dr. Chang is also a Steering Committee member (2020~) for International Conference on Intelligent Tutoring Systems (ITS).

In the last two decades, Dr. Chang's research directions are Data Analytics Service and Game-based Learning. His Data Analytics research focus on the design of algorithms and methodologies for item generation (for quizzes and exams), learning activity generation, behaviour pattern extraction from sequential data and preference prediction and recommendation service. The Personalized Study Guide is research aiming to enable an open-source learning management system (i.e., Moodle) to provide students with a personalized study guide for their online learning by via the use of graph structures to analyze the learning objects in an online course and compare the learning behaviours, strategies, and preferences of individual students studying online. Three open-source Moodle plugins have been developed, reviewed, approved, and included in Moodle plugins directory.

On the Game-based Learning direction, his research continuously designs games for teaching, learning, rewards, and assessment. For instances, different games (including 3D, mobile and role-playing games) have been designed and developed to help students learning various topics, including botany, culture and history, finance, programming, management information systems, and meta-cognitive skills. His Trading Card Game (TCG) and the use of In-game Card as Educational Reward (ICER) research also inspired Trinity Primary School in the United Kingdom to develop "Character Clash!" to encourage children to read more. The Multiplayer Educational Game for All (MEGA World) is a web-based massively multiplayer educational game platform which supports any languages and is capable of access any existing external resources (e.g., multimedia, materials, online meetings, etc.). Teachers can create their virtual worlds as well as create learning and assessment activities (i.e., quests in the game) for students. Students can learn specific knowledge and reach the learning goal by taking and solving those quests while playing.

EARLY CAREER RESEARCHER AWARD WINNER

Daner Sun
Assistant Professor
Department of Mathematics and Information Technology,
The Education University of Hong Kong, Hong Kong

Dr Sun Daner is an assistant professor at the Department of Mathematics and Information Technology, the Education University of Hong Kong (EdUHK), Hong Kong SAR, China. Prior to joining EdUHK in 2015, she had been working as a postdoc fellow at the Learning Sciences Lab of the National Institute of Education, Nanyang Technological University, Singapore. Dr Sun follows a long–term research agenda spanning ICT-supported science education, AI in education, mobile learning, technology-oriented STEM education, and higher-order thinking in interdisciplinary education. In her research, she addresses the prevailing hot topics and challenges in these fields, thereby developing a solid understanding of the developments in these fields as well as making her own contributions. In brief, with great enthusiasm for research, Dr Sun has published 25 journal papers with 8 (top1%-5%) papers and 13 (top 5% -15%) papers. Besides, Dr Sun published eight book chapters and served as the editor/co-editor for four conference proceedings, and one special issue in RPTEL journal. Meanwhile, she actively leads or contributes to research projects including Co-I for five external projects and PI for 1 General Research Fund (GRF) project.

Dr Sun spares no efforts in taking various leading roles in local and international academic events and activities for contributing to the professional research community. She has taken leading roles as an organizer of ICCE and GCCCE international conferences. Three of her conference papers have been awarded nominations for the best student paper, the best overall paper, the best design paper, and in referred international conferences (i.e. GCCCE2018, ICCE2013, CSCL2013). She is the chair of the Special Interest Group (SIG) of CUMTEL of APSCE (2022-23); She is the Associate Editor of APSCE official journal: RPTEL. She is a reviewer of SSCI journals and serves as a member of relevant societies and associations. She is the awardee of the Outstanding Reviewer Award of Computers & Education 2018. Besides, APSCE Early Career Researcher Award (ECRA) 2022, Dr Sun is also the awardee of the President's Awards for Outstanding Performance in Knowledge Transfer (Team) 2019/2020 and Dean's Research Output Prize 21/22 in EdUHK.

LAST TEN YEARS' DISTINGUISHED RESEARCHER AWARD WINNERS

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

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

SPEAKERS OF APSCE WEBINAR SERIES (December 2021 – November 2022)

APSCE Webinar #20: Sustainable Learning Analytics in the Digital Age

Date: 04 April 2022 (Monday)
Speakers: Prof. Stephen Yang (National Central University, Taiwan)
Moderator: Prof. Ramkumar Rajendran (Indian Institute of Technology Bombay, India)
Curated by: APSCE Learning Analytics & Educational Data Mining SIG

APSCE Webinar #21: Intelligent Educational Gamification System Based on the Learner's Personality and Needs

Date: 10 May 2022 (Tuesday)
Speaker: Dr. Mouna Denden (Polytechnic University of Hauts-de-France (UPHF), France)
Moderator: Prof. Ahmed Tlili (Beijing Normal University, China)
Curated by: APSCE Educational Gamification and Game-based Learning (EGG) SIG

APSCE Webinar #22: Open-Ended Learning Environments Supporting STEM+C Learning

Date: 02 June 2022 (Thursday)
Speaker: Prof. Gautam BISWAS (Vanderbilt University, USA)
Moderator: Prof. Chee Kit LOOI (Nanyang Technological University, Singapore)
Curated by: APSCE Computational Thinking in Education & STEM (CTE-STEM) SIG

APSCE Webinar #23: Learning by Re-composition for Shared Understanding Between Peers and Between Peers and Teacher

Date: 23 June 2021 (Thursday)
Speaker: Prof. Tsukasa Hirashima (Hiroshima University, Japan)
Moderator: Prof. Takahito TOMOTO (Tokyo Polytechnic University, Japan)
Curated by: APSCE Educational Use of Problems/Questions in Technology (EUPQ) SIG

APSCE Webinar #24: Shaping Mobile Learning Futures for The Common Good
Date: 04 July 2022 (Monday)
Speaker: Prof. Agnes KUKULSKA-HULME (The Open University, UK)
Moderator: Dr. Daner SUN (The Education University of Hong Kong, Hong Kong)
Curated by: APSCE Classroom, Ubiquitous and Mobile Technology Enhanced Learning (CUMTEL) SIG

APSCE Webinar #25: Breaking the Barriers in the Learning Aids Development for the Visually Impaired and the Blind

Date: 30 August 2022 (Tuesday)
Speaker: Assoc. Prof. Aaron Raymond SEE (Southern Taiwan University of Science and Technology, Taiwan)
Moderator: Dr. May Marie P. TALADRON-FELIPE (University of Science and Technology of Southern Philippines, Philippines)
Curated by: APSCE Artificial Intelligence in Education, Intelligent Tutoring Systems & Adaptive Systems (AI-ED) SIG

APSCE Webinar #26: Multimodal Data in CSCL

Date: 08 September 2022 (Thursday)
Panelist:
Mutlu CUKUROVA (University College London, UK)
Muhterem DINDAR (Tampere University, Finland)
Roberto Martinez MALDONADO (Monash University, Australia)
Chair: Elizabeth KOH (Nanyang Technological University, Singapore)
Curated by: APSCE Computer-Support Collaborative Learning / Learning Sciences (CSCL/LS) SIG

APSCE Webinar #27: Design Thinking for Educators

Date: 06 October 2022 (Thursday)
Speaker: Dr. Eunice SARI (UX Indonesia and Customer Experience Insight Australia)
Moderator: Mr. Zachary Roland Anthony (Universiti Tunku Abdul Rahman, Malaysia)
Curated by: APSCE Practice-Driven Research, Teacher Professional Development and Policy of ICT in Education (PTP) SIG

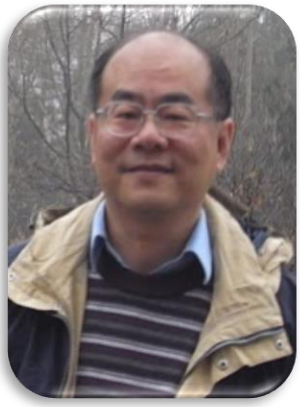
APSCE Webinar #28: Virtual Reality and Language Education: Research Trend and Teaching Practice

Date: 15 October 2022 (Saturday)
Speaker: Prof. Chunping ZHENG (Beijing University of Posts and Telecommunications)
Moderator: Prof. Vivian Wen-Chi WU (Asia University)
Curated by: APSCE Technology-Enhanced Language Learning (TELL) SIG

APSCE Webinar #29: Emulating Real-World Contexts Using Social Robots and IoT-Based Tangible Objects to Provide Embodied and Interactive Learning Experiences

Date: 09 November 2022 (Wednesday)
Speaker: Prof. Nian-Shing CHEN – National Taiwan Normal University, Taiwan
Moderator: Assoc. Prof. Patcharin Panjaburee (Khon Kaen University, Thailand)
Curated by: APSCE Development of ICT in the Asia-Pacific Neighbourhood (DICTAP) SIG

KEYNOTE SPEAKER



Gwo-Dong CHEN
National Central University, Taiwan

Digital Theater for Situational Learning in the Classroom

Abstract

To support situational learning in the classroom, the teachers need to arrange scenarios according to the teaching content and context so that the students can immerse in the scenarios to experience situational learning and teaching. Teachers commonly use Augmented reality AR, Virtual Reality VR, and 2D/3D computer screen displays to apply situational learning in the classroom. However, the existing digital reality mechanisms do not let the students see how they perform in the reality to do reflection learning and show it to their classmates so that the students feel responsible for learning and perform better to get recognition from their classmates. We designed and developed an alternative approach called Digital Theater to be used by teachers to apply situational learning in the classroom. Using video and skeleton capturing techniques, the video and sound of the students as actors can be captured, mixed, and put into the digital reality generated by the computer according to the context scenario of the learning content. The students formed groups to perform on the stage in the classroom. The Digital Theater system displays the performance as a stage drama that shows to the students who act as the actors or the audience in the classroom. The digital theater mechanism can be easily applied in an existing classroom. Moreover, the AI cognitive recognition mechanisms such as facial recognition, gesture recognition, speech recognition, and dialog language processing can be integrated into the digital theater. Therefore, the student's physical

performance can be captured, recognized, and evaluated in the digital space. The digital space, including virtual humans and robots, can interact and respond based on the designed learning script. After that, Digital Theater was formed as a digital game room for students to explore. Novel learning design can be devised on the digital theater mechanism. The virtual human and physical robots can be integrated into the digital theater to improve the student's learning performance. The physical robot can be used as a learning and presentation tool for designing how to learn and presenting learning results.

Biography

Dr. Gwo-Dong Chen is a Chair Professor Department of Computer Science and the director of the research center of learning science and technology at National Central University, Taiwan. He obtained a BS, MS, and Ph.D. from the Department of Electrical Engineering, National Taiwan University, Taiwan, in 1979, 1982, and 2000 respectively. From 2004 to 2010, he was the CEO of the Taiwan National e-learning program office, which involved 13 ministries and organizations of the government. Dr. Chen was the director general of the Department of Science Education, National Science Council, Taiwan, from 2010 to 2013. His current research focuses on constructing a Digital Theater system to support the teachers can quickly build a digital learning space in the physical space in the classroom according to the learning context. The learning design is to let the learners immerse bodily in the digital space to participate in the learning activities based on situated learning and embodied cognition. Dr. Chen and his students got the best student paper from ICALT 2022 and ICALT 2020, the best technique paper from ICCE2021, the best student paper from GCCCE 2022 (in Chinese), and the best paper from GCCCE 2020 (in Chinese), respectively.

KEYNOTE SPEAKER

Rebecca FERGUSON
Institute of Educational Technology (IET),
The Open University United Kingdom

Pedagogies for Today's World

Abstract

The COVID-19 pandemic forced educators around the world to make a sudden move to remote learning, often without the benefit of appropriate training and resources. As we begin to adapt to the 'new normal', there are opportunities to incorporate the findings of more than 20 years research on online education into our daily practice. For the last decade, The Open University in the UK has been producing 'Innovating Pedagogy' reports. These introduce new approaches together with sound advice based on evidence, common sense, and clarity. The pedagogies range from small-scale innovations, which individual educators can try out in their classes, to sweeping trends that may shape education futures around the world. In her keynote, Professor Rebecca Ferguson, lead author on the report for several years, introduces some of the pedagogies most relevant for a world in which teaching increasingly takes place at a distance. These include hybrid models that combine face-to-face and online approaches, enriched realities that extend the possibilities for learning, microcredentials, online laboratories, virtual studios, wellbeing education, and student-led analytics.

Biography

Rebecca Ferguson is Professor of Learning Futures in the Institute of Educational Technology (IET) at The Open University in the UK, and a senior fellow of the Higher Education Academy. Her primary research interests are educational futures and how people learn together online. She has worked on the Innovating Pedagogy Reports since the series was founded in 2012, including two years as lead author. This highly cited series of high-profile annual reports explores new forms of teaching, learning and assessment in order to guide educators and policy makers around the world. Rebecca was an executive member of the Society for Learning Analytics Research (SoLAR) for four years and is currently one of the Editors in Chief of the Journal of Learning Analytics. Her work has been influential in shaping the field, supporting implementation across Europe, and promoting a focus on social learning analytics and on ethics. Her other current focus is microcredentials, on which she has worked as Academic Lead at The Open University, due to her extensive experience in related areas. This experience includes a leading role in the creation of Future Learn and work as Pedagogic Adviser for the company in its first years, OU PI on the European-Commission-funded European MOOC Consortium: Labour Market (EMC-LM) project, and current Academic Lead of the international Future Learn Academic Network.

KEYNOTE SPEAKER

Ryan BAKER
University of Pennsylvania, United States

When Might a Detector Generalize?

Abstract

Machine-learned based detectors have become an increasingly important part of contemporary AIED systems, measuring and/or predicting constructs ranging from knowledge, to disengagement, to affect, to stopout. However, often when models are developed, they are only tested to a very limited degree (usually just on held-out students from the original data set) and are then used in different situations without further evaluation. In this talk, I will discuss evidence around when detectors generalize -- and when they don't -- in terms of student identity and changes in the learning system itself, using examples from multiple studies in our research group spanning from stopout, to gaming the system, to wheel-spinning, to affect. I will offer some simple guidelines about the situations that seem to be linked to successful model generalization and propose some steps forward for better understanding this challenge.

Biography

Ryan Baker is Professor at the University of Pennsylvania, and Director of the Penn Center for Learning Analytics. His lab conducts research on engagement and robust learning within online and blended learning, seeking to find actionable indicators that can be used today but which predict future student outcomes. Baker has developed models that can

automatically detect student engagement in over a dozen online learning environments, and has led the development of an observational protocol and app for field observation of student engagement that has been used by over 150 researchers in 7 countries. Predictive analytics models he helped develop have been used to benefit over a million students, over a hundred thousand people have taken MOOCs he ran, and he has coordinated longitudinal studies that spanned over a decade. He was the founding president of the International Educational Data Mining Society, is currently serving as Editor of the journal Computer-Based Learning in Context, is Associate Editor of the Journal of Educational Data Mining, was the first technical director of the Pittsburgh Science of Learning Center Data Shop, and currently serves as Co-Director of the MOOC Replication Framework (MORF). Baker has co-authored published papers with over 400 colleagues.

KEYNOTE SPEAKER

Su Luan Wong
Universiti Putra Malaysia, Malaysia

From theory to practice: Igniting Students' Interest in Educational Technology through Interest Driven Creator (IDC) Theory

Abstract

IDC theory owes its origins to a group of prominent Asian researchers concerned with the worrying trends of students' declining interest in learning. Indeed, their concerns about examination-driven education have struck a chord among scholars, especially in the Asian context. IDC theory posits that once interest in learning is piqued through interest-driven learning activities, students will be engaged in the knowledge creation process. Learning habits then ensue through repetition of the aforesaid process in the students' daily routine. This keynote focuses on interest-driven learning with the main aim of bridging theory and practice. In this talk, I will illustrate the trajectory of IDC theory in Asian classrooms since its inception in 2014. I will then share the findings of a recent study focusing on the first loop — interest. I will showcase empirical data illustrating how interest in educational technology can be developed through learning activities designed based on IDC tenets. I will end my talk by highlighting the key characteristics that emerged from the interest loop and how teacher education can benefit from IDC theory.

Biography

Dr. Su Luan Wong is a Professor at the Faculty of Educational Studies, Universiti Putra Malaysia (UPM). She has extensive teaching experience in educational technology, teacher education and teaching methods; and regularly conducts teaching and learning related training courses for educators. She is an active and passionate researcher and has published more than 200 scholarly papers with a special focus on teaching and learning in ICT. She has served as the Principal Associate Editor of the Asia-Pacific Educational Researcher Journal (SSCI), and Associate Editor of the Research and Practice in Technology Enhanced Learning (Scopus). She was also the Editor-in-Chief of the Pertanika Journal of Social Sciences and Humanities (Scopus). In recognition of her active role as a scholar, she was elected as an Executive Council member for the Asia-Pacific Society for Computers in Education (APSCE) in 2006, a post she still holds today. In 2011, she established a Special Interest Group — Development of Information and Communication Technology in the Asia-Pacific Neighbourhood (DICTAP) under the auspices of APSCE to bridge the research gap between scholars from developing and developed countries. Her hard work and dedication to serving the research community have led to a highly coveted association with APSCE as the President for 2016-2017.

THEME-BASED INVITED SPEAKERS

Hyo-Jeong SO
Ewha Womans University, Korea

When Mobile Learning and Learner Data Meet – Possibilities and Challenges

Abstract:

The field of mobile learning has expanded significantly with the wide adoption of mobile devices and seamless network connections. It is time to reflect on whether the promises of mobile seamless learning have been realized and whether mobile learning has transformed the culture of teaching and learning beyond easy access. In this talk, I will discuss some inherent tensions and challenges that researchers in the field of mobile learning are likely to experience when they adopt learner data-driven approaches in their design and analysis. Using examples from my projects, I will emphasize the necessity of building models of Asian learners and tackling the challenges of interdisciplinary knowledge. I will discuss these points based on my recent research on designing affective feedback mechanisms for Korean learners and diversity-based recommendation systems for mobile learning.

Biography:

Dr. Hyo-Jeong So is Professor in the Department of Educational Technology, Ewha Womans University in Korea. She received her Ph.D. degree from Instructional Systems Technology, Indiana University. Her main research interests include mobile learning, computer-supported collaborative learning (CSCL), and informal learning. She is particularly interested in examining how to integrate emerging technologies for teaching and learning from collaborative knowledge building perspectives. Currently, she is serving as Editor-in-Chief of Research in Practice in Technology-Enhanced Learning (RPTEL), and associate editors of Learning: Research and Practice, and IEEE Transactions on Learning Technologies. She has conducted several research projects on emerging technologies in education funded by Google, Microsoft, and the Korean National Research Foundation and international development projects in Indonesia and Mongolia. She has published several research papers in the international journals and working paper series with UNESCO.

THEME-BASED INVITED SPEAKERS

Jan VAN AALST
The University of Hong Kong, Hong Kong

What Have We Made? Examining Knowledge Building in the Post-Truth Era

Abstract:

When I was a graduate student in the 1990s, online discussion environments were called "CSILE-like," after the original environment that Marlene Scardamalia and colleagues developed to support knowledge building. Knowledge building was—and is—an effort to introduce students to a culture and the processes of knowledge creation. Nowadays, discussion forums are ubiquitous: Twitter, WeChat, Facebook, Whatsapp, TikTok, Instagram, and more. There also is an abundance of personal websites, vlogs, and podcasts. And where I live, newscast report on their own opinion polls and at talk shows scientists sit next to comedians and restaurant operators to debate the science of climate change or the Corona pandemic. People often do some Googling before they speak or consult their social networks. At first sight at least, all this it does look somewhat like knowledge building—e.g., democratization of knowledge and idea diversity. In this presentation I consider knowledge building as an educational model considering these developments. Is it an idea that has been passed by, or can it be a way forward? What kinds of educational development are then needed?

Biography:

Jan van Aalst is a recently retired associate professor at the University of Hong Kong, where he also has served as associate dean for research. He continues to be a Visiting Scholar at the University of Twente. He has served as Co-editor in Chief of Journal of the Learning Sciences, and as member of the Board of Directors of the International Society of the Learning Sciences (ISLS). He was elected Fellow of ISLS in 2020. Van Aalst's research has focused on knowledge building, an educational approach that emphasizes students' agency and metacognition, collaborative learning, and inquiry-based learning within a community. His team has studied pedagogical designs for knowledge building in schools in Hong Kong and China and has developed web-based tools, the Knowledge Connections Analyzer, and practices to support students' self-directed assessment of their knowledge building. His work involves students across a wide range of achievement levels. His work on knowledge building is published in International Journal of Computer-Supported Collaborative Learning, Journal of the Learning Sciences, and American Educational Research Journal. In 2013 he created an. M. Ed. program focusing on putting the key findings from the field of the learning science into educational practice, which has been popular with teachers from China, Hong Kong and farther abroad. This program emphasized educational design and partly led to a co-authored reference book on research methods, Learning Sciences Research for Teaching (Routledge). In the last few years Van Aalst's interests have begun to emphasize equity and social justice more, and he is currently collaborating on a long-range project to address these issues in an urban center in the Netherlands.

THEME-BASED INVITED SPEAKERS

Yu-Ju LAN
National Taiwan Normal University, Taiwan

New Research Trends in Emerging Technologies for Language Learning

Abstract:

Learning a new language other than one's first language (L1) is always challenging. It takes time, effort, focus, motivation, and sustained involvement. The use of language for communication and social interaction has always been a key competency in the 21st century. Technology plays a significant role in helping today's learners to acquire a language. Research on language learning has become highly interdisciplinary, drawing upon a range of fields such as psychology, education, neuroscience, and recently machine learning. TELL study follows the theoretical and methodological advances in education, cognitive science, and neuroscience. Moreover, TELL research depends heavily on the latest technologies. In this speech, I will illustrate the new paradigm of language learning in the modern digital era, examine TELL based on various methods and platforms supported by new digital technologies such as AI, mobile computing, VR, and digital games. It will also include how emerging technologies can further extend the influence of TELL research.

Biography:

Dr. Yu-Ju Lan is a Research Chair Professor in the Department of Chinese as a Second Language at National Taiwan Normal University. She is currently the Editor-in-Chief of Educational Technology & Society, Associate Editor of Language Learning & Technology, and on the editorial board of Ampersand. She is the president of the Taiwan Pedagogy and Practice in TELL Association. Her research interests include technology-enhanced foreign language learning, language learning in virtual worlds, mobile learning, and online synchronous teacher training. She has published nearly 50 SSCI journal papers. Dr. Lan has proposed the principles of designing tasks and VR contexts based on empirical evidence. As the need for using VR in learning grows, her pioneering works could provide essential implications for academia, education, and industries. For her outstanding research performance, she was awarded the Outstanding Research Award by the Ministry of Science and Technology (MOST), Taiwan, in 2022.

EXTENDED SUMMARY

Chair:
Lydia Yan LIU, Shanghai Jiao Tong University, China

Co-chair:
Hang SHU, Jiangnan University, China
Arnida ABDULLAH, Universiti Putra Malaysia

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 are be accepted: empirical, technical design, conceptual and literature review papers.

INTERACTIVE EVENT

Chair:
Chiu-Lin LAI, National Taipei University of Taipei, Taiwan

Co-chairs:
Atima Kaewsa-ard, Mae Fah Luang University, Thailand
Shwu Pyng HOW, University Putra Malaysia

Abstract

The goal of the interactive events is to offer the participants the opportunities for interactions with innovative educational technologies and tools through manipulation, problem-solving, discussion, and engagement.

To learn by doing - AIGO program keeps AI talents going in competitions

November 29, 2022/Tuesday
13:20 – 14:50, Room A

13:20-13:25	:	Opening Remarks - Hsiao-Chien Tseng
13:25-13:35	:	AIGO introduction - 'Industry Challenges X Talent Solutions' mechanism - Elvis Huang
13:35-13:55	:	Applying AI in Smart Manufacturing: Finding Blackholes in Defect Galaxy - Chia-Yu Lin
14:00-14:20	:	Computer Vision Application: Stray Dogs Monitoring - Kuo-Chung Yu
14:25-14:45	:	SQL-Based Chatbot for Government Household Statistics - Wen-Hwa Liao
15:10-15:30	:	Correction of English-translated Mail Addresses Using Natural Language Processing - Shih-Jung Wu
15:35-15:55	:	Restaurant Location Selection based on Restaurant Vectors - Chih-Yung Chang
16:00-16:20	:	Real-Time Prediction of Intradialytic Hypotension via GRU and Explainable AI - Che-Wen Chen
16:20-16:40	:	The Talents driving AI commercialization - Shih-Yu Lu

POSTERS & WORK-IN-PROGRESS POSTERS

Chair:
Dr. Mi Song KIM, University of Western Ontario, Canada, mkim574@uwo.ca

Co-chairs:
Dr. Atima Kaewsa-ard, Mae Fah Luang University, Thailand, atima.kae@mfu.ac.th
Dr. Wen Yun, Nanyang Technological University, Singapore, yun.wen@nie.edu.sg
Dr. Siti Khadijah ALI, Universiti Putra Malaysia, Malaysia

On-site Posters & WIPP Presentations (Session 1)

November 28, Monday
10:30 – 10:50, Foyer Level 1

197: Knowledge Building Approach to Teacher Professional Development
Feng Lin

On-site Posters & WIPP Presentations (Session 2)

December 1, 2022, Thursday
12:30 – 13:30, Room B

034: Topic-Level Social Network and Language Correlation in Course Discussion Forums
Ezekiel Adriel Lagmay and Maria Mercedes Rodrigo

070: Understanding areas of parallelograms through virtual geometrical representations: A Pilot Study
Eva-Maria Ternblad

084: Efficacy of an Online Course to Build Mindfulness in Adolescents
Renuka Rautela, Anurag Deep, Mayank Sharma and Nandini Chatterjee

103: Designing a Recommender System for Mobile Applications Focusing on Relative Importance Weights of Learner-related Variables
Woorin Hwang, Hyo-Jeong So, Chiyoung Song and Hyeji Jang

104: Support System for Understanding How Teammates Grasp Game Situations
Kazuteru Sakamoto, Kota Kunori and Tomoko Kojiri

133: Noticing critical information for productive uncertainty management during engineering design activity
Navneet Kaur and Chandan Dasgupta

164: Providing Adaptive User Interfaces in Deviceless Learning Environments
Kozo Mizutani

171: Aqualab: Establishing Validity of an Adventure Game for Middle School Science
Yoon Jeon Kim, Shari Metcalf, Jennifer Scianna, Glenda Perez and David Gagnon

181: Estimating Activity Conditions of Students in Class by Measuring Leg Movement
Tatsuya Hamada, Yuuki Terui and Hironori Egi

184: Design of an AI-powered Seamless Vocabulary Learning for Young Learners
Yun Wen

187: Effects of binaural audio on English vocabulary learning
Kosuke Shimizu, Shogo Fukushima and Takeshi Naemura

188: Development of a Chinese Language Learning Content Based on Mixed Reality Technology
Zhenni Shi, Yuto Nagata and Yusuke Morita

191: Motivation Estimation Method for Computer Supported Collaborative Learning Using Tablet Computer
Ryo Funabashi, Kouhei Nabetani, Takeo Noda, Masataka Kaneko and Hironori Egi

193: Interaction among Undergraduate Students in Graduation Research Seminars in Japan during the COVID-19 pandemic
Go Shoji and Shigeto Ozawa

206: Designing a Professional Development Program on Digital Accessibility and Inclusive Education for Faculty Members
Weiqin Chen

Online Posters & WIPP Presentations

December 1, 2022, Thursday
12:30 – 13:30, Gathertown

004: Role of peer assessment in facilitating Computational Thinking among pre-service teachers
Xin Pei Voon, Su Luan Wong, Lung Hsiang Wong, Mas Nida Md Khambari and Sharifah Intan Sharina Syed-Abdullah

018: The Development of Online Learning Readiness Scale for Junior Students (OLRS-J) in Taiwan
Chien Chou, Ruo-Yu Li, Li-Fang Ko and Min-Ling Hung

021: Monitoring of Learners' Activities in Software Structure Design Exercises
Yasuhiro Noguchi, Kanta Inoue, Satoru Kogure, Koichi Yamashita and Tatsuhiro Konishi

022: Evaluating the Performance of Chinese Multi-Label Grammatical Error Detection Using Deep Neural Networks
Tzu-Mi Lin, Chao-Yi Chen, Lung-Hao Lee and Yuen-Hsien Tseng

025: Analysis of CSCL for mathematical proof based on the log data of learners' verbal and nonverbal communications
Masataka Kaneko, Hironori Egi and Takeo Noda

040: Rural Teachers' Professional Development under the Model of "Internet plus" Volunteer Teaching in Normal College
Jian Zhao and Wenjing Yang

081: Construction of a Role-Play Style Japanese Learning Support System that Allows Teachers to Edit Dialogue Situations
Satoru Kogure, Yudai Kamata, Yasuhiro Noguchi, Koichi Yamashita, Tatsuhiro Konishi and Makoto Kondo

088: Rural Teacher ICT Literacy Professional Learning and Teaching Practice in China: A Multiple Case Study Investigation
Yanfen Huang, Sharifah Intan Sharina Syed Abdullah, Nurul Nadwa Zulkifli and Norliza Ghazali

092: Learning Support System Visualizing Relationships Among Classes and Objects Based on Teacher's Intent of Instruction
Koichi Yamashita, Yusuke Suzuki, Satoru Kogure, Yasuhiro Noguchi, Raiya Yamamoto, Tatsuhiro Konishi and Yukihiro Itoh

100: Combining Data and Human Intelligence through Predictive Visual Analytics to Improve Educational Assessments
Yancy Vance Paredes and Sharon Hsiao

119: Process Models Enhancement with Trace Clustering
Wiem Hachicha, Ronan Champagnat, Leila Ghorbel and Corinne Amel Zayani
126: GWpulse: Supporting Learner Modeling and Group Awareness in Online Forum with Sentiment Analysis
Yuta Nakamizo, Rwitajit Majumdar, Izumi Horikoshi, Changhao Liang, Brendan Flanagan and Hiroaki Ogata

130: A Learning Path Recommendation System for English Grammar Quiz Using Knowledge Map
Naomichi Tanimura, Kensuke Takii, Brendan Flanagan and Hiroaki Ogata

132: Impact of Gaming on the Mental Well-Being and Academic Performance among High School Students
Judith Azcarraga, Aaron James Capinpin, Roi Victor Roberto and Ramon Diego Tan

137: Instructional Design on Data Visualization Model of Using AR Sandbox Apps in Learning and Teaching Geography
Aaron Liu and Percy Kwok

153: A Curriculum Package of Social and Ethical Concerns In Metaverse Ecosystem In School Education Based On Bloom's Taxonomy
Percy Kwok, Joe Chen and Jordan Fung

159: A mobile learning approach to promoting students' learning performances in the era of the pandemic
Gwo-Jen Hwang and Ching-Yi Chang

160: The development and evaluation of a gamified virtual heritage tour for cultural learning: a perspective of cognitive and affective immersive learning
Kun-Hung Cheng and Ling-Ling Hsiao

163: In-Course Progressive Prediction and Recommendation for Supporting Personalized Learning
Young Park

166: Educational Assistant Wireframe for the Elderly to Mitigate Urban Climate Health Risks
May Kristine Jonson Carlon, Alvin Christopher Galang Varquez, Eden Mariquit Andrews and John Maurice Gayed

169: "Click it, when you need it": On-demand feedback for online settings
Paraskevi Topali, René Hilgemann and Irene-Angelica Chounta
170: The Development and Preliminary Evaluation of an Educational Game for Online Flight Reservation Services That Involves Real Person-NPCs
Yen-Ting Ho, Chih-Chen Kuo and Huei-Tse Hou

174: Design of an Online Educational Board Game for Membrane Technology Learning
Jui-Jong Wang, Min-Hsiang Hung, Jia-Yi Yan, Jo-Chi Yang, Chang-Wei Fan, Wan-Ting Yu, Cai-Syuan Sung, Wei-Song Hung and Huei Tse Hou

176: The Development and Preliminary Evaluation of a Mobile Game for Pattern Recognition Learning
Chi-Yu Chao, Yu-Chi Chen and Huei Tse Hou

186: Curriculum design system based on AR glasses for interest-driven learning
Dan Wang, Mas Nida Md.Khambari and Qian Qiu

198: Evaluating Deep Transfer Learning Models for Assessing Text Readability for ESL Learners
Yo Ehara

TUTORIALS

Chair:
Kaushal Kumar Bhagat, Indian Institute of Technology Kharagpur, India

Co-chair:
Sagaya Amalathas, University of Southampton, Malaysia campus

Using social network analysis to analyze online learning interaction

November 29, 2022, Tuesday
9:00 – 12:20, Room A,

Tutorial Conductor:
Nurbiha A Shukor, Universiti Teknologi Malaysia, Malaysia

Abstract:

Over the past decade, there has been an exponential growth of interest in network research across the physical and social sciences. For social scientists, the theory of networks has been a gold mine, yielding explanations for social phenomena in a wide variety of disciplines from education to economics. This workshop covers the essentials of social network analysis. It is particularly useful for researchers who are interested in learning about methods of analyzing social interactions. The participants will learn about the importance of interaction analysis, the social network analysis approach, and also the tools that can be used for interaction analysis to produce a social network. Participants will also be exposed to hands-on activity using Gephi software.

WORKSHOPS

W01: Analysis and Design of Problems/Questions in the Digital Environment: The 15th Workshop on Technology Enhanced Learning by Posing/Solving Problems/Questions

Organising Committee

Takahito Tomoto (Tokyo Polytechnic University, 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 posed by the learners are believed to help them in their learning and inquiry path. Moreover, 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 a problems/questions approach, 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.

W02: The 9th ICCE workshop on Learning Analytics and Evidence-based Education

Organising Committee

Huiyong Li, Kyoto University, Japan
Rwitajit Majumdar, Kyoto University, Japan
Brendan Flanagan, Kyoto University, Japan
Weiqin Chen, University of Bergen, Oslo Metropolitan University, Norway
Hiroaki Ogata, Kyoto University, Japan

About

The purpose of LA is "understanding and optimizing learning and the environments in which it occurs." The concept of Evidence-Based Practices (EBP) has its root in medicine and coined by doctors at McMaster University in Hamilton, Ontario in the early 1990s (Kvernbekk T., 2017). EBP involves the use of the best available evidence to bring about desirable outcomes, or conversely, to prevent undesirable outcomes. Davies, P. (1999) reviews the concept of EBP in education. Our work focuses on the notion of evidence-based education in the age of technology-enhanced learning. Technology now supports logging of teaching-learning interactions and Learning Analytics has matured tremendously over the period to provide robust methods to analyze and predict learning behaviors and outcomes in different teaching-learning contexts. Hence there is relevance in rethinking about the question Davies (1999) asked regarding "What is evidence?" and how to support it by technology. This would push the boundaries of learning analytics and move towards an evidence-based education system that can assist the various stakeholders in the teaching-learning scenarios.

W03: The 6th International Workshop on Information and Communication Technology for Disaster and Safety Education (ICTDSE2022)

Organising Committee

Hisashi HATAKEYAMA, Tokyo Institute of Technology, Japan
Hiroyuki MITSUHARA, Tokushima University, Japan

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.

W04: The 11th International Workshop on ICT Trends in Emerging Economies (WICTTEE 2022)

Organising Committee

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

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.

W05: The 10th Workshop on Technology-Enhanced STEM Education (TeSTEM Workshop)

Organising Committee

Sasithorn Chookaew, King Mongkut's University of Technology North Bangkok, Thailand
Charoenchai Wongwatkit, Mae Fah Luang University, Thailand
Niwat Srisawasdi, Khon Kaen University, Thailand
Patcharin Panjaburee, Khon Kaen University, Thailand
Pawat Chaipidech, Khon Kaen University, Thailand
Nguyen Thi Thuy Hang, Can Tho University, Vietnam

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. It has been advocated that STEM education is becoming even more important to preparing students for work in the technologically advanced world. Also, STEM education is vital for the nation's competitiveness in the global economy. Therefore, STEM education has been widely recognized as one of the central parts in the education reform movement. 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. These technologies have been applied in many and different ways to assist students and teachers in the rhythm of learning and teaching process for STEM education. Such digital technologies call for partnerships in which pedagogies are involved in instructional reform. Clearly, the effectiveness of innovative and digital technologies is also closely connected to the pedagogy through which they are employed. 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.

W06: The 2nd International Workshop on Metaverse and Artificial Companions in Education and Society (MetaACES 2022)

Organising Committee

Maiga CHANG, Athabasca University, Canada
Gwo-Jen HWANG, Taiwan University of Science and Technology
Hiroaki OGATA, Kyoto University, Japan
Siu-Cheung KONG, The Education University of Hong Kong

About

The 2nd International Workshop on Metaverse and Artificial Companions in Education and Society (MetaACES 2022Nov), organized by The Education University of Hong Kong, will be held on 29 November 2022 in ICCE 2022. MetaACES 2022Nov aims to provide an interactive platform for academics, researchers, practitioners, and professionals in the education sector to share and exchange research agenda, innovative ideas as well as practices of promoting and exploring metaverse, artificial companions, and related technologies. MetaACES 2022Nov comprises seminars and panels delivered by internationally renowned scholars, researchers, and practitioners. Catalysed and facilitated by emerging technologies, the metaverse and related artificial companions will affect us in every aspect of our lives.

W07: The 2nd ICCE workshop on EMBODIED Learning: Technology Design, Analytics & Practices.

Organising Committee

Aditi Kothiyal, Swiss Federal Institute of Technology Lausanne (EPFL) Switzerland
Prajakt Pande, University of Illinois at Urbana-Champaign (UIUC)
Rwitajit Majumdar, Kyoto University, Japan
Shitanshu Mishra, MGIEP UNESCO, India
Jayakrishnan Madathil Warriem, IIT Madras, India

About

Newer accounts of cognition and learning, such as 4E (embodied, embedded, extended and enacted) cognition suggest that cognition and learning are grounded in action (Menary, 2010; Newen et al., 2018). Hence learning design and assessment should be grounded in action. However, designing for embodied learning is relatively new within educational technology. Existing work is fragmented and fails to provide concrete design

principles (e.g. Lindgren & Johnson-Glenberg, 2013; Malinverni & Peres, 2014; Abrahamson & Lindgren, 2014; Skulmowski & Rey, 2018) . Further, the benefits of embodied learning are attractive yet elusive (Pande, 2020; Skulmovski & Rey, 2018).

In order to realize the hypothesized benefits of embodied learning, it is important to identify the learning mechanisms underlying embodied learning and quantify its benefits. Given the nature of embodied learning systems, it is necessary to use multimodal data to capture all learning interactions such as large and small body movements, speech and eye gaze in order to identify the learning mechanisms (Abrahamson et al, 2020). Analysis of embodied learning scenarios thus becomes challenging, but is intricately tied to design and its refinement. The goal of this workshop is to provide an interactive avenue for researchers to discuss a strongly theory-grounded approach to learning, TEL designs, learning analytics and findings related to embodied learning when deployed in various educational settings.

W08: Innovative technology and human factors in educational games

Organising Committee

Ju-Ling Shih, National Central University
Chang-Hsin Lin, Tainan University of Technology, Taiwan
Chang-Yen Liao, National Central University, Taiwan
Daniel Spikol, Malmo University, Sweden
Gheorghita (George) Ghinea, Brunel University London, United Kingdom
Hercy N. H Cheng, Taipei Medical University, Taiwan
Ming-Puu Chen, National Taiwan Normal University, Taiwan
Shu-Hsien Huang, National Chin-Yi University of Technology, Taiwan
Tosh Yamamoto, Kansai University, Japan
Tsung-Yen Chuang, National University of Tainan, Taiwan
Valentina DAGIENĖ, Vilnius University, Lithuania
Zhi-Hong Chen, National Taiwan Normal University, Taiwan

About

Game and innovative technology is becoming popular in academic research as well as commercial companies. There are more and more successful cases reported in using game and innovative technology in learning. Educators, researchers as well as game-based learning designers believe that game and innovative technology can strongly enhance learning because children are so engaged when they play game and innovative technology. They also find that using game and innovative technology in learning can enhance learning performance and creativity.

Game and innovative technology for learning is a rapidly growing research area. Digital games include advanced computing technology while innovative technology are embedded with wireless utilized chips and sensors. These new technologies make individual and social activities to be integrated possibly in new ways and reframe long-standing research questions, ideas, and approaches to learning. Beside fantasy and fun elements, game and innovative technology have potential to enhance learners' ability to communicate and interact with others during playing games.

W09: The 6th Computer-Supported Personalized and Collaborative Learning

Organising Committee

Sunny S. J. Lin, National Yang Ming Chiao Tung University (NYCU), Taiwan.
Robin Chiu-Pin Lin, National Tsing Hua University, Taiwan
Sherry Y. Chen, Brunel University, UK
Gwo-Haur Hwang, National Yunlin University of Science and Technology, Taiwan
Fu-Yun Yu National Cheng Kung University, Taiwan
Chen Wenli, Nanyang Technological University (NTU)
Shu-Yuan, Takming University of Science and Technology, Taiwan.
Hsiu-Ling Chen, National Taiwan University of Science and Technology, 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.

W10: The Applications of Information and Communication Technologies (ICTs) in Adult and Continuing Education

Organising Committee

Xibei Xiong, Guangxi Normal University, China
Chun Ping ZHENG, Beijing University of Posts and Telecommunications, China
Jyh-Chong LIANG
National Taiwan Normal University, Taiwan

About

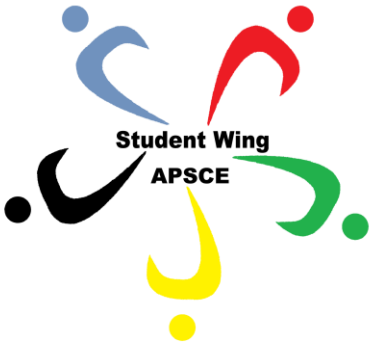
Information and communication technologies (ICTs)—which include various forms of media, as well as new digital technologies such as computers and the Internet—have been recognized as potentially powerful enabling tools for educational use. When used appropriately, ICTs are expected to expand access to teaching and learning. Recently, the probable impacts of ICTs on adult and continuing education have been receiving much attention from educational researchers. Although the targeted areas of 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 and continuing education.

APSCE STUDENT WING

Purpose

The APSCE Student Wing is meant for engage and empower student volunteers in organizing student activities and building a student network both within and beyond 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:
Patrick Ochaja (Kyoto University, Japan)

Committee members:
Kennedy LIN (National Cheng Kung University, Taiwan) – last year's chair (Professor Fu-Yun YU)
Patrick OCHEJA (Kyoto University, Japan) – last year's co-chair (Professor Hiroaki OGATA)
Qianru LYU (Nanyang Technological University Singapore) – Professor Wenli CHEN

Kensuke TAKII (Kyoto University, Japan) – Professor Hiroaki OGATA
Vishwas BADHE (Indian Institute of Technology Bombay, India) – Professor Ramkumar RAJENDRAN
Christine TABLATIN (Pangasinan State University, Phillippines) – Professor Mercedes T. RODRIGO
Xin Pei VOON (Universiti Putra Malaysia) – Professor Su Luang WONG
Zhihao CUI (The Chinese University of Hong Kong) – Professor Morris Jong and Professor Oilam NG
Kamilah ABDULLAH (Universiti Putra Malaysia) – Dr. Mas Nida Md. KHAMBARI
Alex Teh Liang Jing (Universiti Putra Malaysia) – Professor Su Luan WONG

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: November 28th, 2022
Time: 15:10 – 16:40 (GMT+8)

15:10 - 15:15	:	Opening Remarks Prof. Hiroaki OGATA
15:15 - 15:45	:	**Talk 1: Analytics techniques for the study and support of online learning scenarios** Prof. Ulrich HOPPE
15:45 - 16:15	:	**Talk 2: Research topics and hypotheses: defining and managing expectations, and handling results** Dr. Brendan FLANAGAN
16:15 - 16:35	:	**Interactive session with Invited Speakers** Dr. Izumi HORIKOSHI Assistant Professor, Academic Center for Computing and Media Studies. Kyoto University, Japan. Dr. Emily S. TABANAO Assistant Professor, Department of Computer Science.

	College of Computer Studies, Mindanao State University-Iligan Institute of Technology, Philippine. Dr. Alwyn Vwen Yen LEE Research Fellow, Department Office of Education Research (OER). National Institute of Education (NIE), Nanyang Technological University, Singapore. Dr. Huiyong LI Research Fellow, Academic Center for Computing and Media Studies. Kyoto University, Japan
16:35 - 16:40	Closing Remarks Dr. Patrick OCHEJA
17:50 - 18:50	City tour: visits to Central Market, Petaling Street Chinatown, and around Kuala Lumpur

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DOCTORAL STUDENT CONSORTIA

Chair:
Bo JIANG, East China Normal University

Co-Chairs:
Hiroaki OGATA, Kyoto University
Yanjie SONG, The Education University of Hongkong
Jayakrishnan Madathil WARRIEM, Indian Institute of Technology Madras
Vwen Yen Awyln LEE, Nanyang Technological University
Nor Azni ABDUL AZIZ, University Putra Malaysia

Mentors:
Guodong Chen, National Central University
Suluan Wong, Universiti Putra Malaysia
Yu-Ju Lan, National Taiwan Normal University
Maria Mercedes T. Rodrigo, Ateneo de Manila University
Yanjie Song, The Education University of Hongkong
Bo Jiang, East China Normal University

Abstract:
The Doctoral Student Consortium (DSC) has become a regular feature of ICCE conferences since ICCE 2002. The DSC aims to provide an opportunity for a selected number of PhD students to present, discuss and receive feedback on their dissertation work-in-progress from a panel of established researchers from relevant fields. The DSC is also an opportunity for students to shape their research methodologies and analysis. As such, intending participants should not be too close to completing their research that the consortium would have little impact on their research work.

Objectives:
- Provide feedback to participants on their current research approach and methodology
- Provide theme-based forums for discussing methodological and theoretical issues of central importance to different DSC themes
- Provide guidance on future research directions
- Nurture a supportive learning community by promoting interaction between young researchers from various institutions across different countries in the Asia-Pacific region and beyond

Time slot	Paper ID	PhD Student	University	Paper Title	Mentors and Chairs
09:00-09:05	Introduction				Bo Jiang, East China Normal University
09:10-10:35	158	Liu Chen	Universiti Putra Malaysia	Predicting Chinese Secondary School Students' Behavioral Intention to Use an Online Homework System.	Chair: Bo Jiang, East China Normal University Mentors: Guodong Chen, National Central University, Taiwan Suluan Wong, Universiti Putra Malaysia Yu-Ju Lan, National Taiwan Normal University
	196	Maricel A. Esclamado	Ateneo de Manila University	Modeling Off-task Behavior of Learners in Minecraft.	
	167	Yunsi Tina Ma	The Education University of Hong Kong	Using Digital Storytelling on Scratch to Support Primary School EFL/ESL Students' Writing: A Self-regulated Learning Approach.	
10:35-10:50	Coffee break				
10:50-12:20	172	Joseph Benjamin Ilagan	Ateneo de Manila University	The design and use of agent-based modeling computer simulation for teaching technology entrepreneurship.	Chair: Vwen Yen Awyln LEE, Nanyang Technological University Mentors: Suluan Wong, Universiti Putra Malaysia
	189	Rajashri Priyadarshini	Indian Institute of Technology Bombay	Investigating the impact of modeling in a CSILE on problem-solving strategies and scientific reasoning by students in complex chemical engineering problems.	

Time slot	Paper ID	PhD Student	University	Paper Title	Mentors and Chairs
	180	Min Lee	Nanyang Technological University	Developing student agency through feedback seeking practices in a CSCL environment.	Maria Mercedes T. Rodrigo, Ateneo de Manila University Yanjie Song, The Education University of Hongkong
12:20-13:20	Lunch break				
13:20-14:50	185	Changhao Liang	Kyoto University	Learning log-based group work support: GLOBE framework and system implementations.	Chair： Jayakrishnan Madathil WARRIEM, Indian Institute of Technology Madras Mentors： Maria Mercedes T. Rodrigo, Ateneo de Manila University Yanjie Song, The Education University of Hongkong Bo Jiang, East China Normal University
	192	Yuko Toyokawa	Kyoto University	Digitally Enhanced Active Reading in a Learning Analytics Enhanced Environment.	
	177	P. A. Nandan	Indian Institute of Technology Bombay	Interplay of Cognitive, Affective and Ecological Factors Influencing Teachers' Technology Integration Beliefs: A Contextualized Model.	

EARLY CAREER WORKSHOP

Chair
Maiga CHANG, Athabasca University, Canada

Co-Chairs
Anita DIWAKAR, AIEE EDTECH, India
Muhd Khaizer OMAR, Universiti Putra Malaysia, Malaysia

Mentors:
Akihiro KASHIHARA, The University of Electro-Communications, Japan
Kae NAKAYA, Tokyo Woman's Christian University, Japan
Jingyun WANG, Durham University, UK

About:
Held in conjunction with the ICCE 2022, the Early Career Workshop (ECW) is an event that offers an opportunity for early career scholars in the learning technology field to discuss their research, early-career challenges and career directions with peers and senior advisors.

Objectives:

The ECW aims to add value to the early-career participants in, but not limited to, the following aspects:

- To develop academic support networks among peers, between early career scholars and more senior scholars, and the connection between early career scholars and the APSCE Special Interest Groups (SIGs) related to their respective research areas;
- To be engaged in negotiation and exchange, thereby developing greater awareness and appreciation, in acting strategically about one's academic career, including the development of a thriving research program, grant applications and journal publications, balancing multiple requirements (research, teaching, university/international services), building local and international relationships to maximize future career opportunities, getting promotion and tenure, etc.

Early Career Researcher:
Analytics-Driven Motivation Nudges on Online Learning Platforms
May Kristine Jonson CARLON, Tokyo Institute of Technology, Japan

ECW Program

November 30, Wednesday
17:30 – 18:30, Online

17:30 – 17: 35	:	**Opening Remarks** Maiga CHANG, Athabasca University, Canada
17:30 – 17:45	:	**Presentation from Early Career Researcher** Analytics-Driven Motivation Nudges on Online Learning Platforms May Kristine Jonson CARLON, Tokyo Institute of Technology, Japan
17:45 – 18:05	:	**Advice by mentors on the presented research** Akihiro KASHIHARA, The University of Electro-Communications, Japan Kae NAKAYA, Tokyo Woman's Christian University, Japan Jingyun WANG, Durham University, UK
18:10 – 18:30	:	**Private Mentor Consultation** Akihiro KASHIHARA, The University of Electro-Communications, Japan Kae NAKAYA, Tokyo Woman's Christian University, Japan Jingyun WANG, Durham University, UK **Closing Remarks** Maiga CHANG, Athabasca University, Canada