HCI 2021

International

23rd International Conference on Human - Computer Interaction

Thematic areas

HCI: Human-Computer Interaction

HIMI: Human Interface and the Management of Information

Affiliated conferences

EPCE: 18th International Conference on
Engineering Psychology and Cognitive Ergonomics

UAHCI: 15th International Conference on
Universal Access in Human-Computer Interaction

VAMR: 13th International Conference on
Virtual, Augmented and Mixed Reality

CCD: 13th International Conference on
Cross-Cultural Design

SCSM: 13th International Conference on
Social Computing and Social Media

AC: 15th International Conference on
Augmented Cognition

DHM: 12th International Conference on
Digital Human Modeling and Applications in Health, Safety, Ergonomics & Risk Management

DUXU: 10th International Conference on
Design, User Experience and Usability

DAPI: 9th International Conference on
Distributed, Ambient and Pervasive Interactions

HCIBGO: 8th International Conference on
HCI in Business, Government and Organizations

LCT: 8th International Conference on
Learning and Collaboration Technologies

ITAP: 7th International Conference on
Human Aspects of IT for the Aged Population

HCI-CPT: 3rd International Conference on
HCI for Cybersecurity, Privacy and Trust

HCI-Games: 3rd International Conference on
HCI in Games

MobiTAS: 3rd International Conference on
HCI in Mobility, Transport and Automotive Systems

AIS: 3rd International Conference on
Adaptive Instructional Systems

C&C: 9th International Conference on
Culture and Computing

MOBILE: 2nd International Conference on
Design, Operation and Evaluation of Mobile Communications

AI-HCI: 2nd International Conference on
Artificial Intelligence in HCI

http://2021.hci.international/

HCI 2021 INTERNATIONAL

Final program

24-29 July 2021

The times indicated are in
Eastern Daylight Time - EDT
(Washington DC)

Program On-line

Under the auspices of 21 distinguished international boards, of 469 Members from 54 countries

2021.hci.international/program

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General Chair Emeritus and
Scientific Advisor**
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Note: The times indicated are in "Eastern Daylight Time - EDT (Washington DC)"

Conference at a Glance

Conference Program Overview

The times indicated are in
"Eastern Daylight Time - EDT (Washington DC)"

You can check and calculate your local time, using an online time conversion tool,
such as www.timeanddate.com

PROGRAM

Day	Time	Session	Page
Saturday 24 July	15:00-16:00	Opening Plenary Session Welcome - *page 4* Introductions Awards Announcement - *page 10* Keynote Speech - *page 5* **"Advances in VR Technology and the Post-Coronavirus Society",** by: **Prof. Michitaka Hirose**	
	10:30-12:30	Parallel sessions with paper presentations - Day 1	*- page 12*
	All Day	Poster presentations	*- page 90*
Sunday 25 July	08:00-12:00	Tutorials	*- page 9*
	08:00-12:30	Parallel sessions with paper presentations - Day 2	*- page 19*
	All Day	Poster presentations	*- page 90*
Monday 26 July	08:00-12:00	Tutorials	*- page 9*
	08:00-12:30	Parallel sessions with paper presentations – Day 3	*- page 33*
	08:00-17:30	HCII2021 Special Thematic Sessions on 'Human-Centered AI'	*- page 39 & 46*
	All Day	Poster presentation	*- page 90*
Tuesday 27 July	08:00-12:00	Tutorials	*- page 9*
	08:00-12:30	Parallel sessions with paper presentations - Day 4	*- page 47*
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Wednesday 28 July	08:00-12:00	Tutorials	*- page 9*
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Thursday 29 July	08:00-12:00	Tutorials	*- page 9*
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	All Day	Poster presentations	*- page 90*

HCI International 2021 - Welcome Note

Gavriel Salvendy
Conference Founder,
General Chair Emeritus
and Scientific Advisor

Dear Colleague,

It is with great honor and pleasure that I welcome you to HCI International 2021, the 23rd International Conference on Human-Computer Interaction, to be held 24 – 29 July 2021. The conference was planned to be held at the Washington Hilton Hotel, Washington DC, USA, but due to the COVID-19 coronavirus pandemic and with everyone's health and safety in mind, HCII2021 has been organized to run as a virtual conference.

HCII 2021 incorporates 21 Affiliated Conferences / Thematic Areas:
- HCI: Human-Computer Interaction Thematic Area
- HIMI: Human Interface and the Management of Information Thematic Area
- EPCE: 18th International Conference on Engineering Psychology and Cognitive Ergonomics
- UAHCI: 15th International Conference on Universal Access in Human-Computer Interaction
- VAMR: 13th International Conference on Virtual, Augmented and Mixed Reality
- CCD: 13th International Conference on Cross-Cultural Design
- SCSM: 13th International Conference on Social Computing and Social Media
- AC: 15th International Conference on Augmented Cognition
- DHM: 12th International Conference on Digital Human Modeling & Applications in Health, Safety, Ergonomics & Risk Management
- DUXU: 10th International Conference on Design, User Experience and Usability
- DAPI: 9th International Conference on Distributed, Ambient and Pervasive Interactions
- HCIBGO: 8th International Conference on HCI in Business, Government and Organizations
- LCT: 8th International Conference on Learning and Collaboration Technologies
- ITAP: 7th International Conference on Human Aspects of IT for the Aged Population
- HCI-CPT: 3rd International Conference on HCI for Cybersecurity, Privacy and Trust
- HCI-Games: 3rd International Conference on HCI in Games
- MobiTAS: 3rd International Conference on HCI in Mobility, Transport and Automotive Systems
- AIS: 3rd International Conference on Adaptive Instructional Systems
- C&C: 9th International Conference on Culture and Computing
- MOBILE: 2nd International Conference on Design, Operation and Evaluation of Mobile Communications
- AI-HCI: 2nd International Conference on Artificial Intelligence in HCI

Constantine Stephanidis
General Chair HCII 2021

HCI International is the worldwide renowned international forum for the dissemination and exchange of up-to-date scientific information on theoretical, generic and applied areas of Human-Computer Interaction. Like its predecessor conferences, HCII 2021 promises to be an unforgettable cluster of high quality international scientific events, and an ideal occasion to come to be exposed to the rapidly evolving ICT market in the world. The Thematic Areas / Affiliated Conferences of HCII 2021 explore a wide variety of new hot topics which reflect and contribute to a paradigm shift towards ubiquitous interaction, intelligent environments and interactive technologies supporting all aspects of human life and activities in a global and social perspective.

The Conference Proceedings are published by Springer in the Lecture Notes in Computer Science (LNCS), Lecture Notes in Artificial Intelligence (LNAI) and Communications in Computer and Information Science (CCIS) series and are available on-line through the SpringerLink Digital Library, readily accessible by all subscribing libraries around the world.

HCII 2021 also offers the option of "Late Breaking Work", both for papers and posters, with the corresponding volumes of the proceedings to be published after the Conference. Full papers will be included in the "HCII 2021 - Late Breaking Papers" volumes (LNCS series), while Poster Extended Abstracts will be included in the form of short research papers in the "HCII 2021 - Late Breaking Posters" volumes (CCIS series).

All Conference participants are able to browse, search, read and download in PDF format, the initial 39 volumes of the Proceedings already available through their conference (CMS) account. After the conference, the "Late Breaking Work" volumes of the proceedings will also become available, all together forming the full set of the HCII 2021 Conference Proceedings. Springer also offers for sale all volumes, individually and as a full set, in soft cover printed form, with a significant discount for authors.

An impressive number of more than 2,000 individuals from 81 countries are participating in this truly international in scope event, where the work of world leaders in the field is presented.

We are privileged to have Professor Michitaka Hirose, The University of Tokyo, Japan, joining us as the keynote speaker at the plenary session. His speech is entitled: "Advances in VR Technology and the Post-Coronavirus Society".

As established in previous years, twenty-two awards will be conferred during the Plenary Session. The awards, in the form of a certificate, will be presented to the author(s) of the Best Paper of each Thematic Area / Affiliated Conference and of the Best Poster Extended Abstract.

I would like to thank each and every one of you for your valuable contribution towards the success of this Conference, and to wish you a professionally rewarding and enjoyable attendance of the virtual HCII 2021 Conference.

We are hopeful that the current situation with the pandemic will improve and allow us to meet each other in person next year for the HCII 2022 conference, scheduled to take place at the Gothia Towers Hotel and Swedish Exhibition & Congress Centre, Gothenburg, Sweden, 26 June – 1 July 2022.

We look forward to welcoming you to the virtual HCI International Conference 2021!

Constantine Stephanidis
General Chair

HCI International 2022

The 24th International Conference on Human-Computer Interaction, HCI International 2022, will be held jointly with the affiliated conferences at the Gothia Towers Hotel and Swedish Exhibition & Congress Centre, Gothenburg, Sweden, 26 June – 1 July 2022. It will cover a broad spectrum of themes related to Human-Computer Interaction, including theoretical issues, methods, tools, processes, and case studies in HCI design, as well as novel interaction techniques, interfaces, and applications. The proceedings will be published by Springer.

General Chair: Prof. Constantine Stephanidis
University of Crete and ICS-FORTH Heraklion, Crete, Greece
Email: general_chair@hcii2022.org

http://2022.hci.international

Opening Plenary Session

Saturday, **24 July 2021**
08:00-10:00
Eastern Daylight Time - EDT (Washington DC)

ADVANCES IN VR TECHNOLOGY AND THE POST-CORONAVIRUS SOCIETY

Michitaka Hirose
The University of Tokyo, Japan

MICHITAKA HIROSE
Biographical Sketch

Abstract

The spread of COVID-19 is threatening to permanently change our society. Among other things, it has increased the cost of human contact and greatly restricted international travel. The future is uncertain and HCII2021 will be held as a virtual conference. This change is reminiscent of the oil shocks of approximately 50 years ago. The rise in energy costs forced changes in the industrial structures of countries around the world from heavy industries to light, thin, and short industries such as information technology. Here again, we are faced with similar challenges. Consequently, society will be changed irreversibly.

Information and Communication Technology (ICT) is playing an important role in this major change, particularly for VR, a technology that can transcend both time and space. VR has a 30-year history and has only recently found opportunities to spread in society. Telepresence technology that is capable of transmitting a distant presence will expand the potential of teleworking beyond office-based work to a whole new level. In addition, it may even replace some traditional physical transportation technologies.

By enriching virtual spaces as a new space for activity, we can regain activities that were reduced due to COVID-19. To achieve this, the existing currently technically under-developed VR technology must be further refined such as by expanding to networks and interface devices based on new principles, which will require technical advancement to the second generation. Thus, what exactly is the second generation of VR? This talk will introduce a series of rapidly advancing new VR technologies such as WebVR technology that enables users to easily experience VR through a web browser, pseudo-haptic technology that generates haptic sensations without complex mechanisms, and interface technology that uses new principles such as direct nerve stimulation. In addition, the social impact of these technologies will be discussed.

Michitaka Hirose is an emeritus professor at the University of Tokyo and a project leader of the Service VR project at Research Center of Advanced Science and Technology (RCAST), the University of Tokyo.

He was born in 1954 in Kamakura, Japan. He received his BE, ME, and PhD in Mechanical Engineering from the University of Tokyo in 1977, 1979, 1982, respectively. In 1982, Michitaka Hirose joined the mechanical engineering faculty at the University of Tokyo as a lecturer and was promoted to an associate professor in 1983. His early interests were human interfaces, microcomputer applications, and biomedical signal processing. He facilitated the establishment of a human interface research group in Japan and was a co-founder of the Human Interface Society of Japan. In 1985, he started 3D user interface research in his laboratory. In 1989-1990 he was a visiting scholar at U.C. Berkeley and joined Larry Stark's VR research group where many VR pioneers were working. Upon returning to Japan, he initiated various VR research projects.

One of his most memorable projects was CABIN, a large-scale immersive environment that consisted of five screens constructed at the University of Tokyo (1997). In this project, he developed various telepresence technologies such as a video avatar, a photo-realistic walk-through environment, and wearable haptic interfaces. In addition, he helped organize the Virtual Reality Society of Japan (VRSJ) and served as its director and later its president.

In 1999, he was promoted to professor of intelligent systems at RCAST, the University of Tokyo. In 2010-2012 he served as a project leader of the "Digital Museum" project that was sponsored by the Japanese Ministry of Education, Culture, Sports, Science, and Technology (MEXT). In the project, he developed various digital exhibition systems with the use of VR/AR technologies and wearable/mobile devices.

In 2007, Michitaka Hirose became a professor of human interface and systems engineering in the school of information science and technology, University of Tokyo. In 2018, he established the VR Research and Education Center at the University of Tokyo and became its first director.

Michitaka Hirose is the recipient of various honors and awards such as the Tokyo Techno Forum Gold Medal Award (1995), the Chairman Commendation of Information Promotion Month (Ministry of Communication) (2003), the Okawa Publication Prize (2004), the Laval Virtual Award (2005, 2009), the VSMM Best Paper Award (1998), the VRSJ Best Paper Award (1999, 2005, 2011, 2013, 2015, 2017, 2018, and 2019), and the IEEE VGTC Virtual Reality Career Award (2015).

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* Consistent with the 'one-China policy' of the United Nations Organization

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Na Chen, P.R. CHINA
Wen-Ko Chiou, TAIWAN*, CHINA
Zhiyong Fu, P.R. CHINA
Toshikazu Kato, JAPAN
Sheau-Farn Max Liang, TAIWAN*, CHINA
Wei Lin, TAIWAN*, CHINA
Rungtai Lin, TAIWAN*, CHINA
Dyi-Yih Michael Lin, TAIWAN*, CHINA
Robert T.P. Lu, P.R. CHINA
Xingda Qu, P.R. CHINA
Chun-Yi (Danny) Shen, TAIWAN*, CHINA
Hao Tan, P.R. CHINA
Pei-Lee Teh, MALAYSIA
Lin Wang, KOREA
Hsiu-Ping Yueh, TAIWAN*, CHINA
Run-Ting Zhong, P.R. CHINA

12th International Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management

Program Chair:
Vincent G. Duffy, USA

Giuseppe Andreoni, ITALY
Mária Babicsné Horváth, HUNGARY
Stephen Baek, USA
Joan Cahill, IRELAND
André Calero Valdez, GERMANY
Yaqin Cao, P.R. CHINA
Damien Chablat, FRANCE
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Fu Guo, P.R. CHINA
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Dan Högberg, SWEDEN
Csilla Herendy, HUNGARY
Mingcai Hu, P.R. CHINA
Genett Jimenez, COLOMBIA
Mohamed Fateh Karoui, USA
Sashidharan Komandur, NORWAY
Sebastian Korfmacher, GERMANY
Theoni Koukoulaki, GREECE
Noriaki Kuwahara, JAPAN
Byung Cheol Lee, USA
Yi Lu, P.R. CHINA
Alexander Mehler, GERMANY
Peter Nickel, GERMANY
Thaneswer Patel, INDIA
Giovanni Pignoni, NORWAY
Manikam Pillay, AUSTRALIA
Qing-Xing Qu, P.R. CHINA
Fabián R. Narváez, ECUADOR
Caterina Rizzi, ITALY
Joni Salminen, QATAR
Juan A. Sánchez-Margallo, SPAIN
Sebastian Schlund, AUSTRIA
Deep Seth, INDIA
Meng-Dar Shieh, TAIWAN*, CHINA
Beatriz Sousa Santos, PORTUGAL
Leonor Teixeira, PORTUGAL
Renran Tian, USA
Alexander Trende, GERMANY
Dustin Van der Haar, SOUTH AFRICA
Dakuo Wang, USA
Anita Woll, NORWAY
Kuan Yew Wong, MALAYSIA
Shuping Xiong, KOREA
James Yang, USA

Proceedings

Note: The below list of volumes will be updated to include the "Late Breaking Work" volumes of the Proceedings, to be published after the conference. All volumes together will form the full set of the HCII 2021 Conference Proceedings. The updated list will become available at: http://2021.hci.international/proceedings.html

HCI International 2021 Proceedings Volumes List

Volume	LNCS/LNAI/CCIS	Title - Conference Name	Editor(s)	ISBN
1	LNCS 12762	Human-Computer Interaction: Theory, Methods and Tools (Part I)	Masaaki Kurosu	978-3-030-78461-4
2	LNCS 12763	Human-Computer Interaction: Interaction Techniques and Novel Applications (Part II)	Masaaki Kurosu	978-3-030-78464-5
3	LNCS 12764	Human-Computer Interaction: Design and User Experience Case Studies (Part III)	Masaaki Kurosu	978-3-030-78467-6
4	LNCS 12765	Human Interface and the Management of Information: Information Presentation and Visualization (Part I)	Sakae Yamamoto; Hirohiko Mori	978-3-030-78320-4
5	LNCS 12766	Human Interface and the Management of Information: Information-rich and Intelligent Environments (Part II)	Sakae Yamamoto; Hirohiko Mori	978-3-030-78360-0
6	LNAI 12767	Engineering Psychology and Cognitive Ergonomics	Don Harris; Wen-Chin Li	978-3-030-77931-3
7	LNCS 12768	Universal Access in Human-Computer Interaction: Design Methods and User Experience (Part I)	Margherita Antona; Constantine Stephanidis	978-3-030-78091-3
8	LNCS 12769	Universal Access in Human-Computer Interaction: Access to Media, Learning and Assistive Environments (Part II)	Margherita Antona; Constantine Stephanidis	978-3-030-78094-4
9	LNCS 12770	Virtual, Augmented and Mixed Reality	Jessie Y.C. Chen; Gino Fragomeni	978-3-030-77598-8
10	LNCS 12771	Cross-Cultural Design: Experience and Product Design Across Cultures (Part I)	P.L. Patrick Rau	978-3-030-77073-0
11	LNCS 12772	Cross-Cultural Design: Applications in Arts, Learning, Well-being, and Social Development (Part II)	P.L. Patrick Rau	978-3-030-77076-1
12	LNCS 12773	Cross-Cultural Design: Applications in Cultural Heritage, Tourism, Autonomous Vehicles, and Intelligent Agents (Part III)	P.L. Patrick Rau	978-3-030-77079-2
13	LNCS 12774	Social Computing and Social Media: Experience Design and Social Network Analysis (Part I)	Gabriele Meiselwitz	978-3-030-77625-1
14	LNCS 12775	Social Computing and Social Media: Applications in Marketing, Learning, and Health (Part II)	Gabriele Meiselwitz	978-3-030-77684-8
15	LNAI 12776	Augmented Cognition	Dylan Schmorrow; Cali Fidopiastis	978-3-030-78113-2
16	LNCS 12777	Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management: Human Body, Motion and Behavior (Part I)	Vincent Duffy	978-3-030-77816-3
17	LNCS 12778	Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management: AI, Product and Service (Part II)	Vincent Duffy	978-3-030-77819-4
18	LNCS 12779	Design, User Experience, and Usability: UX Research and Design (Part I)	Marcelo M. Soares; Elizabeth Rosenzweig; Aaron Marcus	978-3-030-78220-7
19	LNCS 12780	Design, User Experience, and Usability: Design for Diversity, Well-being, and Social Development (Part II)	Marcelo M. Soares; Elizabeth Rosenzweig; Aaron Marcus	978-3-030-78223-8
20	LNCS 12781	Design, User Experience, and Usability: Design for Contemporary Technological Environments (Part III)	Marcelo M. Soares; Elizabeth Rosenzweig; Aaron Marcus	978-3-030-78226-9
21	LNCS 12782	Distributed, Ambient and Pervasive Interactions	Norbert Streitz; Shin'ichi Konomi	978-3-030-77014-3
22	LNCS 12783	HCI in Business, Government and Organizations	Fiona Fui-Hoon Nah; Keng Siau	978-3-030-77749-4
23	LNCS 12784	Learning and Collaboration Technologies: New Challenges and Learning Experiences (Part I)	Panayiotis Zaphiris; Andri Ioannou	978-3-030-77888-0
24	LNCS 12785	Learning and Collaboration Technologies: Games and Virtual Environments for Learning (Part II)	Panayiotis Zaphiris; Andri Ioannou	978-3-030-77942-9
25	LNCS 12786	Human Aspects of IT for the Aged Population: Technology Design and Acceptance (Part I)	Qin Gao; Jia Zhou	978-3-030-78107-1
26	LNCS 12787	Human Aspects of IT for the Aged Population: Supporting Everyday Life Activities (Part II)	Qin Gao; Jia Zhou	978-3-030-78110-1
27	LNCS 12788	HCI for Cybersecurity, Privacy and Trust	Abbas Moallem	978-3-030-77391-5
28	LNCS 12789	HCI in Games: Experience Design and Game Mechanics (Part I)	Xiaowen Fang	978-3-030-77276-5
29	LNCS 12790	HCI in Games: Serious and Immersive Games (Part II)	Xiaowen Fang	978-3-030-77413-4
30	LNCS 12791	HCI in Mobility, Transport and Automotive Systems	Heidi Krömker	978-3-030-78357-0
31	LNCS 12792	Adaptive Instructional Systems: Design and Evaluation (Part I)	Robert A. Sottilare; Jessica Schwarz	978-3-030-77856-9
32	LNCS 12793	Adaptive Instructional Systems: Adaptation Strategies and Methods (Part II)	Robert A. Sottilare; Jessica Schwarz	978-3-030-77872-9
33	LNCS 12794	Culture and Computing: Interactive Cultural Heritage and Arts (Part I)	Matthias Rauterberg	978-3-030-77410-3
34	LNCS 12795	Culture and Computing: Design Thinking and Cultural Computing (Part II)	Matthias Rauterberg	978-3-030-77430-1
35	LNCS 12796	Design, Operation and Evaluation of Mobile Communications	Gavriel Salvendy; June Wei	978-3-030-77024-2
36	LNAI 12797	Artificial Intelligence in HCI	Helmut Degen; Stavroula Ntoa	978-3-030-77771-5
37	CCIS 1419	HCI International 2021 Posters - Part I	Constantine Stephanidis; Margherita Antona; Stavroula Ntoa	978-3-030-78634-2
38	CCIS 1420	HCI International 2021 Posters - Part II	Constantine Stephanidis; Margherita Antona; Stavroula Ntoa	978-3-030-78641-0
39	CCIS 1421	HCI International 2021 Posters - Part III	Constantine Stephanidis; Margherita Antona; Stavroula Ntoa	978-3-030-78644-1

Tutorials

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Sunday, 25 July 2021		Time	
T01	**Simple (interactive) statistics for HCI** Jean-Bernard Martens		
T02	**Learning Engineering Bootcamp** Jim Goodell, Aaron Kessler	*Withdrawn by the authors*	
T03	**Automotive UX Design Based on Intercultural Research** Zaiyan Gong		
T04	**Sketching in HCI** Makayla Lewis, Miriam Sturdee	08:00 – 12:00 EDT	Eastern Daylight Time - Washington DC
T05	**Neuroergonomics in Aviation: Monitoring and Enhancing Human-System Performance in Operational Environment** Kurtulus Izzetoglu, Assaf Harel, Cengiz Acarturk		
T06	**Ethical Considerations in HCI** Janet C. Read		

Monday, 26 July 2021		Time	
T07	**On The Go: Design for Mobile Apps and Devices** Elizabeth Rosenzweig		
T08	**Agile Research Data for Agile Teams** Everett McKay		
T09	**Cross-Cultural HCI/User-Experience Design: What are Differences and Similarities of User Preferences and Expectations, including China?** Aaron Marcus	08:00 – 12:00 EDT	Eastern Daylight Time - Washington DC
T10	**UX Magic: The Conceptual Model foundation of IxD** Daniel Rosenberg		
T11	**Speech-based Interaction: Myths, Challenges and Opportunities** Cosmin Munteanu, Gerald Penn		
T12	**Introduction to Socio-Technical HCI Theory and Action** Torkil Clemmensen		

Break: 10:00 - 10:30

Tuesday, 27 July 2021		Time	
T13	**Usability Testing of Mobile Apps and Devices** Elizabeth Rosenzweig		
T14	**Intuitive and Simple Design** Everett McKay		
T15	**HCI/UX in Science-Fiction Movies/TV: What can We Learn from the Past 100 Years of the Future?** Aaron Marcus		
T16	**Game Theory for Interaction Design** Daniel Rosenberg	08:00 – 12:00 EDT	Eastern Daylight Time - Washington DC
T17	**Latest Advances in Deep Learning for Multimodal and Multisensorial Signal Analysis** Bjoern Schuller, Nicholas Cummins		
T18	**Universal Access and technology to support independent living** Simeon Keates		
T19	**Eye Tracking: Applications, Analytics, Interaction** Andrew Duchowski		

Tutorials

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Wednesday, 28 July 2021

		Time
T20	**Dashboard Design and Data Visualization** Abbas Moallem	
T21	**Prototyping with Arduino using Tinkercad** Panayiotis Zaphiris, Andreas Papallas	
T22	**Shifting to Digital: 360VR for Immersive Learning** Andri Ioannou, Andreas Kitsi, Raluca Maxim	
T23	**The role of rapid prototyping in a UX design environment** Martin Maguire	08:00 – 12:00 EDT
T24	**Usable Bots: How to design and evaluate conversational User Interfaces** Andreas Bleiker, Kyoko Sugisaki	
T25	**Using the System Usability Scale** James Lewis	
T26	**Design for Efficiency** Helmut Degen	

Eastern Daylight Time - Washington DC

Thursday, 29 July 2021

		Time
T27	**10 Things you need to know to protect yourself and your company from cyber attacks** Abbas Moallem	
T28	**Become a Remote Design Sprint Expert** Panayiotis Zaphiris, Andreas Papallas	
T29	**Shifting to Digital: Gamification in Course Design** Andri Ioannou, Andreas Kitsi, Raluca Maxim	
T30	**Driving Innovation with Enterprise Design Thinking** kevin l. schultz, Camillo Sassano, Aaron Cox, Baxter Schanze	08:00 – 12:00 EDT
T31	**Non-invasive Brain Computer Interfaces for stroke rehabilitation and consciousness assessment** Günter Edlinger, Danut Irimia, Ren Xu, Natalie Mrachacz-Kersting	
T32	**How to design UX for mobile application: methods and tools** Paolo Perego, Roberto Sironi	
T33	**Fundamentals of Adaptive Instructional Systems** Robert A. Sottilare, Xiangen Hu	

Eastern Daylight Time - Washington DC

Break: 10:00 - 10:30

Awards

For each of the Thematic Areas / Affiliated Conferences of HCI International 2021 the Best Paper has been selected to receive an award in the form of a plaque and a certificate in a brief ceremony during the Plenary Session. The Best Poster extended abstract will also receive an award.

HCI International NEWS

HCI International News is a newsletter about Human-Computer Interaction topics, the HCI International Conference Series, and more. The newsletter is distributed through a mailing list and is also available on-line at:
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24th International Conference on Human-Computer Interaction

26 June - 1 July 2022

Gothia Towers Hotel and Swedish Exhibition & Congress Centre, Gothenburg, Sweden

http://2022.hci.international

HCI International 2022, jointly with its Thematic Areas and Affiliated Conferences, held under one management and one registration, invites you to participate and contribute (through **papers, posters, or tutorials**) to this major international forum for the dissemination and exchange of up-to-date scientific information on theoretical and applied areas of HCI. Past HCII Conferences were attended by about 2,000 participants from more than 80 countries.

Thematic Areas

Human-Computer Interaction
Chair: Masaaki Kurosu (Japan)

Human Interface and the Management of Information
Chairs: Sakae Yamamoto and Hirohiko Mori (Japan)

Affiliated Conferences

19th International Conference on Engineering Psychology and Cognitive Ergonomics
Chairs: Don Harris and Wen-Chin Li (United Kingdom)

16th International Conference on Universal Access in Human-Computer Interaction
Chairs: Margherita Antona and Constantine Stephanidis (Greece)

14th International Conference on Virtual, Augmented and Mixed Reality
Chairs: Jessie Y.C. Chen and Gino Fragomeni (USA)

14th International Conference on Cross-Cultural Design
Chair: P.L. Patrick Rau (P.R. China)

14th International Conference on Social Computing and Social Media
Chair: Gabriele Meiselwitz (USA)

16th International Conference on Augmented Cognition
Chairs: Dylan Schmorrow and Cali Fidopiastis (USA)

13th International Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management
Chair: Vincent Duffy (USA)

11th International Conference on Design, User Experience and Usability
Chairs: Marcelo Soares (P.R. China), Elizabeth Rosenzweig and Aaron Marcus (USA)

Affiliated Conferences (continued)

10th International Conference on Distributed, Ambient and Pervasive Interactions
Chairs: Norbert Streitz (Germany) and Shin'ichi Konomi (Japan)

9th International Conference on HCI in Business, Government and Organizations
Chairs: Fiona Fui-Hoon Nah and Keng Siau (USA)

9th International Conference on Learning and Collaboration Technologies
Chairs: Panayiotis Zaphiris and Andri Ioannou (Cyprus)

7th International Conference on Human Aspects of IT for the Aged Population
Chairs: Qin Gao and Jia Zhou (P.R. China)

4th International Conference on HCI for Cybersecurity, Privacy and Trust
Chair: Abbas Moallem (USA)

4th International Conference on HCI in Games
Chair: Xiaowen Fang (USA)

4th International Conference on HCI in Mobility, Transport and Automotive Systems
Chair: Heidi Krömker (Germany)

4th International Conference on Adaptive Instructional Systems
Chairs: Robert Sottilare (USA) and Jessica Schwarz (Germany)

10th International Conference on Culture and Computing
Chair: Matthias Rauterberg (Netherlands)

3rd International Conference on Design, Operation and Evaluation of Mobile Communications
Chairs: Gavriel Salvendy (USA and P.R. China) and June Wei (USA)

3rd International Conference on Artificial Intelligence in HCI
Chairs: Helmut Degen (USA) and Stavroula Ntoa (Greece)

Awards will be presented during the Opening Plenary Session to the authors of the best Paper of each of the HCII 2022 Thematic Areas / Affiliated Conferences and the best Poster of HCI International 2022.

Exhibiting at the Conference is an ideal opportunity to display your products and services to an international audience of academics, researchers, professionals and users in the field of HCI.

The Conference Proceedings will be published by Springer in a multi-volume set. Papers will appear in the LNCS and LNAI series, while poster extended abstracts will be published in the CCIS series. All volumes will be available on–line through the SpringerLink Digital Library, readily accessible by subscribing libraries, and indexed by a number of services, including: ISI; the Conference Proceedings Citation Index (CPCI), part of Clarivate Analytics' Web of Science; Scopus; EI Engineering Index; ACM Digital Library; Google Scholar; DBLP; EI-Compendex; Mathematical Reviews; SCImago.

	Abstract Length	Proposal Deadline	Review Notification	Camera-ready	Registration
Regular Papers[1]	800 words	8 October 2021	19 November 2021	21 January 2022 Full paper	4 February 2022
Posters[1]	300 words	21 January 2022	18 February 2022	18 March 2022 Short paper	18 March 2022
Tutorials[2]	300 words	8 October 2021	5 November 2021	6 May 2022	N/A
Invited Papers	The process is open under the guidance of Parallel Session Organizers. However, it is required that the paper title and authors are recorded in the Conference Management System (CMS) by 31 December 2021.			21 January 2022	4 February 2022

[1] Submissions will be reviewed by at least two independent referees from the International Program Boards
[2] Deliver a half-day tutorial at introductory, intermediate, or advanced level regarding one of the Conference topics

SATURDAY 10:30 - 12:30

Human-Computer Interaction

HCI   S001

Human Robot Interaction

Chair(s): Lionel P. Robert Jr., *United States*

Analysing Action and Intention Recognition in Human-Robot Interaction with ANEMONE
Beatrice Alenljung, Jessica Lindblom, *Sweden*

A Measurement of Attitude toward Working with Robots (AWRO): A Compare and Contrast Study of AWRO with Negative Attitude toward Robots (NARS)
Lionel P. Robert Jr., *United States*

User Experience Best Practices for Human-Robot Interaction
Dorothy Shamonsky, *United States*

Service Sector Professionals' Perspective on Robots Doing Their Job in the Future
Nina Savela, Rita Latikka, Reetta Oksa, Atte Oksanen, *Finland*

Perceived Robot Attitudes of Other People and Perceived Robot Use Self-Efficacy as Determinants of Attitudes Toward Robots
Rita Latikka, Nina Savela, Aki Koivula, Atte Oksanen, *Finland*

Human Interface and the Management of Information

HIMI   S002

Visualization, Data Analytics and Decision-Making

Chair(s): Christian Kruse, *Germany*

Evaluating the Impact of Algorithm Confidence Ratings on Human Decision Making in Visual Search
Aaron P. Jones, Michael C. Trumbo, Laura E. Matzen, Mallory C. Stites, Breannan C. Howell, Kristin M. Divis, Zoe N. Gastelum, *United States*

Multi-modal Data Exploration in a Mixed Reality Environment using Coordinated Multiple Views
Disha Sardana, Sampanna Yashwant Kahu, Denis Gracanin, *United States;* Kresimir Matkovic, *Austria*

Designing Data Visualization Dashboards to Support the Prediction of Congenital Anomalies
Tatiana Aparecida De Almeida, Ferrucio de Franco Rosa, Rodrigo Bonacin, *Brazil*

Combating Vaccine Misinformation: The Effects of Infographics in Making Judgment about Vaccine False News
Shawn Domgaard, Mina Park, *United States*

Digitizing the FlexIA Toolkit - Transforming a Paper-based Method into a Flexible Web App
Christian Kruse, Daniela Becks, Sebastian Venhuis, *Germany*

Engineering Psychology and Cognitive Ergonomics

EPCE   S003

Human-Centered Design and Training

Chair(s): Wen-Chin Li, *United Kingdom*

Human Factors Analysis for Aviation Accidents and Incidents in Singapore
H.R. Mohandas, Tham Kah Weng, *Singapore*

Psychophysical Coherence Training Regulating Air Traffic Controller's Heart Rate Variability and Resilience to Fatigue
Wen-Chin Li, Jingyi Zhang, *United Kingdom;* Peter Kearney, *Ireland;* Graham Braithwaite, *United Kingdom*

Supervising Multiple Remote Tower Operations: How to Develop and Test a New Work Position in the ATC Domain?
Maik Friedrich, Felix Timmermann, Jörn Jakobi, *Germany*

The Design Challenges of Drone Swarm Control
F T Saffre, *Finland;* Hanno Hildmann, *Netherlands;* Hannu Karvonen, *Finland*

Culture's Consequences on the Categorisation of Causal Factors in Aviation Accident Reports
Wesley Tsz-Kin Chan, Wen-Chin Li, *United Kingdom*

Implementation Digital Tower for Apron Control on A Large-Scale of International Airport
Pan Zou, *P.R. China;* Wen-Chin Li, *United Kingdom;* Jingyi Zhang, *P.R. China*

Universal Access in Human-Computer Interaction

UAHCI   S004

Universal Access: Theory, Methods and Practice

Chair(s): To be announced

Remote Evaluation in Universal Design Using Video Conferencing Systems During the COVID-19 Pandemic
Joschua Thomas Simon-Liedtke, Way Kiat Bong, Trenton Schulz, Kristin Fuglerud, *Norway*

How Young People Living with Disability Experience the Use of Assistive Technology
Josefin Kristensen, Jessica Lindblom, *Sweden*

Setting Diversity at the Core of HCI
Nana Kesewaa Dankwa, Claude Draude, *Germany*

Disadvantaged by Disability: Examining the Accessibility of Cyber Security
Steven Furnell, *United Kingdom;* Kirsi Helkala, *Norway;* Naomi Woods, *Finland*

E-commerce Usability Guidelines for Visually Impaired Users
Elisa Prati, Simone Pozzi, Fabio Grandi, Margherita Peruzzini, *Italy*

Accessibility Practices for Prototype Creation and Testing
Nandita Gupta, Carrie Bruce, *United States*

VAMR   S005

Virtual, Augmented and Mixed Reality

Interaction and Navigation in VAMR

Chair(s): Crystal Maraj, *United States*

Mixed Reality Technology Capabilities for Combat-Casualty Handoff Training
Ryan Schubert, Gerd Bruder, Alyssa Tanaka, Frank Guido-Sanz, Gregory F. Welch, *United States*

Doing versus Observing: Virtual Reality and 360-degree Video for Training Manufacturing Tasks
Emily Wall, Daniel Carruth, Nicholas Harvel, *United States*

Contextually Adaptive Multimodal Mixed Reality Interfaces for Dismounted Operator Teaming with Unmanned System Swarms
Michael Jenkins, Richard Stone, Brodey Lajoie, David Alfonso, Andrew Rosenblatt, Caroline Kingsley, Les Bird, David Cipoletta, Sean Kelly, *United States*

Design Considerations for Interacting and Navigating with 2 Dimensional and 3 Dimensional Medical Images in Virtual, Augmented and Mixed Reality Medical Applications
Jennifer N. Avari Silva, Michael K. Southworth, Christopher M. Andrews, Mary Beth Privitera, Alexander B. Henry, Jonathan R. Silva, *United States*

No One is Superman: 3-D Safety Margin Profiles when Using Head-Up display (HUD) for Takeoff in Low Visibility and High Crosswind Conditions
Daniela Kratchounova, Inchul Choi, Theodore Mofle, Larry Miller, Jeremy Hesselroth, Scott Stevenson, Mark Humphreys, *United States*

Real-time Data Analytics of COVID Pandemic using Virtual Reality
Sharad Sharma, Sri Teja Bodempudi, Aishwarya Reehl, *United States*

CCD   S006

Cross-Cultural Design

Sensation Oriented in Spatial Design

Chair(s): Wei Lin, *Taiwan*, China*

Motion Illusion on Form with Different Types of Line Graphic
Chih-Wei Lin, Lan-Ling Huang, Chi-Meng Liao, *P.R. China;* Hsiwen Fan, *Japan*

Objective Evaluations based on Urban Soundscape in Waterfront Recreation Spaces
Wei Lin, *Taiwan*, China;* Yi-Ming Wu, Hui-Zhong Zhang, *P.R. China;* Hsuan Lin, *Taiwan*, China*

Research on Upper Extremity Rehabilitation Product Use Needs and Development Suggestions
Lan-Ling Huang, *P.R. China;* Chih-Wei Lin, *Taiwan*, China;* Chi-Meng Liao, Tao Yang, *P.R. China*

Research on the Attractive Factors and Design of Cultural Derivative Commodities under Cultural Sustainability
Kuo-Liang Huang, Taiwan*, China; Na Xu, *P.R. China;* Hsuan Lin, *Taiwan*, China;* Jin-Chen Jiang, *P.R. China*

A Preliminary Study on the Effect of Somatosensory Games upon Children's Activity Space and Bodily Movements
Hsuan Lin, Ming-Yu Hsiao, Yu-Chen Hsieh, Kuo-Liang Huang, Chia-Wen Tsai, Wei Lin, *Taiwan*, China*

S007

Interacting with Smart Multimodal System

Chair(s): Pei-Luen Patrick Rau, *P.R. China*

Sound Signal Sensitivity of Subjective Auditory Features
Jin Liang, Xin Wang, Tuoyang Zhou, Zhen Liao, Lei Liu, Yang Yu, Liang Zhang, Chi Zhang, Zhansuo Zhang, Xiaoyi Li, *P.R. China*

Multimodal Features as A Novel Method for Cross-Cultural Studies
Xuhai Xu, *United States;* Nan Qie, Pei-Luen Patrick Rau, *P.R. China*

Cultural Differences Demonstrated by TV series: A Cross-cultural Analysis of Multimodal Features
Xiaojun Lai, Nan Qie, Pei-Luen Patrick Rau, *P.R. China*

Facial Feature Recognition System Development for Enhancing Customer Experience in Cosmetics
Irene Chiocchia, *Italy;* Pei-Luen Patrick Rau, *P.R. China*

Effects of Players' Social Competence on Social Behaviors and Role choice in Team-Based Multiplayers Online Games
Ka-Hin Lai, Bingcheng Wang, Pei-Luen Patrick Rau, *P.R. China*

SCSM   S008

Social Computing and Social Media

Innovations in Social Computing and Virtual Worlds

Chair(s): Hoang D. Nguyen, Jeannie S.A. Lee, *Singapore*

Gamified Mobile Health Interventions for Mental Well-being of Older Adults
Thuy-Trinh Nguyen, *Australia;* Joseph C.M. Chai, *United Kingdom;* Øystein Eiring, *Norway;* Wenru Wang, *Singapore;* Ronald R O'Donnell, *United States;* Hoang D. Nguyen, *Singapore*

Influencer Engagement Rate Under Scalable Machine Learning Approaches
Maram AlAnezi, Meznah Almutairy, *Saudi Arabia*

Action-Aware Restricted Stream Influence Maximization Model to Identify Social Influencers
Meznah Almutairy, Hailah Alaskar, Latifah Alhuamid, Rawan Alkhalifah, *Saudi Arabia*

Drone-based AI and 3D Reconstruction for Digital Twin Augmentation
Alex To, *Australia;* Maican Liu, Muhammad Hazeeq Bin Muhammad Hairul, *Singapore;* Joseph G. Davis, *Australia;* Jeannie S.A. Lee, Henrik Hesse, Hoang D. Nguyen, *Singapore*

The Faceless Vicinity: Who Uses Location-Based Anonymous Social Networks Like Jodel and Why?
Karoline Jüttner, Philipp Nowak, Katrin Scheibe, Franziska Zimmer, Kaja J. Fietkiewicz, *Germany*

Mixed Reality Interface for Load Application in Finite Element Analysis
Emran Poh, Kyrin Liong, Jeannie S.A. Lee, *Singapore*

SATURDAY 10:30 - 12:30

AC S009

Augmented Cognition

Brain Computer Interaction - Devices and Applications

Chair(s): Ana Rita Teixeira, *Portugal*

A New Methodology to Learn Loops: Validation through Brain Computer Interaction
Anabela Gomes, Ana Rita Teixeira, António José Mendes, *Portugal*

Using Brain Computer Interaction to Evaluate Problem Solving Abilities
Ana Rita Teixeira, Igor Rodrigues, Anabela Gomes, Pedro Abreu, *Portugal;* German Rodriguez-Bermúdez, *Spain*

Analysis of Effect of RSVP Speller BCI Paradigm Along with CNN to Analysis P300 Signalse-Textile material
M. Uma, S. Prabhu, Murali Subramaniyam, *India;* Seung Nam Min, *Korea*

DHM S010

Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management

Semantic, Artificial and Computational Interaction Studies: Towards a Behavior-omics of Multimodal Communication

Chair(s): Alexander Mehler, Andy Lücking, Cornelia Ebert, *Germany*

Semantically Related Gestures Move Alike: Towards a Distributional Semantics of Gesture Kinematics
Wim Pouw, Jan De Wit, Sara Bögels, Marlou Rasenberg, Branka Milivojevic, Asli Ozyurek, *Netherlands*

Sequence-to-Sequence Predictive Model: from Prosody to Communicative Gestures
Fajrian Yunus, Chloé Clavel, Catherine Pelachaud, *France*

Tracking Discourse Topics in Co-speech Gesture
Schuyler Laparle, *United States*

The Role of Embodiment and Simulation in Evaluating HCI: Theory and Framework
James Pustejovsky, Nikhil Krishnaswamy, *United States*

The Role of Embodiment and Simulation in Evaluating HCI: Experiments and Evaluation
Nikhil Krishnaswamy, James Pustejovsky, *United States*

Patient-provider Communication Training Models for Interactive Speech Devices
Patricia Ngantcha, Muhammad Amith, Cui Tao, Kirk Roberts, *United States*

S011

Designing Health Services

Chair(s): Najmeh Khalili-Mahani, Canada

Different Patterns of Medication Administration between Inside and Outside the Patient Room using Electronic Medical Record Log Data
Alireza Kasaie, Jung Hyup Kim, Wenbin Guo, Roland Nazareth, Thomas Shotton, Laurel Despins, *United States*

Principles for Designing an mHealth App for Participatory Research and Management of Chronic Pain
Eileen Mary Holowka, Sandra Woods, Amber Pahayahay, Mathieu Roy, Najmeh Khalili-Mahani, *Canada*

Towards an Effective Web-based Virtual Health Intervention: The Impact of Media Platform, Visual Framing, and Race on Social Presence and Transportation Ratings
Fatemeh Tavassoli, Mohan Zalake, Alexandre Gomes de Siqueira, Francois Modave, Janice Krieger, Benjamin Lok, Juan Gilbert, *United States*

Requirements for a Game-Based Approach to Strengthen Leadership in Health Care
Mareike Sorge, Christina Mayer, Judith Schöner, Robert Kummer, Melanie Rentzsch, *Germany*

Modeling Rapport for Conversations about Health with Autonomous Avatars from Video Corpus of Clinician-Client Therapy Sessions
Reza Amini, Maya Boustani, Christine Lisetti, *United States*

Automation in Healthcare Systematic Review
Raquel Ruiz, Vincent G. Duffy, *United States*

DUXU S012

Design, User Experience, and Usability

Human Modeling and Simulation in Usability

Chair(s): Gunther Paul, *Australia;* H. Onan Demirel, *United States*

To What Extent is Gamification an Effective Tool for Onboarding Users into a DHM Tool
Ari Kolbeinsson, Adam Palmquist, Jessica Lindblom, Juan Luis Jiménez Sánchez, *Sweden*

A Case Study of Usability in Virtual Controls
Gunther Paul, Shane Porter, Bruce Thomas, *Australia*

User Experience in Augmented Reality: A Holistic Evaluation of a Prototype for Assembly Instructions
Zackarias Alenljung, Jessica Lindblom, *Sweden*

ExperienceDNA - A framework to Conduct and Analyse User Tests in VR Using the Wizard-of-Oz Methodology
Jamil Joundi, Klaas Bombeke, Niels Van Kets, Wouter Durnez, Jonas De Bruyne, Glenn Van Wallendael, Peter Lambert, Jelle Saldien, Lieven De Marez, *Belgium*

Distributed, Ambient and Pervasive Interactions

DAPI S013

Interaction in Intelligent Environments - I

Chair(s): Pavandeep Kataria, *Hong Kong*

Towards a Semantic Classification of Possible Human-to-Environment Interactions in IoT
Pavandeep Kataria, *Hong Kong*

Environmental analysis and design directions for non-contact exhibition spaces
Jung Ai Choi, Da Young Ju, *Korea*

Pervasive Smart Objects: Framework for Extending Smart-Object Services
Kota Gushima, Yukiko Kinoshita, Tatsuo Nakajima, *Japan*

Design of an interactive device based on e-Textile material
Xuanzhu Meng, Qiong Wu, *P.R. China*

HCI in Business, Government and Organizations

HCIBGO S014

HCI in the Era of Digital Innovation and Transformation

Chair(s): Kaveh Abhari, *United States*

The Need for New Education Platforms that Support Inclusive Social Learning: A Case Study of Online and Hybrid K-12 Learning Experience During the COVID-19 Pandemic
Robyn Rice, *United States*

Enterprise Social Media Use in Classroom Team Project: A Mixed-Methods Exploration of the Effects of Affordances on Team Productivity and Use
Wietske Van Osch, *Canada;* Leticia Cherchiglia, *United States;* Elisavet Averkiadi, *Greece;* Yuyang Liang, *United States*

Designing the Empathetic Research IoT Network (ERIN) Chatbot for Mental Health Resources
Brandon Persons, Prateek Jain, Christopher Chagnon, Soussan Djamasbi, *United States*

Extended Reality (XR) Applications in Architectural Practice: Towards a Development Framework
Maryam Abhari, Kaveh Abhari, Madison Drinkwine, Jordan Sloan, *United States*

Human-Robot Interactions Design for Interview Process: Needs-Affordances-Features Perspective
Karenina Nicoli H. Zaballa, Lance Dean Cameron, Adrianna Skyler Lugo, *United States*

Learning and Collaboration Technologies

LCT S015

Interactive Learning Ecosystems - I

Chair(s): David Fonseca, Francisco J. García-Peñalvo, Spain

The Global Challenge of Designing E-learning Tools for Computational Thinking: a Comparison between East Asia and Scandinavia
Kasper Kristensen, Emanuela Marchetti, Andrea Valente, *Denmark*

Teaching Lung Pathology during a Pandemic: Can Further Developments of an Online Quiz Primer Improve the Engagement of Students in a Completely on-Line Delivery?
Mark Dixon, Katherine Syred, *United Kingdom*

Teaching-Learning in the Industrial Engineering Career in Times of COVID-19
Fernando Saá, Lorena Caceres, Esteban Fuentes, José Varela-Aldás, *Ecuador*

Student Response Systems in Remote Teaching
Jean Botev, Christian Grévisse, Steffen Rothkugel, *Luxembourg*

Usability Study of CARTIER-IA: a Platform for Medical Data and Imaging Management
Andrea Vazquez-Ingelmo, Julia Alonso, Alicia García-Holgado, Francisco J. García-Peñalvo, Jesús Sampedro-Gómez, Antonio Sánchez-Puente, Víctor Vicente-Palacios, P. Ignacio Dorado-Díaz, Pedro L. Sánchez, *Spain*

Virtual classrooms for the development of practical laboratories in a Colombian higher education institution
Henry Herrera, Alonso Barrera, Marlene Ballestas, Ingrid Ballestas, Carlos Schnorr, *Colombia*

Using Self-developed Mobile APP and Arduino to Provide Integrated Multimedia for Lower Graders' English Vocabulary Learning
Pei-yin Chen, Yaming Tai, Teng-Hui Tseng, Yu-Liang Ting, *Taiwan*, China

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S016

Chatbots in Education

Chair(s): Andri Ioannou, *Cyprus*

Envisioned Pedagogical Uses of Chatbots in Higher Education and Perceived Benefits and Challenges
Olia Tsivitanidou, Andri Ioannou, *Cyprus*

University Student Surveys using Chatbots: Artificial Intelligence Conversational Agents
Noorhan Abbas, Thomas Pickard, Eric Atwell, Aisha Walker, *United Kingdom*

Usability and User Experience of a Chat Application with Integrated Educational Chatbot Functionalities
Dijana Plantak Vukovac, Ana Horvat, Antonela Čižmešija, *Croatia*

Studying how to Apply Chatbots Technology in Higher-Education: First Results and Future Strategies
Antonio M. Mora, Alberto Guillén, Francisco Barranco, Pedro Castillo, Juan-J. Merelo, *Spain*

An Overview of the Use of Chatbots in Medical and Healthcare Education
Fotos Frangoudes, Marios Hadjiaros, Eirini C. Schiza, Maria Matsangidou, Olia Tsivitanidou, Kleanthis Neokleous, *Cyprus*

'Are you OK?' Students' Trust in a Chatbot Providing Support Opportunities
Joonas A. Pesonen, *Finland*

SATURDAY 10:30 - 12:30

SATURDAY 10:30 - 12:30

Human Aspects of IT for the Aged Population

ITAP   S017

Being Connected – Making Use of Digital Devices in Later Life

Chair(s): Eugene Loos, *Netherlands*

Older People as Early Adopters and their Unexpected & Innovative Use of New Technologies: Deviating from Technology Companies' Scripts
Eugene Loos, Alexander Peine, *Netherlands*; Mireia Fernández-Ardèvol, *Spain*

COVID-19 Impact of Virtual Communication during Social Isolation on Bulgarian Society
Lilia Raycheva, Nadezhda Miteva, Neli Velinova, Mariyan Tomov, *Bulgaria*

Elderly, ICTs and Qualitative Research: Some Methodological Reflections
Simone Carlo, Francesco Bonifacio, *Italy*

The Impact of Ageism on the E-leisure of Older People in Chile
Javiera Rosell, Alvaro Vergés, *Chile*

A Quantitative Study on Awareness, Usage and Reservations of Voice Control Interfaces by Elderly People
Dietmar Jakob, Sebastian Wilhelm, Armin Gerl, Diane Ahrens, *Germany*

Teaching Tablet Technology to Older Adults
Beenish Chaudhry, Dipanwita Dasgupta, Mona Mohamed, Nitesh Chawla, *United States*

S018

Elderly's User Experience

Chair(s): Yue Chen, *P.R. China*

An Empirical Study on the Elderly Visual Pleasure Experience Design Elements based on Perceptual Cognitive Characteristics Measure and Analysis
Delai Men, Mingyi Wang, *P.R. China*

The Investigation into Design Elements of Auditory Pleasure Experience for the Elderly based on A Testing Tools Development
Delai Men, Lingfang Wu, *P.R. China*

Topic-Shift Characteristics of Japanese Casual Conversations between Elderlies and between Youths
Yotaro Iida, Yumi Wakita, *Japan*

HCI for Cybersecurity, Privacy and Trust

HCI-CPT   S019

Privacy and Trust in the Internet of Things (IoT)

Chair(s): Heather Molyneaux, *Canada*

Authentication Management of Home IoT Devices
Aniqa Alam, Heather Molyneaux, Elizabeth Stobert, *Canada*

Smart Technologies and Internet of Things Designed for Aging in Place
Helene Fournier, Irina Kondratova, Keiko Katsuragawa, *Canada*

Social Engineering Attacks: Recent Advances and Challenges
Nikol Mashtalyar, Uwera Nina Ntaganzwa, Thales Santos, Saqib Hakak, Suprio Ray, Canada

User Perceptions of Security and Privacy Risks with Contact Tracing Apps
Hervé Saint-Louis, Bob-Antoine MENELAS, *Canada*

Perceptions of Security and Privacy in mHealth
Ana Ferreira, Joana Muchagata, Pedro Vieira-Marques, Diogo Abrantes, Soraia Teles, *Portugal*

HCI in Games

HCI-G<small>ames</small>   S020

Playful Experiences: Design and Impact

Chair(s): Daniel Riha, *Czech Republic*

Horror Ludens: Using Fear to Construct Meaning in Video Games
Vicente Martin Mastrocola, *Brazil*

Designing Interactive Storytelling Games to Teach Computational Thinking
Eric Shadrach Miller, *United States*

Using Neural-Network-Driven Image Recognition Software to Detect Emotional Reactions in the Face of a Player while Playing a Horror Video Game
Hermann Prossinger, *Austria;* Jakub Binter, Tomas Hladky, Daniel Riha, *Czech Republic*

Research on the Interaction Method that can Alleviate Cybersickness in Virtual Reality Games
Zhenyu Lu, Ruozhou Mao, *P.R. China*

HCI-Games S021

Adaptive Multimodal Analytics for Supporting Neurodiversity in Games

Chair(s): Jodi Asbell-Clarke, *Canada*

Using Multiple Data Streams in Executive Function Training Games to Optimize Outcomes for Neurodiverse Populations
Bruce D. Homer, Jan L. Plass, *United States*

Multicraft: A Multimodal Interface for Supporting and Studying Learning in Minecraft
Marcelo Worsley, Kevin Mendoza Tudares, Tim Mwiti, Mitchell Zhen, Marc Jiang, *United States*

Using Eye Tracking for Research on Learning and Computational Thinking
Fengfeng Ke, Ruohan Liu, Zlatko Sokolikj, Ibrahim Dahlstrom-Hakki, Maya Israel, *United States*

Methodological Considerations for Understanding Students' Problem Solving Processes and Affective Trajectories During Game-based Learning: A Data Fusion Approach
Maya Israel, Tongxi Liu, Jewoong Moon, Fengfeng Ke, Ibrahim Dahlstrom-Hakki, *United States*

Scaffolding Executive Function in Game-based Learning to Improve Productive Persistence and Computational Thinking in Neurodiverse Learners
Ma. Victoria Almeda, *United States*; Jodi Asbell-Clarke, *Canada*

MobiTAS S022

HCI in Mobility, Transport and Automotive Systems

Smart Mobility in Urban and Rural Areas - Solutions, Services and Business Models

Chair(s): Ulrike Stopka, *Germany*

Modeling of Onboard Activities: Public Transport and Shared Autonomous Vehicle
Jamil Hamadneh, Domokos Esztergár-Kiss, *Hungary*

Usability Study of an Innovative Application in Public Transport by using Hardware-Based Security Technology
Gertraud Schäfer, Andreas Kreisel, Ulrike Stopka, *Germany*

Visualization of Zero Energy Bus Implementation through Effective Computer Interaction
Jeremy Bowes, Sara Diamond, *Canada*; Greice Mariano, *Brazil*; Mona Ghafouri Azar, Sara Mozafari-Lorestani, Olufunbi Disu-Sule, Jacob Cram, *Canada*; Zijing Liu, *P.R. China*; Zuriel Tonatiuh Ceja De La Cruz, *Mexico*

Vulnerability Turning into a Key Design Criterion for Smart Mobility Concepts
Barbara Flügge, *Switzerland*

AIS S023

Adaptive Instructional Systems

AI Ethics and Adaptive Instructional Systems

Chair(s): Shelly Blake-Plock, *United States*

Designing Ethical Agency for Adaptive Instructional Systems: The FATE of Learning and Assessment
Jordan Richard Schoenherr, *Canada*

Education, Ethical Dilemmas and AI: From Ethical Design to Artificial Morality
Joan Casas-Roma, Jordi Conesa, Santi Caballé, *Spain*

Towards a Unified Model of Gamification and Motivation
Ian T. Dykens, Angelique Wetzel, Stephen L. Dorton, Eric Batchelor, *United States*

Revealing Data Feature Differences Between System- and Learner-Initiated Self-regulated Learning Processes within Hypermedia
Megan D. Wiedbusch, Daryn A. Dever, *United States*; Franz Wortha, *Germany*; Elizabeth B. Cloude, Roger Azevedo, *United States*

Formal Methods in Human-Computer Interaction and Adaptive Instructional Systems
Bruno Emond, *Canada*

MOBILE S024

Design, Operation and Evaluation of Mobile Communications

Quality of Mobile Service

Chair(s): Zhongwei Gu, *P.R. China*

Customer Satisfaction Evaluation Method Based on Big Data
Zhongwei Gu, Youxiang Cui, Haibo Tang, Xiao Liu, *P.R. China*

The Evaluation Framework for Wearable Devices Service Quality Based on SERVQUAL Model
Youxiang Cui, Haibo Tang, Zhongwei Gu, *P.R. China*

Design of Customer Satisfaction Evaluation System Based on Big Data
Long Cheng, Jing Cao, Zhongwei Gu, *P.R. China*

Application of Improved DTW Algorithm in Smart Home Industry
Wen Jiang, YiLing Zhao, Zhongwei Gu, *P.R. China*

Study on the Extension of Network Brand in Different Channel
Guangming Yang, Junhui Guo, Zhongwei Gu, *P.R. China*

Comparative Analysis of Consumer Trust in Wearable Services
Zhongwei Gu, Hongjun Xiong, Wei Hu, *P.R. China*; June Wei, *United States*

SATURDAY 10:30 - 12:30

SATURDAY 10:30 - 12:30

Culture and Computing

C&C S025

Intercultural User Interface Design

Chair(s): Rüdiger Heimgärtner, *Germany*

User Interface Design of Virtual Conferencing Tools – Towards a Method for Considering Cultural Impact – Exemplified by Zoom
Olga Lange, Rüdiger Heimgärtner, *Germany*

Quick Buttons on Map-based Human Machine Interface in Vehicles is Better or Not: A Cross-Cultural Comparative Study between Chinese and Germans
Johannes Mehler, *Germany;* Zhi Guo, Andong Zhang, Pei-Luen Patrick Rau, *P.R. China*

Culture in the Post Pandemic Era
Apala Lahiri Chavan, *India*

Intercultural HMIs in Automotive: Do we Need them? – An Analysis
Peter Rößger, *Germany*

Towards a Generic Framework for Intercultural User Interface Design to Evoke Positive Cross-Cultural UX
Rüdiger Heimgärtner, *Germany*

S026

Interactive Design & Environment

Chair(s): Yiyuan Huang, Mohammad Shidujaman, *P.R. China*

Advancing Inclusive Service Design: Defining, Evaluating & Creating Universally Designed Services
Miriam E.N. Begnum, Oda Lintho Bue, *Norway*

Kindergarten Interactive Lighting Design Based on Cognitive Development Theory
Yansong Chen, Cai Wang, Ruxue Yang, Yiyuan Huang, Fei Gao, Zhigang Wang, Lin Zhang, *P.R. China*

Implementation of Fast-Building Interactive Scene with Chinese Paper Cutting Style
Xingguang Mi, Wenjuan Chen, *P.R. China*

Urban Interactive Installation Art as Pseudo-Environment Based on the Frame of the Shannon–Weaver Model
Hantian Xu, Lin Zhang, *P.R. China*

Relationship between Human-Computer Interaction Features and Players' Decision-Making in Music Games
Gongli Wang, Guoyu Sun, Tianqi Xie, Yiyuan Huang, *P.R. China*

Design of Wearable digital Enhancement for Traditional Musical Instruments
Jiaqi Jiang, Qiong Wu, Wenlin Ban, *P.R. China*

Artificial Intelligence in HCI

AI-HCI S027

AI User Trust and System Trustworthiness

Chair(s): Brian C. Stanton, *United States*

Disentangling Trust and Anthropomorphism Toward the Design of Human-Centered AI Systems
Theodore Jensen, *United States*

Whoops! Something Went Wrong: Errors, Trust, and Trust Repair Strategies in Human Agent Teaming
Summer Rebensky, Kendall Carmody, Cherrise Ficke, Daniel Nguyen, Meredith Carroll, Jessica Wildman, Amanda Thayer, *United States*

Can you Trust the Black Box? The Effect of Personality Traits on Trust in AI-Enabled User Interfaces
Martin Böckle, Kwaku Yeboah-Antwi, Iana Kouris, *Germany*

Sage Advice? The Impacts of Explanations for Machine Learning Models on Human Decision-Making in Spam Detection
Mallory C. Stites, Megan Nyre-Yu, Blake Moss, Charles Smutz, Michael R. Smith, *United States*

S028

Designing Conversational Agents and Human-Agent Teaming

Chair(s): Sandeep Kaur Kuttal, *United States*

Designing a Gender-Inclusive Conversational Agent for Pair Programming: An Empirical Investigation
Sandeep Kaur Kuttal, Abim Sedhain, Jake AuBuchon, *United States*

Pet Dogs' and Their Owners' Reactions toward Four Differently Shaped Speaking Agents: A Report on Qualitative Results in a Pilot Test
Haruka Kasuga, Yuichiro Ikeda, *Japan*

Building Conversational Agents for Military Training: Towards a Virtual Wingman
Joost Van Oijen, Olivier Claessen, *Netherlands*

SUNDAY 08:00 - 10:00

Human-Computer Interaction

HCI

S029
Human-centered Persuasive Computing
Chair(s): Guido Kempter, *Austria*

Continuous Monitoring of Interactive Exhibits in Museums as Part of a Persuasive Design Approach
Walter Ritter, Andreas Künz, Katrin Paldan, Guido Kempter, Mathias Gort, *Austria*

Designing for App Usage Motivation to Support a Gluten-Free Diet by Comparing Various Persuasive Feedback Elements
Katrin Paldan, Andreas Künz, Walter Ritter, *Austria;* Daire O. Broin, *Ireland*

Holdable Devices: Supporting Mindfulness, Psychological Autonomy and Self-Regulation During Smartphone Use
Federico Julien Tiersen, Rafael Alejandro Calvo, *United Kingdom*

Annoyed to Discontinue: Factors Influencing (Dis)Continuance of Using Activity Tracking Wearables
Kaja J. Fietkiewicz, Aylin Ilhan, *Germany*

Better Performance Through Mindfulness: Mobile Application Design for Mindfulness Training to Improve Performance in College Athletes
Felicia Roger-Hogan, Tayler Wullenweber, Jung Joo Sohn, *United States*

Designing for Self-Awareness: Evidence-based Explorations of Multimodal Stress-Tracking Wearables
Riccardo Chianella, Marco Mandolfo, Riccardo Lolatto, Margherita Pillan, *Italy*

S030
Facial Expressions and Emotions
Chair(s): Jinhui Chao, *Japan*

Definition and Estimation of Dimension in Facial Expression Space
Masashi Shinto, *Japan;* Reiner Lenz, *Sweden;* Jinhui Chao, *Japan*

A New Algorithm to Find Isometric Maps for Comparison and Exchange of Facial Expression Perceptions
Masashi Shinto, Jinhui Chao, *Japan*

The Impact of Facial Attractiveness and Affective Person Knowledge on Visual Awareness
Junchen Shang, Hong Yang, *P.R. China*

PerformEyebrow: Design and Implementation of an Artificial Eyebrow Device Enabling Augmented Facial Expression
Motoyasu Masui, Yoshinari Takegawa, Nonoka Nitta, Yutaka Tokuda, Yuta Sugiura, Katsutoshi Masai, Keiji Hirata, *Japan*

An Experimental Study on "Consensus to Match" Game for Analyzing Emotional Interaction in Consensus Building Process
Kyoko Ito, Yoshiki Sakamoto, Rieko Yamamoto, Mizuki Yamawaki, Daisuke Miyazaki, Kimi Ueda, Hirotake Ishii, Hiroshi Shimoda, *Japan*

S031
Interacting with Small and Tiny Screens
Chair(s): Sayan Sarcar, *Japan*

One Stroke Alphanumeric Input Method by Sliding-in and Sliding-out on the Smartwatch Screen
Toshimitsu Tanaka, Hideaki Shimazu, Yuji Sagawa, *Japan*

Character Input Method Working on 1-inch Round Screen for Tiny Smartwatches
Ojiro Suzuki, Toshimitsu Tanaka, Yuji Sagawa, *Japan*

Investigation of Motion Video Enhancement for Image-based Avatars on Small Displays
Tsubasa Miyauchi, Wataru Ganaha, Masashi Nishiyama, Yoshio Iwai, *Japan*

A Study on the Usability of Different Age Groups to the Interface of Smart Bands
Xiao-Yu Jia, Chien-Hsiung Chen, *Taiwan*, China*

Current Status of User Experience of the Keyboard on Smartphones: An Overall Questionnaire Analysis
Yincheng Wang, Tong Lin, Jingxin Yu, Lu Wang, Jibo He, Luoma Ke, *P.R. China*

S032
Usability and User Experience Methods and Practice
Chair(s): Antonios Saravanos, *United States*

The Crowd Thinks Aloud: Crowdsourcing Usability Testing with the Thinking Aloud Method
Edwin Gamboa, Rahul Galda, Cindy Mayas, Matthias Hirth, *Germany*

Collaborative Heuristic Inspection: Evaluator Experiences and Organization of Work
Yavuz Inal, Jo Wake, Frode Guribye, *Norway*

The Hidden Cost of Using Amazon Mechanical Turk for Research
Antonios Saravanos, STAVROS ZERVOUDAKIS, Dongnanzi Zheng, Neil Stott, BOHDAN HAWRYLUK, Donatella Delfino, *United States*

Is Usability Evaluation of DSL Still a Trending Topic?
Ildevana Poltronieri, Allan Christopher Pedroso, Avelino Francisco Zorzo, Maicon Bernardino, Marcia De Borba Campos, *Brazil*

Challenges and workarounds of conducting Augmented Reality Usability tests remotely a case study
Ted Kim, Santiago Arconada Alvarez, Young-Mi Choi, *United States*

User Assessment of Webpage Usefulness
Ning Sa, Xiaojun Yuan, *United States*

Sunday, 25 July 08:00 - 10:00 (EDT - Washington DC)

SUNDAY 08:00 - 10:00

HIMI S033

Human Interface and the Management of Information

Data, Semantics and Interaction

Chair(s): Yumi Asahi, *Japan*

Factor Analysis of Continuous Use of Car services in Japan by Machine Learning
Kenta Hara, Yumi Asahi, *Japan*

Classification of Automotive Industry Salesmen
Yoshio Matsuyama, Yumi Asahi, *Japan*

Evaluation of the Current State of Nippon Professional Baseball in Digitalization
Masaru Kondo, Yumi Asahi, *Japan*

Proposal of Credit Risk Model using Machine Learning in Motorcycle Sales
Ryota Fujinuma, Yumi Asahi, *Japan*

UAHCI S034

Universal Access in Human-Computer Interaction

Emotion and User Experience in HCI

Chair(s): Silvia Ceccacci, Maura Mengoni, *Italy*

Affective Guide for Museum: a System to Suggest Museum Paths based on Visitors' Emotions
Alex Altieri, Silvia Ceccacci, Luca Giraldi, Alma Leopardi, Maura Mengoni, *Italy;* Abudukaiyoumu Talipu, *P.R. China*

Building an Ecologically Valid Facial Expression Database – Behind the Scenes
Francesca Nonis, Luca Ulrich, Nicolò Dozio, Francesca Giada Antonaci, Enrico Vezzetti, Francesco Ferrise, Federica Marcolin, *Italy*

Supervised Contrastive Learning for Game-Play Frustration Detection from Speech
Meishu Song, *Germany;* Emilia Parada-Cabaleiro, *Austria;* Shuo Liu, Manuel Milling, Alice Baird, Zijiang Yang, Björn Schuller, *Germany*

Usability Testing on Tractor's HMI: a Study Protocol
Elisa Prati, Fabio Grandi, Margherita Peruzzini, *Italy*

Geo-education as a Valuable Support to Children with Learning Difficulties
Marianna Di Gregorio, Monica Sebillo, Giuliana Vitiello, *Italy*

Implicit Measures as a Useful Tool for Evaluating User Experience
Rossana Actis-Grosso, Roberta Capellini, Francesco Ghedin, Francesca Tassistro, *Italy*

VAMR S035

Virtual, Augmented and Mixed Reality

Distributed and Collaborative Extended Reality

Chair(s): Denis Gracanin, *United States*

Extended Reality, Pedagogy, and Career Readiness: A Review of Literature
Patrick Guilbaud, T. Christa Guilbaud, Dane Jennings, *United States*

A Review of Distributed VR Co-Design Systems
Jean-François Lapointe, Norman G. Vinson, Keiko Katsuragawa, Bruno Emond, *Canada*

The Mobile Office: A Mobile AR Systems for Productivity Applications in Industrial Environments
Daniel Antonio Linares Garcia, Poorvesh Dongre, Nazila Roofigari-Esfahan, Doug Bowman, *United States*

Usability and User Experience of Interactions on VR-PC, HoloLens 2, VR Cardboard and AR Smartphone in a Biomedical Application
Manisha Suresh Balani, Johannes Tümler, *Germany*

The Potential of Augmented Reality for Remote Support
Stefan Kohn, Moritz Schaub, *Germany*

Supporting Embodied and Remote Collaboration in Shared Virtual Environments
Mark Manuel, Poorvesh Dongre, Abdulaziz Alhamadani, Denis Gracanin, *United States*

CCD S036

Cross-Cultural Design

CCDHA -- Cross-Cultural Design for Humanity and Arts - I

Chair(s): I-Ying Chiang, Rungtai Lin, *Taiwan*, China*

The Interweaving of Memory and Recollection: A Case Study of Memorial House "Qiyun Residence"
Yikang Sun, Jianping Huang, *P.R. China*

The Strategies of Experiential Design in the Creative Life Industry
Shu-Hua Chang, *Taiwan*, China*

A Study of Applying Bauhaus Design Idea into the Reproduction of the Triadic Ballet
Yiwen Ting, Po-Hsien Lin, Rungtai Lin, *Taiwan*, China*

A Study of Sightseeing Illustration Map Design
Wai Kit NG, *Hong Kong;* Jing Cao, *Taiwan*, China*

Application of Experience Design in Environmental Education Experience Activities
Cheng Hsiang Yang, Rungtai Lin, Po-Hsien Lin, *Taiwan*, China*

Brand Construction of Chinese Traditional Handicrafts in the We-media Era—A Case Study of "Rushanming", a Ru Ware Brand
Shuang Ou, Minghong Shi, Xin Wen, *P.R. China;* Rungtai Lin, *Taiwan*, China*

Exploring the Integration of Emotion and Technology to Create Product Value — A Case Study on QisDesign Lighting
Jen-Feng Chen, Po-Hsien Lin, Rungtai Lin, *Taiwan*, China*

PARALLEL SESSIONS

CCD S037

Cross-Cultural Product and Service Design in Intelligent Environment

Chair(s): Runting Zhong, *P.R. China*

A Novel Approach Combined with Therbligs and VACP Model to Evaluate the Workload During Simulated Maintenance Task
Bo Wang, Zhen Zhang, Changhua Jiang, Yan Zhao, Shaowen Ding, Fenggang Xu, Jianwei Niu, *P.R. China*

Cross-cultural Research on Consumer Decision Making of HNB Product Modeling based on Eye Tracking
Lizhong Hu, Lili Sun, Yong Zha, Min Chen, Lei Wu, Huai Cao, *P.R. China*

Identifying Design Feature Factors Critical to Acceptance of Smart Voice Assistant
Na Liu, Ruoxuan Liu, Wentao Li, *P.R. China*

Lost in Interpretation? The Role of Culture on Rating the Emotional Nonverbal Behaviors of a Virtual Agent
Adineh Hosseinpanah, Nicole C. Krämer, *Germany*

What Do Young Adults Like About E-planting? A Questionnaire Survey
Runting Zhong, Hongyi Fang, Jiahui Rao, Yue Sun, Ji Xu, Xin Peng, *P.R. China*

Social Computing and Social Media

SCSM S038

Evolutional Marketing with HCI

Chair(s): Kohei Otake, Takashi Namatame, *Japan*

Why Do We Love Coffee Even Though it is Bitter?
Takanobu Nakahara, *Japan*

Analysis of User Relationships on Cooking Recipe Site Using Network Structure
Yuzuki Kitajima, Kohei Otake, Takashi Namatame, *Japan*

Prediction for Private Brand Items Purchase Behavior of Hair Salons Using Bayesian Survival Analysis
Yuho Katagiri, Kohei Otake, Takashi Namatame, *Japan*

Verification of Probabilistic Latent Semantic Analysis Clustering Solution Stability and Proposal of Optimal Initial Values Setting Method
Shinnosuke Terasawa, Kohei Otake, Takashi Namatame, *Japan*

Evaluation of Cooking Recipes Using Their Texts and Images
Mei Nonaka, Kohei Otake, Takashi Namatame, *Japan*

Customer Visit Prediction Using Purchase Behavior and Tendency
Retsuya Saito, Kohei Otake, Takashi Namatame, *Japan*

Augmented Cognition

AC S039

Augmented Cognition through Immersive Experiences

Chair(s): Ayoung Suh, *Korea*

Location-based Augmented Reality Games through Immersive Experiences
Chutisant Kerdvibulvech, *Thailand*

The Impact of Auditory Based Immersive Virtual Travel Experience on Mental Health of the Visually Impaired
Linghong Li, *P.R. China*

Reducing Driver's Cognitive Load with the Use of Artificial Intelligence and Augmented Reality
Kweku Bram-Larbi, Vassilis Charissis, Ramesh Lagoo, *United Kingdom;* Shu Wang, *P.R. China;* Soheeb Khan, *United Kingdom;* Samar Altarteer, *Saudi Arabia;* David Harrison, *United Kingdom;* Dimitris Drikakis, *Cyprus*

A Literature Review on a Neuro-Psychological Approach to Immersive Technology Research
Guan Wang, *P.R. China;* Ayoung Suh, *Korea*

The Cognitive Study of Immersive Experience in Science and Art Exhibition
Ching Wen Chang, *P.R. China*

Automatic Engagement Recognition for Distance Learning Systems: A Literature Study of Engagement Datasets and Methods
Shofiyati Nur Karimah, *Indonesia;* Shinobu Hasegawa, *Japan*

Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management

DHM S040

Human-Robot-AI Interaction

Chair(s): Yaqin Cao, *P.R. China*

A Study on the Effect of Online Vertical Searching Advertising Presence towards Customer Behavioral Intentions
Yu Sun, *P.R. China*

Influence of HNB Product Packaging Health Warning Design on Risk Perception Based on Eye Tracking
Lili Sun, Lizhong Hu, Feng Zheng, Yue Sun, Huai Cao, Lei Wu, *P.R. China*

An Empirical Study of the Influencing Factors on User Experience for Barrage Video Website — A Case Study of Bilibili
Weilin Liu, Zhaoshuang He, Mengxin Liu, *P.R. China*

The Influence of the Aesthetic Design of Taobao APP on Users' Emotional Experience
Yimeng Zhang, Yang Zhang, Jiaojiao Gao, *P.R. China*

SUNDAY 08:00 - 10:00

DUXU S041

Design, User Experience, and Usability

Visual Languages: from Sign to Meaning
Chair(s): Cesco Reale, Switzerland

Visual Writing at the State-of-the-Art?
Jochen Gros, Germany

YERKISH: A Visual Language for Computer-Mediated Communication by an Ape
Marco Cesare Bettoni, Switzerland

Emojitaliano: A Social and Crowdsourcing Experiment of the Creation of a Visual International Language
Johanna Monti, Francesca Chiusaroli, Italy; Federico Sangati, Japan

From Hieroglyphs to Emoji, to IKON: the Search of the (Perfect?) Visual Language
Cesco Reale, Marwan Kilani, Switzerland; Araceli Gimenez, Spain; Nadu Barbashova, Germany; Roman Oechslin, Switzerland

Pasigraphy: Universal Visible Languages
Aaron Marcus, United States

S042

Developments in DUXU: Contributions for the Context of Technological Environments - I
Chair(s): Freddy Paz, Peru

Web Analytics for User Experience: A Systematic Literature Review
Fryda Palomino Diaz, Freddy Paz, Arturo Moquillaza, Peru

Challenges and Opportunities on the Application of Heuristic Evaluations: A Systematic Literature Review
Adrian Lecaros, Freddy Paz, Arturo Moquillaza, Peru

Validation of a Questionnaire to Evaluate the Usability in the Peruvian Context
Freddy Paz, Freddy Asrael Paz, Arturo Moquillaza, Joel Aguirre, Peru; Fiorella Falconi, United States; Jaime Diaz, Chile; Hilmar Hinojosa, Peru

A Systematic Review of User-Centered Design Techniques Applied to the Design of Mobile Application User Interfaces
Percy Quezada, Rony Cueva, Freddy Paz, Peru

Relations on Cultural Behavior and Technology Adoption: A Chilean Perspective
Jaime Diaz, Danay Ahumada, Jorge Hochstetter, Chile; Freddy Paz, Peru

Accessibility Evaluation of E-Government Web Applications: A Systematic Review
Daniela Cisneros, Fernando Huamán Monzón, Freddy Paz, Peru

DAPI S043

Distributed, Ambient and Pervasive Interactions

Interaction in Intelligent Environments - II
Chair(s): Heinrich Ruser, Germany

The Value of the User Evaluation Process in the European IoT Large-scale Pilot for Smart Living
Reiner Wichert, Saied Tazari, Axel Albercht, Monika Wichert, Germany

Re-Imagining Indoor Space Utilization in the COVID-19 Pandemic with Smart Re-configurable Spaces (SReS)
Poorvesh Dongre, Mark Manuel, Denis Gracanin, United States

Touchless Interaction on Mobile Devices using Embedded Ambient Light Sensor
Alen Salkanovic, Sandi Ljubic, Croatia

Home Appliance Control Using Smartwatches with Continuous Gesture Recognition
Thamer Horbylon Nascimento, Fabrizzio Soares, Brazil

Performance evaluation of the orientation sensing of smartphones used as pointers to remotely operate IoT devices
Heinrich Ruser, Michael Mayerhofer, Germany; Ilan Kirsh, Israel

HCIBGO S044

HCI in Business, Government and Organizations

Virtual Customer Interaction
Chair(s): Andrea Müller, Germany

Enhanced Product Presentation with Augmented Reality: The Role of Affective Reactions and Authenticity
Joschka C. Firnkes, Christopher Zerres, Kai Israel, Germany

Haptic Interaction for VR: Use-Cases for Learning and UX, Using the Example of the BMBF project SmartHands
Oliver Gast, Alina Makhkamova, Dirk Werth, Mareike Funk, Germany

Customer Solution Design – A New Agile Role Needed in the Automotive Industry to Support Digital Transformation?
Aline Schnurr, Pamela Renz, Andrea Müller, Germany

Empirical Research as a Challenge in Day-to-Day Teaching during the Pandemic of 2020/21 - Practical Solutions
Christina Miclau, Annebeth Demaeght, Andrea Müller, Germany

Methodical Framework and Case Study for Empowering Customer-Centricity in an E-Commerce Agency– the Experience Logic as Key Component of User Experience Practices within Agile IT Project Teams
Beatrice Weber, Andrea Müller, Christina Miclau, Germany

PARALLEL SESSIONS

LCT   S045

Learning and Collaboration Technologies

Interactive Learning Ecosystems - II

Chair(s): David Fonseca, Francisco J. García-Peñalvo, *Spain*

Auto-assessment of Teamwork and Communication Competences Improvement Applying Active Methodologies. Comparing Results between Students of First Academic Year in Architecture, Economics and Engineering Degrees
Marian Alaez, Susana Romero, David Fonseca, Daniel Amo, Enric Peña, Silvia Necchi, *Spain*

WhatsApp or Telegram. Which is the Best Instant Messaging Tool for the Interaction in Teamwork?
Miguel A. Conde, Francisco J. Rodríguez-Sedano, Francisco J. Rodríguez-Lera, Alexis Gutiérrez-Fernández, Ángel Manuel Guerrero-Higueras, *Spain*

How to Asses Empathy during Online Classes
Karim Elia Fraoua, *France*

Heightmap examiner. A descriptive tool for education in digital cartography
Luis Hernández-Ibáñez, Viviana Barneche-Naya, *Spain*

A Social, Virtual and Open Model for Measuring Creativity
Carlos Guillem-Aldave, Rafael Molina-Carmona, *Spain*

ITAP   S046

Human Aspects of IT for the Aged Population

Designing for the Elderly - I

Chair(s): Helene Fournier, *Canada*

Design for Aging-in-Place in Isolated Contexts: A Methods Literature Review
Carla Resendiz-Villasenor, Farzad P. Rahimian, *United Kingdom;* Phillippa Carnemolla, *Australia;* Sergio Rodriguez, Nashwan Dawood, *United Kingdom*

System Architecture and User Interface Design for a Human-Machine Interaction System for Dementia Intervention
Miroslava Migovich, Ritam Ghosh, Nibraas Khan, Judith A. Tate, Lorraine M. Mion, Nilanjan Sarkar, *United States*

Designing a Dementia-informed, Accessible, Co-located Gaming Platform for Diverse Older Adults with Dementia, Family and Carers
Paula Gardner, Stephen Surlin, Adekunle Akinyema, Jessica Rauchberg, Caitlin McArthur, Jenny Hao, Rong Zheng, Alexandra Papaioannou, *Canada*

Remote User Testing for an Age-friendly Interface Design for Smart Homes
Adriana Marques Da Silva, Hande Ayanoglu, Bruno Silva, *Portugal*

Tangible Chess for Dementia Patients – Playing with Conductive 3D printed Figures on a Touchscreen
Christian Eichhorn, David A. Plecher, Oleksandr Golovnya, Dorothee Volkert, *Germany;* Atsushi Hiyama, *Japan;* Gudrun Klinker, *Germany*

Review of Remote Usability Methods for Aging in Place Technologies
Irina Kondratova, Helene Fournier, Keiko Katsuragawa, *Canada*

HCI-CPT S047

HCI for Cybersecurity, Privacy and Trust

User Identity and Personal Data Protection

Chair(s): Joseph Aneke, *Italy*

Help the User Recognize a Phishing Scam: Design of Explanation Messages in Warning Interfaces for Phishing Attacks
Joseph Aneke, Carmelo Ardito, Giuseppe Desolda, *Italy*

Identity Recognition based on the Hierarchical Behavior Characteristics of Network Users
Biao Wang, Zhengang Zhai, Bingtao Gao, Li Zhang, *P.R. China*

Partial Consent: A Study on User Preference for Informed Consent
Sven Bock, Germany; Ashraf Ferdouse Chowdhury, Nurul Momen, *Sweden*

Understanding User's Behavior and Protection Strategy upon Losing, or Identifying Unauthorized Access to Online Account
Huzeyfe Kocabas, *Turkey;* Swapnil Nandy, *India;* Tanjina Tamanna, *Bangladesh;* Mahdi Nasrullah Al-Ameen, *United States*

HCI-Games S048

HCI in Games

Recent Developments in Gaming and HCI - I

Chair(s): Khaldoon Dhou, *United States;* Barbara Caci, *Italy*

Hitboxes: A Survey about Collision Detection in Video Games
Lazaros Lazaridis, Maria Papatsimouli, Konstantinos-Filippos Kollias, Panagiotis Sarigiannidis, George F. Fragulis, *Greece*

Gameplay as Network: Understanding the Consequences of Automation on Play and Use
Nicolas LaLone, *United States*

Gaze as a Navigation and Control Mechanism in Third-Person Shooter Video Games
Patricio Isbej, Francisco J. Gutierrez, *Chile*

Detecting Real-Time Correlated Simultaneous Events in Microblogs: The case of Men's Olympic Football
Samer Muthana Sarsam, *Malaysia;* Hosam Al-Samarraie, *United Kingdom;* Nurhidayah Bahar, Abdul Samad Bin Shibghatullah, *Malaysia;* Atef Eldenfria, *Libya;* Ahmed Al-Sa'Di, *New Zealand*

Can Games and Gamification Improve Online Learners' Outcomes and Satisfaction on the Madrasati Platform in Saudi Arabia?
Wad Ghaban, *United Kingdom*

Analysis of the Competitiveness of Asymmetric Games in the Market
Jiawei Dai, Xinrong Li, *P.R. China*

SUNDAY 08:00 - 10:00

SUNDAY 08:00 - 10:00

MobiTAS S049

HCI in Mobility, Transport and Automotive Systems

HCI Issues and Assistive Systems for Users with Special Needs in Mobility

Chair(s): Christophe Kolski, Sophie Lepreux, *France*

Audio-based Interface of Guidance System for the Visually Impaired in the Paris Metro
Gérard Uzan, Peter Wagstaff, *France*

A Causal Model of Intersection-Related Collisions for Drivers With and Without Visual Field Loss
Bianca Biebl, Severin Kacianka, Anirudh Unni, Alexander Trende, Jochem W. Rieger, Andreas Lüdtke, Alexander Pretschner, Klaus Bengler, *Germany*

Assistive Systems for Mobility in Smart City: Humans and Goods
Yuhang Li, Chuantao Yin, Zhang Xiong, Bertrand David, René Chalon, Hao Sheng, *France*

Discussion of Intelligent Electric Wheelchairs for Caregivers and Care Recipients
Satoshi Hashizume, Ippei Suzuki, Kazuki Takazawa, Yoichi Ochiai, *Japan*

Electroencephalography Shows Effects of Age in Response to Oddball Auditory Signals: Implications for Semi-Autonomous Vehicle Alerting Systems for Older Drivers
Melanie Turabian, Kathleen Van Benthem, Chris Herdman, *Canada*

AIS S050

Adaptive Instructional Systems

Learner State Diagnostics for Adaptive Instruction

Chair(s): Jessica Schwarz, *Germany*

Dynamic Cognitive Modeling for Adaptive Serious Games
Alexander Streicher, Julius Busch, Wolfgang Roller, *Germany*

Measuring Flow, Immersion and Arousal/Valence for Application in Adaptive Learning Systems
Ehm Kannegieser, Daniel Atorf, Joachim Herold, *Germany*

Taxonomy of Physiologically Adaptive Systems and Design Framework
John Muñoz, *Canada;* Luis Quintero, *Sweden;* Chad Stephens, Alan Pope, *United States*

Measuring Cognitive Load for Adaptive Instructional Systems by Using a Pressure Sensitive Computer Mouse
Thomas E.F. Witte, Henrike Haase, Jessica Schwarz, *Germany*

Individual Differences in the Relationship between Emotion and Performance in Command-and-Control Environments
Alina Schmitz-Hübsch, Sophie-Marie Stasch, Sven Fuchs, *Germany*

MOBILE S051

Design, Operation and Evaluation of Mobile Communications

Mobile Systems Users Adoptions

Chair(s): June Wei, *United States*

Development of a GPS Guilded Mobile Shopping System
Nathan Keeton, June Wei, *United States*

The Impact of Mobile IT on the Service Innovation Performance of Manufacturing
Caihong Liu, *P.R. China;* Hannah Ji, June Wei, *United States*

An Empirical Study on the Impact of Blockchain Technology on the Cost of Company Equity Financing
Yan Yue, *P.R. China;* Hannah Ji, *United States;* Yirong Ying, *P.R. China*

Can Informal Information Transmission Mechanisms Improve the Information Efficiency of the Capital Market? ——Based on the Empirical Research of the Executive Community
Yan Yue, *P.R. China;* Hannah Ji, *United States;* Yirong Ying, Dingfu Jiang, *P.R. China*

Transformation the Business of eCommerce through Blockchain
Uttam Kumar Roy, Weining Tang, *P.R. China*

C&C S052

Culture and Computing

Digital Technologies and Heritage Conservation - I

Chair(s): Claudia Trillo, Busisiwe Chikomborero Ncube Makore, *United Kingdom*

Towards Smart Planning Conservation of Heritage Cities: Digital Technologies and Heritage Conservation Planning
Claudia Trillo, *United Kingdom;* Rania Aburamadan, Jordan; Busisiwe Chikomborero Ncube Makore, Chika Udeaja, Athena Moustaka, Kwasi Gyau Baffour Awuah, *United Kingdom;* Dilip A. Patel, Lukman E Mansuri, *India*

A SLAM Integrated Approach for Digital Heritage Documentation
Salvatore Barba, Carla Ferreyra, *Italy;* Victoria Andrea Cotella, *Argentina;* Andrea Di Filippo, Secondo Amalfitano, *Italy*

Digital Storytelling: the Integration of Intangible and Tangible Heritage in the city of Surat, India
Chika Udeaja, *United Kingdom;* Lukman E Mansuri, *India;* Busisiwe Chikomborero Ncube Makore, Kwasi Gyau Baffour Awuah, *United Kingdom;* Dilip A. Patel, *India;* Claudia Trillo, *United Kingdom;* K N Jha, *India*

Interactive Tools for the Visualization of Tangible and Intangible Silk Heritage Emerging from an Interdisciplinary Work
Cristina Portalés, Jorge Sebastián, Javier Sevilla, Ester Alba, Marcos Fernández, Mar Gaitán, Pablo Casanova-Salas, Arabella León, Manolo Pérez, Eliseo Martínez Roig, Jesús Gimeno, *Spain*

C&C   S053

Visitor Experiences in Digital Culture

Chair(s): To be announced

User Experience in Digital Museums: A Case Study of the Palace Museum in Beijing
Wenhua Li, Jia Xin Xiao, *P.R. China*

Indoor Location-based AR for Large-Scale Museum Exhibition
Sumin Ahn, Dongsoo Han, *Korea*

Before You Visit-: New Opportunities for the Digital Transformation of Museums
Hyungmin Park, Jeongyun Heo, Jongkeon Kim, *Korea*

Research on Factors Influencing Users' Technology Acceptance of Virtual Museums
Wenxuan Gong, Bing Xiao, *P.R. China*

Analysis of the Influencing Factors of User Experience in Online Art Forms during the COVID-19——based on the DEMATEL Method
Chenqi Zhang, Ting Han, Chunrong Liu, *P.R. China*

Artificial Intelligence in HCI

AI-HCI S054

AI and HCI for Application Domains of Societal Impact - I

Chair(s): Pei-Hsuan Hsieh, *Taiwan*, China*

The Challenge of Digital Education and Equality in Taiwan
Shin-yi Lee, *Taiwan*, China*

Estimation of Learners' Engagement Using Face and Body Features by Transfer Learning
XianWen Zheng, *P.R. China;* Shinobu Hasegawa, Japan; Minh-Tuan Tran, *Viet Nam;* Koichi Ota, Teruhiko Unoki, *Japan*

Tool or Partner: The Designer's Perception of an AI-style Generating Service
Kyungsun Kim, Jeongyun Heo, Sanghoon Jeong, *Korea*

Roles of Artificial Intelligence and Extended Reality Development in the Post-COVID-19 Era
Chutisant Kerdvibulvech, Thailand; ZhaoYang Dong, *Australia*

S055

Approaches for Engaging Humans in the AI Lifecycle

Chair(s): Brian C. Stanton, *United States*

A Contextual Bayesian User Experience Model for Scholarly Recommender Systems
Zohreh Champiri, Brian Fisher, *Canada;* Chun Yong Chong, *Malaysia*

Collaborative Human-AI Sensemaking for Intelligence Analysis
Stephen L. Dorton, Robert Hall, *United States*

Automatic Generation of Machine Learning Synthetic Data using ROS
Kyle M. Hart, Ari B. Goodman, Ryan P. O'Shea, *United States*

How Intuitive Is It? Comparing Metrics for Attitudes in Argumentation with a Human Baseline
Markus Brenneis, Martin Mauve, *Germany*

NOTES

SUNDAY 08:00 - 10:00

Human-Computer Interaction

HCI

S056

Socio-cultural and Linguistic Aspects in Human-Computer Interaction

Chair(s): Christina Alexandris, *Greece*

Graphic Representations of Spoken Interactions from Journalistic Data: Persuasion and Negotiations
Christina Alexandris, Vasilios Floros, Dimitrios Mourouzidis, *Greece*

A Study on Universal Design of Musical Performance System
Sachiko Deguchi, *Japan*

Grounding of Concept, Indexical and Name
Roland Hausser, *Germany*

A Sentiment Analysis Web Platform for Multiple Social Media Types and Language-Specific Customizations
Stavros Giannakis, Christina Valavani, Christina Alexandris, *Greece*

''Tell me your story, I'll tell you what makes it meaningful'': Characterization of Meaningful Social Interactions Between Intercultural Strangers and Design Considerations for Promoting Them
Maria Laura Ramirez Galleguillos, Aya Eloiriachi, Büşra Serdar, Aykut Coşkun, *Turkey*

Evaluating the effectiveness of machine translation of audio description in the English-Dutch language pair
Nina Reviers, Gert Vercauteren, Kim Steyaert, *Belgium*

S057

Interaction in Art, Design and Edutainment

Chair(s): Salah Ahmed, *Norway;* Mohammad Shidujaman, *P.R. China*

Blossoms: Preliminary Experiment on Sharing Empathy Online
Chizumi Shimamura, Peeraya Sripian, Midori Sugaya, *Japan*

Educational Robot European Cross-Cultural Design
Anna-Maria Velentza, Stavros Ioannidis, Nefeli Georgakopoulou, *Greece;* Mohammad Shidujaman, *P.R. China;* Nikolaos Fachantidis, *Greece*

Affective Robot Learner: Implementation of Artificial Emotion System Inspired by Educational Psychology
Binnur Gorer, H. Levent Akın, *Turkey*

AI Creativity and The Human-AI Co-Creation Model
Zhuohao Wu, Danwen Ji, Kaiwen Yu, Xianxu Zeng, Dingming Wu, Mohammad Shidujaman, *P.R. China*

A Design Method of Children Playground Based on Bionic Algorithm
Fei Yue, *P.R. China;* Wenda Tian, *Taiwan*, China;* Mohammad Shidujaman, *P.R. China*

The Smaller the Better? A Study on Acceptance of 3D Display of Exhibits of Museum's Mobile Media
Xinhao Guo, Jingjing Qiao, Ran Yan, Ziyun Wang, Junjie Chu, *P.R. China*

S058

Supporting Collaboration

Chair(s): Lawrence J. Henschen, *United States*

A Smart City Stakeholder Online Meeting Interface
Julia C. Lee, Lawrence J. Henschen, *United States*

Application for the Cooperative Control of Mobile Robots with Energy Optimization
José Varela-Aldás, Christian Ichina, Belén Ruales, Víctor H. Andaluz, *Ecuador*

Current Problems, Future Needs: Voices of First Responders about Communication Technology
Kerrianne Morrison, Shanee Dawkins, Yee-Yin Choong, Mary Theofanos, Kristen Greene, Susanne Furman, *United States*

What Futuristic Technology Means for First Responders: Voices from the Field
Shanee Dawkins, Kerrianne Morrison, Yee-Yin Choong, Kristen Greene, *United States*

An Evaluation of Remote Workers' Preferences for the Design of a Mobile App on Workspace Search
Cátia Carvalho, Edirlei Soares de Lima, Hande Ayanoglu, *Portugal*

Digital Communication to Compensate for Social Distancing? - Results of a Survey on the Local Communication App DorfFunk
Matthias Berg, Anne Hess, Matthias Koch, *Germany*

S059

Technology Acceptance and Trust

Chair(s): Valeria Orso, *Italy*

Teens' Conceptual Understanding of Web Search Engines: The Case of Google Search Engine Result Pages (SERPs)
Dania Bilal, Yan Zhang, *United States*

Two-Way Human-Agent Trust Relationships in Adaptive Cognitive Agent, Adaptive Tasking Scenarios: Literature Metadata Analysis
Daniel Kennedy, Maartje Hidalgo, *United States*

Are Professional Kitchens Ready for Dummies? A Comparative Usability Evaluation between Expert and non-Expert Users
Valeria Orso, Daniele Verí, Riccardo Minato, Alessandro Sperduti, Luciano Gamberini, *Italy*

Too Hot to Enter: Investigating Users' Attitudes toward Thermoscanners in COVID times
Alice Bettelli, Valeria Orso, Gabriella Francesca Amalia Pernice, Federico Corradini, Luca Fabbri, Luciano Gamberini, *Italy*

Human Interface and the Management of Information

HIMI   S060

Haptic application in VR

Chair(s): Kentaro Kotani, *Japan*

Research on Conveying User Experiences Through Digital Advertisement
Stephanie Dwiputri Suciadi, Miwa Nakanishi, *Japan*

Development of a pen-type device for SPIDAR-tablet that presents force and thermal sensations
Kaede Nohara, Seiya Sekiwa, Makoto Sato, Takehiko Yamaguchi, Tetsuya Harada, *Japan*

Development of SPIDAR-HMD for a standalone HMD
Yoshiki Takahashi, Ryosuke Futatsumori, Makoto Sato, Takehiko Yamaguchi, Tetsuya Harada, *Japan*

An HMD-Integrated Haptic Device for Force, Friction, and Thermal Sensations of Fingertip
Takahiro Ooshima, Ryuichi Osaki, Shimpei Matsukiyo, Makoto Sato, Takehiko Yamaguchi, Tetsuya Harada, *Japan*

Study on Virtual Reality Performance from the User's Individual Characteristics
Daiji Kobayashi, Seiji Kikuchi, *Japan*

Motion Primitive Segmentation Based on Cognitive Model in VR-IADL
Taisei Ando, Takehiko Yamaguchi, Norito Kohama, Maiko Sakamoto, *Japan;* Tania Giovannetti, *United States;* Tetsuya Harada, *Japan*

S061

Complex Information Environments

Chair(s): To be announced

The Use of New Presentation Technologies in Electronic Sales Environments and Their Influence on Product Perception
Maria-Jesus Agost, Margarita Vergara, Vicente Bayarri, *Spain*

Exploring Human-Computer Interaction in Mathematics: From Voevodsky's Univalent Foundations of Mathematics to Mochizuki's IUT-Theoretic Proof of the ABC Conjecture
Yoshihiro Maruyama, *Australia*

Lessons Learned from Applying Requirements and Design Techniques in the Development of a Machine Learning System for Predicting Lawsuits Against Power Companies
Luis Rivero, Carlos Portela, Jose Boaro, Pedro Santos, Venicius Rego, Geraldo Braz Junior, Anselmo Paiva, Erika Alves, Milton Oliveira, Renato Moraes, Marina Mendes, *Brazil*

Using User-Guided Development to Teach Complex Scientific Tasks Through a Graphical User Interface
Alexis R. Tudor, Richard M. Plotkin, Aarran W. Shaw, Ava E. Covington, Sergiu Dascalu, *United States*

Impact of Task Cycle Pattern on Project Success in Software Crowdsourcing
Razieh Saremi, *United States;* Marzieh Lotfalian Saremi, *Canada;* Sanam Jena, Robert Anzalone, Ahmed Bahabry, *United States*

Decision Support for Prolonged, and Tactical Combat Casualty Care
Christopher Nemeth, Adam Amos-Binks, Natalie Keeney, Yuliya Pinevich, Gregory Rule, Dawn Laufersweiler, Isaac Flint, Vitaly Hereasevich, *United States*

Engineering Psychology and Cognitive Ergonomics

EPCE   S062

Studies on Human Cognition and Mental Workload

Chair(s): Wenbin Guo, *United States*

An Evaluation of Two-dimensional Digital Input Models for Mathematical Structure: Effects on Working Memory, Cognitive Load, and Efficiency
Francis Quinby, Seyeon Kim, Marco Pollanen, Wesley Burr, Michael Reynolds, *Canada*

The Influence of Gender on Human's Cognitive Ability and the Correlation Research of Different Cognitive Dimensions
Zhongqi Liu, Le Dong, Qianxiang Zhou, *P.R. China*

How Metacognitive Monitoring Feedback Influences Workload in a Location-based Augmented Reality Environment
Wenbin Guo, Jung Hyup Kim, *United States*

Cognitive Activity Recognition based on Self-Supervised Learning from EEG Signals
Yifeng Yang, Yingjie Zhao, Yanyu Lu, Shan Fu, *P.R. China*

Universal Access in Human-Computer Interaction

UAHCI   S063   continues...

New Technologies for Universal Access

Chair(s): Simeon Keates, *United Kingdom*

Contextual Cues: The Role of Machine Learning in Supporting Contextually Impaired Users
Martin Kinch, Simeon Keates, *United Kingdom*

Lending an Artificial Eye: Beyond Evaluation of CV-based Assistive Systems for Visually Impaired People
Fotis P. Kalaganis, Panagiotis Migkotzidis, Kostas Georgiadis, Elisavet Chatzilari, Spiros Nikolopoulos, Ioannis Kompatsiaris, *Greece*

Criteria for the Adoption of a Support Information System for People's Mobility
Laura Burzagli, Pier Luigi Emiliani, *Italy*

A Study into Accessibility and Usability of Automated Teller Machines for Inclusiveness
Patrizia Willi, Leandro Soares Guedes, Monica Landoni, *Switzerland*

SUNDAY 10:30 - 12:30

Sunday, 25 July 10:30 - 12:30 (EDT - Washington DC)

SUNDAY 10:30 - 12:30

UAHCI S064

Recent Developments in Techniques and Technologies for Universal Accessibility

Chair(s): Frode Eika Sandnes, Terje Gjøsæter, *Norway*

Users Perceptions of Headphones and Earbuds in Norway and Brazil: An Empirical Study based on a Kahoot Quiz
Amanda Coelho Figliolia, *Brazil;* Frode Eika Sandnes, *Norway;* Fausto Orsi Medola, *Brazil*

Image Search Versus Text Search Revisited: A Simple Experiment using a Kahoot Quiz
Signe Aanderaa Eide, Ana-Maria Poljac, Frode Eika Sandnes, *Norway*

Web Accessibility and Web Developer Attitudes towards Accessibility in Mozambique
Suraj Gupta, Terje Gjøsæter, *Norway;* G. Anthony Giannoumis, *United States*

Screen Reader Accessibility Study of Interactive Maps
Sayed Kamrul Hasan, Terje Gjøsæter, *Norway*

The Ecosystem's Involvement in the Appropriation Phase of Assistive Technology: Choice and Adjustment of Interaction Techniques
Charline Calmels, Caroline Mercadier, Frédéric Vella, Antonio Serpa, Philippe Truillet, Nadine Vigouroux, *France*

Viva: A Virtual Assistant for the Visually Impaired
Zeeshan Ahmed Pachodiwale, Yugeshwari Brahmankar, Neha Parakh, Dhruvil Patel, Magdalini Eirinaki, *United States*

S065

Human-Computer Interaction to Improve Quality of Life

Chair(s): Sophie Lepreux, Kathia Marçal De Oliveira, *France*

Discount Evaluation of Preliminary Versions of Systems Dedicated to Users with Cerebral Palsy: Simulation of Involuntary Movements in Non-Disabled Participants
Yohan Guerrier, Janick Naveteur, Christophe Kolski, Francoise Anceaux, *France*

Multimodal Interaction Framework based on Firebase Real-Time Database
Youssef Guedira, Jose Rouillard, *France*

Design of Digital Therapeutic Workshops for People with Alzheimer's Disease
Anne-Marie Dery-Pinna, Alain Giboin, Philippe Renevier-Gonin, *France*

ParkinsonCom Project: Towards a Software Communication Tool for People with Parkinson's Disease
Kathia Marçal De Oliveira, *France;* Elise Batsele, *Belgium;* Sophie Lepreux, *France;* Elise Buchet, *Belgium;* Christophe Kolski, *France;* Mathilde Boutiflat, *Belgium;* Veronique Delcroix, *France;* Hélène Geurts, *Belgium;* Kodzo Apedo, *France;* Loic Dehon, *Belgium;* Houcine Ezzedine, Yohan Guerrier, *France;* Marie-Claire Haelewyck, Nicolas Jura, *Belgium;* Philippe Pudlo, Yosra Rekik, *France*

Design and Validation of a Stress Detection Model for Use with a VR Based Interview Simulator for Autistic Young Adults
Miroslava Migovich, Alex Korman, Joshua Wade, Nilanjan Sarkar, *United States*

Tasteful: A Cooking App Designed for Visually Impaired Users
Yunran Ju, Zhenyu (Cheryl) Qian, Weilun Huang, *United States*

CCD S066

Cross-Cultural Design

Design for Modern Society

Chair(s): Na Chen, *P.R. China*

Effects of Gender Matching on Performance in Human-Robot Teams and Acceptance of Robots
Yanan Zhai, Na Chen, Jiajia Cao, *P.R. China*

Cross-cultural Design and Evaluation of Robot Prototypes based on Kawaii (Cute) Attributes
Dave Berque, Hiroko Chiba, *United States;* Tipporn Laohakangvalvit, Michiko Ohkura, Peeraya Sripian, Midori Sugaya, *Japan;* Kevin Bautista, Jordyn Blakey, *United States;* Feng Chen, Wenkang Huang, Shun Imura, Kento Murayama, *Japan;* Eric Spehlmann, Cade Wright, *United States*

Towards Effective Robot-Assisted Photo Reminiscence: Personalizing Interactions through Visual Understanding and Inferring
Edwinn Gamborino, Alberto Herrera Ruiz, Jing-Fen Wang, Tsung-Yuan Tseng, Su-Ling Yeh, Li-Chen Fu, *Taiwan*, China*

Maintenance Feasibility Analysis Based on a Comprehensive Indicator
Shaowen Ding, Teng Zhang, Changhua Jiang, Bo Wang, Yan Zhao, Fenggang Xu, Jianwei Niu, *P.R. China*

A Study for Evaluations of Automobile Digital Dashboard Layouts Based on Cognition Electroencephalogram
Hao Yang, Jitao Zhang, Ruoyu Jia, *P.R. China*

S067

CCDHA -- Cross-Cultural Design for Humanity and Arts - II

Chair(s): Po-Hsien Lin, Rungtai Lin, *Taiwan*, China*

Placemaking with Creation: A Case Study in Cultural Product Design
I-Ying Chiang, Rungtai Lin, Po-Hsien Lin, *Taiwan*, China*

Redesign, Transformation and Reflection of Local Marriage Custom Articles: A Case Study of "Ten-Mile Red Dowry"
Jing Cao, *Taiwan*, China;* Wai Kit NG, *Hong Kong;* Yuheng Tao, *P.R. China;* Po-Hsien Lin, *Taiwan*, China*

A Study on the Cognitive Differences of Incomplete Beauty in Sculptures among Audiences
Yuheng Tao, HongQian Zheng, *P.R. China;* Jing Cao, Po-Hsien Lin, *Taiwan*, China*

On the Zen Connotation in Product Design
Tze-Fei Huang, Po-Hsien Lin, *Taiwan*, China*

Discussing how the Viewer, the Author, and the Work See and be Seen in the Photography Works of "Farewell to the Island"
HongQian Zheng, Yuheng Tao, *P.R. China;* Rungtai Lin, Po-Hsien Lin, *Taiwan*, China*

Inheritance Model and Innovative Design of Chinese Southern Ivory Carving Culture and Craft
Ya Juan Gao, Hao Wu Chen, Min Ling Huang, *P.R. China;* Rungtai Lin, *Taiwan*, China*

From Imitation to Innovation: A Case Study of An Amateur Artist
Rungtai Lin, *Taiwan*, China;* Yikang Sun, *P.R. China;* Andrew Yu, *United States*

Social Computing and Social Media

SCSM   S068

The World of Consumers and Social Media: People and Organizations

Chair(s): Adela Coman, *Romania*

A Study on Influencing Factors on Internet Banking Usage during the SARS-CoV-2 Pandemic in Romania
Valentin Mihai Leoveanu, Mihaela Cornelia Sandu, Adela Coman, *Romania*

The Effect of Social Media based Electronic Word of Mouth on Propensity to buy Wearable Devices
David Ntumba, Adheesh Budree, *South Africa*

Social Media, Leadership and Organisational Culture: The Case of Romanian Leaders
Adela Coman, Ana-Maria Grigore, Andreea Ardelean, *Romania*

First Steps in The Entrepreneurial Practice of Marketing
Cristian G. Popescu, Raluca Ion, *Romania*

The impact of Social Media Marketing on Impulse Buying
Adheesh Budree, Warren Driver, Abongile Pandle, Gandidzanwa Tanaka, *South Africa*

S069

Multimodal Social Signal Processing and Applications

Chair(s): Hung-Hsuan Huang, Shogo Okada, Ryo Ishii, *Japan*

Multimodal Analysis of Client Persuasion in Consulting Interactions: Toward Understanding Successful Consulting
Yasushi Amari, Shogo Okada, Maiko Matsumoto, Kugatsu Sadamitsu, Atsushi Nakamoto, *Japan*

Analysis of Modality-based Presentation Skills Using Sequential Models
Su Shwe Yi Tun, Shogo Okada, Hung-Hsuan Huang, *Japan;* Chee Wee Leong, *United States*

Estimating Interaction State from Nonverbal Cues and Utterance Events: A Preliminary Study to Support Ideation Facilitation in Living Lab
Ichiro Umata, Sumaru Niida, Koki Ijuin, Tsuneo Kato, Seiichi Yamamoto, *Japan*

Multimodal Emotion Analysis based on Acoustic and Linguistic Features of the Voice
Leon Koren, Tomislav Stipancic, *Croatia*

Estimation of Empathy Skill Level and Personal Traits using Gaze Behavior and Dialogue Act during Turn-changing
Ryo Ishii, Shiro Kumano, Ryuichiro Higashinaka, Shiro Ozawa, Tetsuya Kinebuchi, *Japan*

Activity Comparison of the Participants using Japanese as L2 and their L1 in Group Discussion
Hung-Hsuan Huang, Zi-Yu Pei, Kazuhiro Kuwabara, *Japan*

Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management

DHM   S070

AHP and Applications in Decision Making

Chair(s): Genett Jimenez-Delgado, *Colombia*

Assessing the impact of Lean Tools on Production and Safety by a Multicriteria Decision-Making model and Statistical Analysis: A case study in textile sector
José Carlos De Sá, Joni Pinto Jorge, Gilberto Santos, Maria João Félix, Luis Barreto, *Portugal;* Genett Jimenez-Delgado, Carlos Rondón, Carlos Vargas-Mercado, *Colombia*

An Integrated Framework based on Fuzzy AHP-TOPSIS and Multiple Correspondences Analysis (MCA) for Evaluate the Technological Conditions of the Tele-worker in Times of Pandemic: A Case Study
Leonel Hernandez-Collantes, Nidia Balmaceda-Castro, Jiseth Guerra-Renard, Ana Charris-Muñoz, Lorayne Solano-Naizzir, Carlos Vargas-Mercado, Daniel Alcazar-Franco, *Colombia*

A FAHP-VIKOR Approach for Supporting the Selection of Tomography Equipment in LMIC hospitals: A Case Study
Miguel Angel Ortiz Barrios, Natalia Jaramillo Rueda, *Colombia;* Antonella Petrillo, *Italy;* Zaury Fernández-Mendoza, Lucelys Vidal-Pacheco, *Colombia*

Implementation of Lean Six Sigma to Lessen Waiting Times in Public Emergency Care Networks: A Case Study
Miguel Angel Ortiz Barrios, Dayana Coba-Blanco, Genett Jimenez-Delgado, *Colombia;* Valerio Salomon, *Brazil;* Pedro Vicente Lopez-Meza, *Colombia*

S071

Ergonomics and Safety in Transport and Industry

Chair(s): Vincent G. Duffy, *United States*

Ergonomics Training and Evaluations in a Digital World Using Collaborative Technologies: A Bibliometric Analysis
Asra Sheikh, Vincent G. Duffy, *United States*

A Systematic Literature Review on the Interaction between COVID-19 and Transportation
Yan Chen, Vincent G. Duffy, *United States*

Safety Management and Challenges Associated with Industry 4.0 on Transportation and Logistics: A Systematic Literature Review
Chien-Hsien Lin, *Taiwan*, China;* Vincent G. Duffy, *United States*

Bibliometric Analysis on the Safety of Autonomous Vehicles with Artificial Intelligence
Hak Jun Kim, Vincent G. Duffy, *United States*

Injury Prevention for Transportation Safety: A Bibliometric Analysis
Ali Alkhaleefah, Quirinus Renardo, Vincent G. Duffy, *United States*

Trust and Automation: A Systematic Review and Bibliometric Analysis
Zhengming Zhang, *P.R. China;* Vincent G. Duffy, Renran Tian, *United States*

SUNDAY 10:30 - 12:30

Design, User Experience, and Usability

DUXU S072

Fashion and the Digital Transformation: HCI Perspectives

Chair(s): Lorenzo Cantoni, Nadzeya Kalbaska, *Switzerland*

Digital Fashion Communication: an Explorative Study of Fashion Newsletters
Tekila Harley Nobile, Lorenzo Cantoni, *Switzerland*

Online Communication Design within Fashion Curricula
Anna Picco-Schwendener, Tekila Harley Nobile, Tetteng Gaduel Thaloka, *Switzerland*

Eco-Activism, Human-Computer Interaction and Fast Fashion
Antonio Nucci, Matthew Hibberd, *Switzerland*

Exploration of Norms and Policies in Digital Fashion Domain Using Semantic Web Technologies
Soheil Roshankish, Nicoletta Fornara, *Switzerland*

COVID-19 Outbreak and Fashion Communication Strategies on Instagram: A Content Analysis
Alice Noris, Lorenzo Cantoni, *Switzerland*

Participatory Design to Create Digital Technologies for Batik Intangible Cultural Heritage. The case of iWareBatik
Puspita Ayu Permatasari, *Indonesia;* Lorenzo Cantoni, *Switzerland*

S073

UX Aspects in Product Design

Chair(s): Nan Zhang, *P.R. China*

Construction of a Novel Production Develop Decision Model based on Text Mined
Tianxiong Wang, Xin Sun, Meiyu Zhou, Xian Gao, *P.R. China*

Modular Approach to Designing 3D Printed Products: Custom HCI Design and Fabrication of Functional Products
Robert Phillips, James Tooze, Paul Smith, Sharon Baurley, *United Kingdom*

A Case Study of Augmented Physical Interface by Foot Access with 3D Printed Attachment
Tatsuya Minagawa, Yoichi Ochiai, *Japan*

Research on Intelligent Classified Trash Can and Smart Application Design—Achieving Green Smart Home Living in China
Nan Zhang, Yanlin Wu, Yinao Kong, Jingsong Lv, *P.R. China*

Lacquer Jewelry Design of Shanghai Style Based on User Perception Preference
Yalan Yu, RongRong Fu, *P.R. China*

Product Interventions and User Performance: Implications for Public Design to Achieve Sustainable Practice
Ming Jun Luo, Jia Xin Xiao, Wenhua Li, *P.R. China*

S074

Developments in DUXU: Contributions for the Context of Technological Environments - II

Chair(s): Freddy Paz, *Peru*

Usability Testing Experiment Applied to Redesign on Point-of-Sale Software Interfaces using User-Centered-Design Approach
Patricia del Pilar Esparza, Rony Cueva, Freddy Paz, *Peru*

A Framework Based on UCD and Scrum for the Software Development Process
Daniela Argumanis, Arturo Moquillaza, Freddy Paz, *Peru*

Developing and Validating a Set of Usability and Security Metrics for ATM Interfaces
Fiorella Falconi, *United States;* Arturo Moquillaza, Joel Aguirre, Freddy Paz, *Peru*

Heuristic Evaluation of Android-based Applications with Multiple Screen Sizes Support: A Case Study
Juan Carlos Romaina, *Peru*

A Usability Evaluation Process Proposal for ATM Interfaces
Joe Sahua, Arturo Moquillaza, Freddy Paz, *Peru*

Improving the Withdrawal Functionality on ATM Using a UCD Framework - A Case Study
Joel Aguirre, *Peru;* Fiorella Falconi, *United States;* Rodrigo Serrano, Arturo Moquillaza, Freddy Paz, *Peru*

Learning and Collaboration Technologies

LCT S075

Interactive Learning Ecosystems - III

Chair(s): David Fonseca, Francisco J. García-Peñalvo, *Spain*

Japanese EFL Learners' Speaking Practice Utilizing Text-to-Speech Technology within a Team-Based Flipped Learning Framework
Yasushige Ishikawa, Shinnosuke Takamichi, Takatoyo Umemoto, Masao Aikawa, Kishio Sakamoto, Kikuko Yui, Shigeo Fujiwara, Ayako Suto, Koichi Nishiyama, *Japan*

Designing Learning Environments in a Digital Time – Experiences in two Different Subjects at NTNU, Norway Autumn 2020
Tord Mjøsund Talmo, Øystein Marøy, Helene Røli Karlsen, *Norway*

Evaluation Design for Learning with Mixed Reality in Mining Education based on a Literature Review
Stefan Thurner, Lea M. Daling, *Germany;* Markus Ebner, Martin Ebner, Sandra Schön, *Austria*

Nudge for Note Taking Assist System: A Learning Strategy Feedback System Among Learners Through Their Tablet
Takaki Kondo, Kyoichi Yokoyama, Tadashi Misono, Rieko Inaba, Yuki Watanabe, *Japan*

Create Children's Programming Teaching Aids with Chinese Characteristics: Provide A Method Framework to Assist Designers in Designing
Zhijuan Zhu, Xinjun Miao, Yan Qin, Wenzhen Pan, *P.R. China*

ITAP   S076

Human Aspects of IT for the Aged Population

Designing for the Elderly - II

Chair(s): To be announced

Expansion of Design Thinking Method: A Case Study of a Senior-Friendly Online Survey System
Danyang Wang, Hsien-Hui Tang, *Taiwan*, China*

Towards Representation of Daily Living Activities by Reusing ICF Categories
Satoshi Nishimura, Ken Fukuda, *Japan*

Application of Sustainability Design Method for Well-Being Design
Yi Li, *P.R. China*

Research on the Design of Smart Bracelets for the Elderly based on Maslow's Hierarchy of Needs
TianYu Shi, Yu Wei, *P.R. China*

Interface Adaption to Elderly Users: Effects of Icon Styles and Semantic Distance
Kairu Zhao, Xiaochun Wang, Linyao Bai, *P.R. China*

HCI-Games S077

HCI in Games

Recent Developments in Gaming and HCI - II

Chair(s): Khaldoon Dhou, *United States*; Barbara Caci, *Italy*

An Exploration of the Fear of Attack Strategy in Chess and its Influence on Class-A Players of Different Chess Personalities: An Exploration Using Virtual Humans
Khaldoon Dhou, *United States*

Game Design, Creativity and e-Learning: The Challenges of Beginner Level Immersive Language Learning Games
Tiago Barros Pontes e Silva, Raquel Pereira Pacheco, Mariana Da Silva Lima, Maurício Miranda Sarmet, Maria Luísa De Carvalho Cascelli de Azevedo, Vitor Henrique Malcher Ferreira, Carla Denise Castanho, *Brazil*

Virtual Reality for Rich Interaction with Cultural Heritage Sites
Nouf AlMuraikhi, Fatima Almalki, Fadeela AlDahnim, Osama Halabi, *Qatar*

Exploring Coordination Patterns in VR-based Rehabilitation for Stroke using the Kinect Sensor
Maria F. Montoya, Julian F. Villada, *Colombia*; John Muñoz, *Canada*; Oscar A. Henao, *Colombia*

MobiTAS   S078

HCI in Mobility, Transport and Automotive Systems

Gender and Diversity in Smart Mobility

Chair(s): Lena Levin, *Sweden*

Gender, Smart Mobility and COVID-19
Angela Carboni, *Italy;* Mariana Costa, Sophia Kalakou, *Portugal;* Miriam Pirra, *Italy*

Smart and Inclusive Bicycling? Non-users' Experience of Bike-Sharing Schemes in Scandinavia
Michala Hvidt Breengaard, *Denmark;* Malin Henriksson, Anna Wallsten, *Sweden*

Plotting the nexus between Inclusive Mobilities, Climate Mitigation Policies, Covid-19 outbreak and Digitalisation. Highlights from Norway
Tanu Priya Uteng, Lars Bocker, *Norway*

Smart is (not) always Digital! Expanding the Concept of Assistive Technology: The Roller as an Age-Based, Gendered and Social Innovation
Hilda Roemer Christensen, *Denmark*

Smart Mobility for all – TInnGO provides a new tool for gender and diversity action planning (GaDAP)
Lena Levin, *Sweden*

AIS   S079

Adaptive Instructional Systems

Essentials of Learner Modeling for Adaptive Instructional Systems (AISs)

Chair(s): Ani Grubisic, *Croatia*

Measuring and Integrating Facial Expressions and Head Pose as Indicators of Engagement and Affect in Tutoring Systems
Hao Yu, Ankit Gupta, William Lee, Ivon Arroyo, Margrit Betke, Danielle Allesio, Tom Murray, John Magee, Beverly Woolf, *United States*

Enhancing Personalization by Integrating Top-down and Bottom-up Approaches to Learner Modeling
Diego Zapata-Rivera, Burcu Arslan, *United States*

Modelling and Quantifying Learner Motivation for Adaptive Systems: Current Insight and Future Perspectives
Fidelia A. Orji, Julita Vassileva, *Canada*

Croatian POS Tagger as a Prerequisite for Knowledge Extraction in Intelligent Tutoring Systems
Daniel Vasić, *Bosnia and Herzegovina;* Branko Žitko, Ani Grubisic, Slavomir Stankov, Angelina Gašpar, Ines Šarić-Grgić, Suzana Tomaš, Ivan Peraić, *Croatia;* Matea Markić-Vučić, *Bosnia and Herzegovina*

SUNDAY 10:30 - 12:30

SUNDAY 10:30 - 12:30

MOBILE S080

Design, Operation and Evaluation of Mobile Communications

Mobile Communications Applications from Users' Perspectives

Chair(s): June Wei, *United States*

The Influence Mechanism of Demand Fluctuation on Service Quality of Digital Supply Chain: the Moderating Effect of Digital Technology Capability
Caihong Liu, *P.R. China;* Hannah Ji, June Wei, *United States*

Bibliometric Structured Review of Mobile Information Systems
Sunday Adewale Olaleye, Ismaila Temitayo Sanusi, Oluwaseun Alexander Dada, *Finland*

The Use of mPOS in Mexico
Sunday Adewale Olaleye, *Finland;* Manuela Gutiérrez-Leefmans, *Mexico*

C&C S081

Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management

Digital Memory Modalities - Inquiring the Role of HCI for Participatory Memory Practices

Chair(s): Gertraud Koch, *Germany*

Memory Modalities - Opening-up Digital Heritage Infrastructures
Gertraud Koch, Germany

Infrastructuring for Collective Heritage Knowledge Production
Sanna Marttila, *Denmark;* Andrea Botero, *Finland*

Breaking Boundaries, Creating Connectivities: Enabling Access to Digitized Museum Collections
Cassandra Kist, *United Kingdom;* Quoc-Tan Tran, *Germany*

Youth and Algorithmic Memory: Co-Producing Personal Memory on Instagram
Jennifer Krueckeberg, *Germany*

On Complexity of GLAMs' Digital Ecosystem: APIs as Change Makers for Opening Up Knowledge
Angeliki Tzouganatou, *Germany*

Civic Community Archiving with the Platform for Experimental Collaborative Ethnography: Double Binds and Design Challenges
Kim Fortun, Mike Fortun, Angela Hitomi Skye Crandall Okune, *United States;* Tim Schütz, *Germany;* Shan-Ya Su, *Taiwan*, China*

S082

Digital Technologies and Heritage Conservation - II

Chair(s): Claudia Trillo, Busisiwe Chikomborero Ncube Makore, *United Kingdom*

Heritage Building Information Modelling (HBIM) as a Tool for Heritage Conservation: Observations and Reflections on Data Collection, Management and Use in Research in a Middle Eastern Context
Rania Aburamadan, *Jordan;* Athena Moustaka, Claudia Trillo, Busisiwe Chikomborero Ncube Makore, Chika Udeaja, Kwasi Gyau Baffour Awuah, *United Kingdom*

The MaDiH (مديح): Mapping Digital Cultural Heritage in Jordan, Opportunities and Limitations.
Fadi Bala'awi, Shatha Mubaideen, *Jordan;* James Smithies, Pascal Flohr, Alessandra Esposito, *United Kingdom;* Carol Palmer, Sahar Idwan, *Jordan*

The Circular City Implementation: Cultural Heritage and Digital Technology
Martina Bosone, Francesca Nocca, Luigi Fusco Girard, *Italy*

Social Media Data for the Conservation of Historic Urban Landscapes: Prospects and Challenges
Manal Ginzarly, *Lebanon*

AI-HCI S083

Artificial Intelligence in HCI

AI and HCI for Application Domains of Societal Impact - II

Chair(s): Sandeep Kaur Kuttal, *United States*

Why Developing Simulation Capabilities Promotes Sustainable Adaptation to Climate Change
Gabriele De Luca, Thomas J. Lampoltshammer, *Austria;* Shahanaz Parven, *Russia*

Toward AI-Based Scenario Management for Cyber Range Training
Jo Hannay, Audun Stolpe, Muhammad Mudassar Yamin, *Norway*

Deepdive: The Use of Virtual Worlds to Create Ethnographies of Ancient Civilizations
Robert Reynolds, Thomas Palazollo, Ashley Lemke, Sarah Saad, Chencheng Zhang, John O'Shea, *United States*

MONDAY 08:00 - 10:00

HCI S084

Human-Computer Interaction

Affective Value and Kawaii Engineering

Chair(s): Michiko Ohkura, *Japan*

Sound Symbolic Words as a Game Controller
Yuji Nozaki, Shu Watanabe, Maki Sakamoto, *Japan*

Differences in Product Selection Depend on Situations: Using Eyeglasses as an Example
Yuri Hamada, Atsuya Nagata, Naoki Takahashi, Hiroko Shoji, *Japan*

Comparison of Kawaii Feelings for Magnets with Different Shapes between 2007 and Present
Michiko Ohkura, Tipporn Laohakangvalvit, *Japan*

Comparison of Color Features of Kawaii Fashion Styles in Japan
Peeraya Sripian, Keiko Miyatake, Tipporn Laohakangvalvit, Michiko Ohkura, *Japan*

Relationship between Robot Designs and Preferences in Kawaii Attributes
Tipporn Laohakangvalvit, Peeraya Sripian, Midori Sugaya, Michiko Ohkura, *Japan*

Kansei Evaluation of Robots in Virtual Space Considering Their Physical Attributes
Shun Imura, Kento Murayama, Peeraya Sripian, Tipporn Laohakangvalvit, Midori Sugaya, *Japan*

S085

AI ART Research & Application - I

Chair(s): Yi Ji, *P.R. China*

Research on Information Visualization Design for Public Health Security Emergencies
Wenkui Jin, Xurong Shan, Ke Ma, *P.R. China*

An Unheimlich Media: Bringing the Uncanny into the World
Kenneth Feinstein, *Malaysia*

Research on Interactive Experience Design of Peripheral Visual Interface of Autonomous Vehicle
Zehua Li, Xiang Li, JiHong Zhang, Zhixin Wu, Qianwen Chen, *P.R. China*

Research on the Usability Design of HUD Interactive Interface
Xiang Li, Bin Jiang, Zehua Li, Zhixin Wu, *P.R. China*

Research on Interactive Experience Design of Peripheral Visual Interface of Unmanned Logistics Vehicle
Zehua Li, Qianwen Chen, *P.R. China*

HIMI S086

Human Interface and the Management of Information

Improvement in Learning and Educational Environments using ICT - I

Chair(s): Takahito Tomoto, Yusuke Kometani, Takako Akakura, *Japan*

Design of Learning by Logical Empathic Understanding in Technology Enhanced Learning
Tsukasa Hirashima, *Japan*

Learner Model for Adaptive Scaffolding in Intelligent Tutoring Systems for Organizing Programming Knowledge
Kento Koike, Yuki Fujishima, Takahito Tomoto, Tomoya Horiguchi, Tsukasa Hirashima, *Japan*

Proposal of Learning Support System for Improving Skills in Inferring Background Knowledge in Conversation
Tomohiro Mogi, Kento Koike, Takahito Tomoto, Tomoya Horiguchi, Tsukasa Hirashima, *Japan*

Characterization of Auxiliary Problems for Automated Generation in Error-based Simulation
Nonoka Aikawa, Kento Koike, Takahito Tomoto, Tomoya Horiguchi, Tsukasa Hirashima, *Japan*

Cultivation System of Search-Query-Setting Skill by Visualizing Search Results
Chonfua Mano, Tomoko Kojiri, *Japan*

EPCE S087

Engineering Psychology and Cognitive Ergonomics

Applications of Cognitive Ergonomics

Chair(s): Kyle Harrington, *United Kingdom*

Emerging Applications of Cognitive Ergonomics: A Bibliometric and Content Analysis
Anne Louise Roach, Vincent G. Duffy, *United States*

Methodology to Quantify Accuracy for Procedure Execution Analysis
Sarah O'Meara, Kimberly Jenks, Christopher Stevens, Jennifer Mindock, Stephen Robinson, *United States*

Human-Centered HMI for Crane Teleoperation: Intuitive Concepts Based on Mental Models, Compatibility and Mental Workload
Felix Top, Sebastian Pütz, Johannes Fottner, *Germany*

Computer Aided Search Tasks in a Naturally Occurring Environment
Kyle Harrington, James Pinchin, Sarah Sharples, *United Kingdom*

Effect of Image Captioning with Description on the Working Memory
Nithiya Shree Uppara, Troy McDaniel, Hemanth Kumar D. Venkateswara, *United States*

Pseudo Human Sense in the Loop: Proposal of a Presentation Support Method by Pseudo Feedback of Audience Sense
Kureha Noguchi, Yoshinari Takegawa, Keiji Hirata, *Japan*

MONDAY 08:00 - 10:00

UAHCI S088

Universal Access in Human-Computer Interaction

Cutting Edge in Biosignal Analysis and Artificial Intelligence for Automatic Control Systems, Virtual Reality and the Education

Chair(s): Hiroki Takada, *Japan*

A Study of Classification for Electrogastrograms before/after Caloric Intake using Autoencoder
Kohki Nakane, Keita Ichikawa, Rentaro Ono, Yasuyuki Matsuura, Hiroki Takada, *Japan*

Effect of Olfactory Stimulation with Vanilla Odor on Degree of Electrical Activity to Control Gastrointestinal Motility
Eiji Takai, Takahiro Aoyagi, Keita Ichikawa, Yasuyuki Matsuura, Fumiya Kinoshita, Hiroki Takada, *Japan*

Development of an Index for Evaluating VIMS using Gaze Data
Kazuhiro Fujikake, Rentaro Ono, Hiroki Takada, *Japan*

Dynamical Properties of Three-Rules Set Realizing Compressive and Errorless Description of Digital Sound
Shota Nakayama, Jousuke Kuroiwa, Tomohiro Odaka, Izumi Suwa, *Japan*

Effect of the Peripheral Visual Field Elements of 3D Video Clips on Body Sway
Fumiya Kinoshita, Honoka Okuno, Hideaki Touyama, Hiroki Takada, *Japan*

Communication Robot as a Weekly Online Quiz Presenter
Shu Matsuura, Satoe Kon, Sakura Kuwano, *Japan*

Real-time estimation of eye movement condition by a deep learning model
Akihiro Sugiura, Yoshiki Itazu, Kunihiko Tanaka, Hiroki Takada, *Japan*

S089

Universal Access in New Interactive Technologies

Chair(s): Rodrigo Bonacin, *Brazil*

Deaf Inclusion through Brazilian Sign Language: A Computational Architecture Supporting Artifact and Interactive Applications and Tools
Laura Sánchez García, Tanya Amara De Souza Felipe, André P. Guedes, Diego R. Antunes, Carlos E. Iatskiu, Eduardo Todt, Juliana Bueno, Daniela de F.G. Trindade, Diego Addan Gonçalves, Rafael Canteri, M.C. Canal, Marta Angelica Montiel Ferreira, Antônio Silva, Ludmilla Galvão, Lucineide Silva Rodrigues, *Brazil*

An Assessment of Moodle Environment tools for the Literacy Environment of Deaf Children in the context of the 3rd Year of Elementary Education
Marta Angelica Montiel Ferreira, Laura Sánchez García, Tanya Amara De Souza Felipe, Juliana Bueno, Suellym Fernada Opolz, *Brazil*

Adaptive Augmentative and Alternative Communication Systems for People with Neuromuscular Pathologies
Jhon Fernando Sanchez Alvarez, Gloria Patricia Jaramillo Alvarez, Claudio Camilo Gonzalez Clavijo, *Colombia*

Designing 3D Printed Audio-Tactile Graphics: Recommendations from Prior Research
Emilia Christie Picelli Sanches, Juliana Bueno, Maria Lucia Leite Ribeiro Okimoto, *Brazil*

An enhanced Open Source Refreshable Braille display DISBRA 2.0
Alvaro Boa Vista Maia Bisneto, Victor Hazin Da Rocha, Diogo Silva, *Brazil*

Multimodal Tactile Graphics using T-TATIL, A Mobile Application for Tactile Exploration by Visually Impaired People
Leonardo Zani Zamprogno, Bruno Merlin, João Ferreira, Heleno Fülber, Allan Veras, *Brazil*

VAMR S090

Virtual, Augmented and Mixed Reality

User Experience in VAMR

Chair(s): David Novick, *United States*

A Comparative Study of Conversational Proxemics for Virtual Agents
David Novick, Aaron Rodriguez, *United States*

Exploring Perspective Switching in Immersive VR for Learning First Aid in Lower Secondary Education
Tone Lise Dahl, Olve Storlykken, Bård H. Røssehaug, *Norway*

Virtual Reality Sickness Evaluation in Exergames for Older Hypertensive Patients: A Comparative Study of Training Methods in a Virtual Environment
Oskar Stamm, Susan Vorwerg, *Germany*

Narrative Cognition in Mixed Reality Systems: Towards an Empirical Framework
Luis Emilio Bruni, Hossein Dini, *Denmark*; Aline Simonetti, *Spain*

CCD S091

Cross-Cultural Design

Sustainable Design, Work and Society for Active Aging

Chair(s): Pei-Lee Teh, *Malaysia*

Work-Life Imbalance, Health and Wellbeing of Older Workers: A Meta-Analysis
Kapo Wong, *Hong Kong;* Pei-Lee Teh, Malaysia; Tsz Wang Au, *Hong Kong*

Generating Travel Recommendations for Older Adults Based on Their Social Media Activities
Yuhong Lu, Yuta Taniguchi, Shin'ichi Konomi, *Japan*

Application of Four-Chain Integration Theory on Cultural Derivative Design -- A Case Study of Shanghai History Museum
Wei Ding, Xinyao Huang, Qianyu Zhang, Xiaolin Li, Dadi An, *P.R. China*

CCD   S092

Social Computing and Social Media

CCDHA -- Cross-Cultural Design for Humanity and Arts - III

Chair(s): Yu-Chao Liang, Rungtai Lin, *Taiwan*, China*

ISDT Case Study of Cultivation of Employees' Creativity in Cultural and Creative Industries
Hao Chen, Chao Liu, *P.R. China;* Yu-Chao Liang, Rungtai Lin, Wen-Ko Chiou, *Taiwan*, China*

ISDT Case Study of Loving Kindness Meditation for Flight Attendants
Chao Liu, Hao Chen, *P.R. China;* Yu-Chao Liang, Rungtai Lin, Wen-Ko Chiou, *Taiwan*, China*

The Core Values and Methodology of Cross-Cultural I-Sustainability Design Thinking
Yu-Chao Liang, *Taiwan*, China;* Chao Liu, Hao Chen, *P.R. China;* Ding-Hau Huang, Wen-Ko Chiou, *Taiwan*, China*

ISDT Case Study of We'll App for Postpartum Depression Women
Wen-Ko Chiou, Szu-Erh Hsu, Yu-Chao Liang, Tai-He Hong, Liang-Ming Lo, *Taiwan*, China;* Hao Chen, Chao Liu, *P.R. China*

Study on the Effect of Art Training on Proportion Control
Yang Gao, *Taiwan*, China;* Jianping Huang, Jun Wu, *P.R. China;* Rungtai Lin, *Taiwan*, China*

Co-Creating Experience in Engaging Customers with Product Development: A Case Study of Hair Products
Meilin Huang, *Taiwan*, China*

SCSM   S093

The Ethics of Artificial Intelligence: Methods and Applications

Chair(s): Han Yu, *Singapore*

Infusing Motivation into Reminders for Improving Medication Adherence
Yaming Zhang, Yang Qiu, Zhengxiang Pan, Xinjia Yu, Chunyan Miao, *Singapore*

Coaching Older Adults in Health Games: A Goal Oriented Modelling Approach
Zhengxiang Pan, Yaming Zhang, Hao Zhang, Zhiqi Shen, *Singapore*

Human-Machine Interaction for Autonomous Vehicles: A Review
Jiehuang Zhang, Ying Shu, Han Yu, *Singapore*

Fairness in Design: A Tool for Guidance in Ethical Artificial Intelligence Design
Ying Shu, Jiehuang Zhang, Han Yu, *Singapore*

AC   S094

Augmented Cognition

Harnessing the Power of Neuroergonomics for Augmented Cognition: Human-system Performance Enhancement

Chair(s): Kurtulus Izzetoglu, *United States*

Individual Differences in fNIRS Measures of Cognitive Workload During a UAS Mission
Jaime Kerr, Cooper Molloy, Pratusha Reddy, Patricia A. Shewokis, Kurtulus Izzetoglu, *United States*

Goal Orientation in Human Computer Interaction Tasks: An Experimental Investigation of User Engagement and Interaction Modalities
Mehmetcan Fal, Cengiz Acarturk, *Turkey*

Distributed Remote EEG Data Collection for NeuroIS Research: A Methodological Framework
Théophile Demazure, Alexander-John Karran, Jared Boasen, Pierre-Majorique Léger, Sylvain Senecal, *Canada*

A Supervisor Agent-based on the Markovian Decision Process Framework to Optimize the Behavior of a Highly Automated System
Andrea Castellano, Milad Karimshoushtari, Carlo Novara, Fabio Tango, *Italy*

DHM   S095

Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management

Designing for Human Health and Comfort - I

Chair(s): To be announced

The Measurement and Analysis of Chinese Adults' Range of Motion Joint
Qianxiang Zhou, Yu Jin, Zhongqi Liu, *P.R. China*

The Wearable Resistance Exercise Booster's Design for the Elderly
Xiangtian Bai, Jun Ma, Duan Dai, *P.R. China*

Study on Evaluation Index of Physical Load of Chemical Prevention Personnel in High Temperature and Humidity Environment
Peng Zhang, Zhongqi Liu, Xuemei Chen, Qianxiang Zhou, *P.R. China*

Digital Human Simulation for Fall Risk Evaluation when Sitting on Stepladders
Tsubasa Maruyama, Haruki Toda, Yui Endo, Mitsunori Tada, Hiroyuki Hagiwara, Koji Kitamura, *Japan*

Ergonomics-based Clothing Structure Design for Elderly People
Jingxiao Liao, Xiaoping Hu, *P.R. China*

Designing a smart shirt to support teenagers' sitting posture based on strain textile sensors
Qi Wang, Xin Zhou, Weiwei Guo, Xiaohua Sun, *P.R. China*

MONDAY 08:00 - 10:00

Design, User Experience, and Usability

DUXU S096

User Experience and Usability Driven Design: Emerging Theory and Practice: I

Chair(s): Zhen Liu, *P.R. China*

A Video Experience Design for Emotional Bullying in Public High School in Guangzhou, China
Zhen Liu, Zihao Zhuang, *P.R. China*

Studying the Phenomenon of Verbal Bullying in High School Students for Video Experience Design: A Case of an International School in Guangzhou, China
Zhen Liu, Yue Cai, *P.R. China*

Potential Integration of Virtual Reality and Sound for University Student Experience Therapy
Zhen Liu, Zhanhong Su, *P.R. China*

Potential Usability Design Strategies Based on Mental Models, Behavioral Model and Art Therapy for User Experience in Post-COVID-19 Era
Zulan Yang, Zhen Liu, Ke Zhang, Chang Xiao, *P.R. China*

Experience Design Teaching Courses Linking US and China in the Context Of the Covid-19 Epidemic: A Dual-end-tutor Online and Offline Blended Teaching Case Study
Zhen Liu, Guizhong Han, Xiaozi Wang, *P.R. China;* Donald William Carr, *United States*

The Art Therapy Experience Based on Online Education System for Higher Education During the COVID-19 Pandemic: A Case Study of Communication Method
Zhen Liu, Lingfeng Ren, Ke Zhang, *P.R. China*

S097

Research in Mobile Interactions

Chair(s): To be announced

Insights and Lessons Learned from the Design, Development and Deployment of Pervasive Location-based Mobile Systems "in the Wild"
Konstantinos Papangelis, *United States;* Alan Chamberlain, *United Kingdom;* Nicolas LaLone, Ting Cao, *United States*

Persuasive Design of a Mobile Application for Reducing Overcrowding in Saudi Hospital Emergency Departments
Khalid Majrashi, Hashem Almakramih, Mohammed Gharawi, *Saudi Arabia*

The Design of a Mobile App to Promote Young People's Digital Financial Literacy
Yi Zhang, *Sweden*

Can I talk to Mickey Mouse Through my Phone? Children's Understanding of the Functions of Mobile Phones
Hui Li, *P.R. China;* Jacqueline D. Woolley, *United States;* Haoxue Yu, *P.R. China*

Research on the Design of Mobile Infusion Devices for Children Based on Emotionalization
Xueqing Zhao, Wei Yu, Xin Liang, *P.R. China*

Effects of Visual Cue Design and Gender Differences on Wayfinding using Mobile Devices
Xiao Li, Chien-Hsiung Chen, *Taiwan*, *China*

Distributed, Ambient and Pervasive Interactions

DAPI S098

Design with Interactivity and Connectivity

Chair(s): Jun Hu, *Netherlands*

Strategies for Panel Sequence Segmentations in d-Comics
Xinwei Wang, *P.R. China;* Jun Hu, Bart Hengeveld, Matthias Rauterberg, *Netherlands*

HUD Information Design for IoV Intelligent Navigation System
Qingshu Zeng, *P.R. China;* Tianyu Wu, *United Kingdom*

Design Inspired by Intangible Cultural Heritage of Taoyuan Woodcarving Craft Platform
Mingxiang Shi, Chunyi Liu, *P.R. China*

Papimation: A Symbol System for Children to Animate their Drawing
Cheng Yao, Xinglin Zheng, Zhangzhi Wang, Yue Hao, Xiaoqian Li, Yuqi Hu, Fangtian Ying, *P.R. China*

TangiLetter: An Interactive Vocabulary System for Children to Learn Words about Wild Animals
Fangtian Ying, Pinhao Wang, Yuping Zou, Xinglin Zheng, Muling Huang, Cheng Yao, *P.R. China*

Technology Probes to Explore How Children Learn about Gender Stereotypes
Weilin Jiang, Yujie Su, Shijia Liu, Fangtian Ying, Cheng Yao, *P.R. China*

Intelligent Product Design with Natural Interaction
Rui Wang, Feng Wang, *P.R. China;* Jun Hu, *Netherlands*

HCI in Business, Government and Organizations

HCIBGO S099

Privacy Concerns with e-Commerce

Chair(s): Norman Shaw, *Canada*

Privacy, Ethics, Trust, and UX Challenges as Reflected in Google's People and AI Guidebook
Dan McAran, *Canada*

Augmented Reality: Does it Encourage Customer Loyalty?
Aboli Lele, Norman Shaw, *Canada*

An Experiment on the Impact of Information on the Trust in Artificial Intelligence
Julien Meyer, David Remisch, *Canada*

Mobile Wallet Adoption: Does Ubiquity Make a Difference?
Norman Shaw, *Canada;* Brenda Eschenbrenner, *United States*

Dark Patterns in Online Shopping: Of Sneaky Tricks, Perceived Annoyance and Respective Brand Trust
Christian Voigt, Stephan Schlögl, Aleksander Groth, *Austria*

LCT S100

Learning and Collaboration Technologies

Computer-Assisted Language Learning - I

Chair(s): Antigoni Parmaxi, Elis Kakoulli Constantinou, Anna Nicolaou, Maria-Victoria Soulé, *Cyprus*

Achieving Student Engagement in Learning: Utilizing a Rubric-Based Assessment System for Visualizing Learners' Self-, Peer, and Teacher Assessments
Yasuishige Ishikawa, Takatoyo Umemoto, Yasushi Tsubota, Shigeo Fujiwara, Ayako Suto, Koichi Nishiyama, *Japan*

Open Educational Resources for Language Education: Towards the Development of an e-Toolkit
Panagiotis Kosmas, Antigoni Parmaxi, *Cyprus;* Maria Perifanou, Anastasios A. Economides, *Greece*

Engaging Students in Online Language Learning during a Pandemic
Angela Kleanthous, *Cyprus*

Using the G Suite for Education in Language Teacher Education: Benefits and Challenges
Elis Kakoulli Constantinou, *Cyprus*

Rapid Response to the Needs of ESL Students of a Technical University in the Time of Emergency Covid-19 Transfer to Online Classes: ITMO University Case Study
Evgenia Windstein, Marina Kogan, *Russia*

Learning Theories and Teaching Methodologies for the Design of Training in Digital Competence for Language Teachers: A Narrative Review
Antigoni Parmaxi, Anna Nicolaou, Elis Kakoulli Constantinou, Maria-Victoria Soulé, Salomi Papadima-Sophocleous, *Cyprus;* Maria Perifanou, *Greece*

ITAP S101

Human Aspects of IT for the Aged Population

New Media Use in the Everyday Life of Older People - I

Chair(s): Eugene Loos, *Netherlands*

Digital Social Interactions in Later Life: Effects of Instant Messaging on Situational Mood of Older Smartphone Users
Friedrich Wolf, Johannes Naumann, Frank Oswald, *Germany*

Generational Perspectives on EU Documents Tackling Disinformation
Maria José Brites, Inês Amaral, Rita Basílio Simões, Sofia Jose Santos, *Portugal*

Numeric Keypads or Character Keyboards for Numeric Entries on Surveys and Forms: Surprising Results from Older Adults Using Mobile Devices
Erica Olmsted-Hawala, Elizabeth Nichols, Lin Wang, *United States*

Effects of Text Simplification on Reading Behavior of Older and Younger Users
Fatima Varzgani, Javad Norouzi Nia, Doaa Alrefaei, Mina Shojaeizadeh, Soussan Djamasbi, *United States*

HCI-CPT S102

HCI for Cybersecurity, Privacy and Trust

Approaches for Usable Security

Chair(s): To be announced

Risk Assessment of "Ostrich ZIP"
Michihiro Nakayama, Akira Kanaoka, *Japan*

Development of a Novice-Friendly Representation of Camouflaged Boolean Networks
Salsabil Hamadache, Malte Elson, *Germany*

Eye Gaze and Interaction Differences of Holistic versus Analytic Users in Image-recognition Human Interaction Proof Schemes
Pantelitsa Leonidou, Argyris Constantinides, *Cyprus;* Marios Belk, *Germany;* Christos Fidas, *Greece;* Andreas Pitsillides, *Cyprus*

Exploring the Effect of Resolution on the Usability of Locimetric Authentication
Antonios Saravanos, Stavros Zervoudakis, Dongnanzi Zheng, Donatella Delfino, *United States*

Testing Facial Recognition Software for Young Adults and Adolescents: An Integrative Review
Aimee Kendall Roundtree, *United States*

Impact of the Cyber Hygiene Intelligence & Performance (CHIP) Interface on Cyber Situation Awareness and Cyber Hygiene
Janine Mator, Jeremiah Still, *United States*

HCI-Games S103

HCI in Games

Games with a Purpose, Games for Positive Change, and Gamification

Chair(s): Owen Schaffer, *United States*

A Systematic Review of the Effect of Gamification on Adherence across Disciplines
Robin De Croon, Jonas Geuens, Katrien Verbert, Vero Vanden Abeele, *Belgium*

Mindful Gaming: User Experiences with Headspace and Walden, a Game
Matthew Hamilton, Betsy DiSalvo, Tracy Fullerton, *United States*

A Framework of Gamified Learning Design Targeting Behavior Change and Design of a Gamificated Time Management Training Manual
Beixian Chen, *P.R. China;* Weitse Wang, *Taiwan*, China;* Linlin Shui, *P.R. China*

MONDAY 08:00 - 10:00

MobiTAS S104

HCI in Mobility, Transport and Automotive Systems

Driver and Passenger User Experience

Chair(s): Xiaowei Yuan, *P.R. China*

Interactive Framework of Cooperative Interface for Collaborative Driving
Jun Zhang, Yujia Liu, *P.R. China;* Preben Hansen, *Sweden;* Jianmin Wang, Fang You, *P.R. China*

Human-Computer Collaborative Interaction Design of Intelligent Vehicle----a Case Study of HMI of Adaptive Cruise Control
Yujia Liu, Jun Zhang, *P.R. China;* Yang Li, *Germany;* Preben Hansen, *Sweden;* Jianmin Wang, *P.R. China*

The Influence of Cognitive Psychology on Automotive HMI Design and Evaluation_Camera-Ready
Jin Lu, Zaiyan Gong, Jun Ma, Ming Sun, *P.R. China*

AIS S105

Adaptive Instructional Systems

Conversation-based AIS

Chair(s): Xiangen Hu, *United States*

Learner Characteristics in a Chinese Mathematical Intelligent Tutoring System
Kai-Chih Pai, Bor-Chen Kuo, Shu-Chuan Shih, HueyMin Wu, Hsiao-Yun Huang, Chih-Wei Yang, Chia-Hua Lin, *Taiwan*, China*

The Adaptive Features of an Intelligent Tutoring System for Adult Literacy
Genghu Shi, Lijia Wang, Liang Zhang, Keith Shubeck, *United States;* Shun Peng, *P.R. China;* Xiangen Hu, Arthur C. Graesser, *United States*

A Generic CbITS Authoring Tool Using xAPI
Jinsheng Pan, Lijia Wang, Keith Shubeck, Xiangen Hu, *United States*

Collecting 3A Data to Enhance HCI in AIS
Faruk Ahmed, Genghu Shi, Keith Shubeck, Lijia Wang, Jeffrey Black, Emma Pursley, Iqbal Hossain, Xiangen Hu, *United States*

MOBILE S106

Design, Operation and Evaluation of Mobile Communications

Adoption of Mobile Technologies

Chair(s): P.S. JosephNg, *Malaysia*

Why do merchants continue to use mobile payment? A data-information-value perspective
Yongqing Yang, *P.R. China;* Thomas Chesney, *United Kingdom;* Shuiqing Yang, Zhangang Hao, *P.R. China*

Towards Efficient Distance Studies: Online Course Management System (CMS)
S M Topazal, Kamal Ali Alezabi, Chee Ling Thong, *Malaysia*

User Co-creation Value of Short-Video Platform from the Perspective of Interactivity: the Mediating Role of Psychological Attachment
Yumei Luo, Dongyan Li, Qiongwei Ye, *P.R. China*

C&C S107

Culture and Computing

Human Research in Technology Design - I

Chair(s): Pertti Saariluoma, *Finland*

Human Research in Technology Design
Pertti Saariluoma, *Finland*

Socio-Emotional Experience in Human Technology Interaction Design – a Fashion Framework Proposal
Rebekah Rousi, Hanna-Kaisa Alanen, *Finland*

The Human Mind and Engineering Models
Jose J. Cañas, *Spain*

Questions in Cognitive Mimetics
Antero Karvonen, *Finland*

C&C S108

HCI for Cultural Heritage and Art in Asia

08:00 - 10:00
(EDT - Washington DC)

Chair(s): To be announced

The Method of Mining the Relationship Between the Use of Architectural Elements in Buildings and Cultural Connotation It Reflects: Case of Beijing's Representative Buildings
Wen-jun Hou, Qi-ying He, Tong Li, Bing Bai, *P.R. China*

Research on Digital Dissemination of Chinese Classical Garden Culture
Tianhong Fang, Fanfan Zhao, *P.R. China*

Research on "The Cinema Development Mode of Digital Art Exhibition" from the Perspective of Cultural Computing
Jieming Hu, Xin Zhang, *P.R. China*

IkebanaGAN: New GANs Technique for Digital Ikebana Art
Mai Cong Hung, Mai Xuan Trang, *Viet Nam;* Naoko Tosa, Ryohei Nakatsu, *Japan*

AI-HCI S109

Artificial Intelligence in HCI

AI in HCI for industrial applications

08:00 - 10:00
(EDT - Washington DC)

Chair(s): Helmut Degen, *United States*

Design Intelligence - Taking Further Steps Towards New Methods and Tools for Designing in the Age of AI
Jennifer Heier, *Germany*

What Does it Mean to Explain? A User-Centered Study on AI Explainability
Lingxue Yang, Hongrun Wang, Léa A. Deleris, *France*

Toward Automated Mixed Reality Interface Design: An Evolutionary Optimization Approach
Hongbo Zhang, Denis Gracanin, Mohamed Eltoweissy, *United States;* Tianxin Zhou, *P.R. China*

How to Explain it to Facility Managers? A Qualitative, Industrial User Research Study for Explainability
Helmut Degen, Christof Budnik, Kunal Chitre, Andrew Lintereur, *United States*

Special Thematic Sessions on 'Human-Centered AI'

S110 Trustworthy AI for a Human-Centered Future

Monday, 26 July 2021,
08:00 - 10:00 (EDT - Washington DC)
Chair(s): Iliana Maifeld-Carucci, *United States;* Christina Strobel, *Germany*

Towards Fairness in AI: Addressing Bias in Data Using GANs
Amirarsalan Rajabi, Ozlem Garibay, *United States*

Human-Machine Interfaces: an HCAI Perspective
Brent Winslow, *United States*

Are Care-Dependent Less Averse to Care Robots? – An Experimental Study
Anja Bodenschatz, Manuela Schönmann, Matthias Uhl, Gari Walkowitz, *Germany*

Applying Human Cognition to Assured Autonomy
Monica Lopez-Gonzalez, *United States*

Uncovering AI Black Boxes with Machine Teaching
Hernisa Kacorri, *United States*

Acceptance of Artificial Intelligence in Cars: A Survey Approach
Christina Strobel, *Germany;* Jason Dana, *United States*

S111 AI, Decision-Making, and the Impact on Humans

Monday, 26 July 2021,
10:15 - 12:45 (EDT - Washington DC)
Chair(s): Salvatore Andolina, *Italy;* Joseph Konstan, *United States*

I Disagree! Aligning Artificial Intelligence With The Messy Reality of Societal Disagreement
Michael Bernstein, *United States*

Human-Centered Recommendations: Actionable, Controllable, and Impactful
Salvatore Andolina, *Italy*

Human-Centered Approaches to Supporting AI Fairness in Practice
Michael Madaio, *United States*

HCAI: Exploring Augmentation and Assistance in the Small and the Large
Elizabeth Churchill, *United States*

A Quantum Leap for Fairness: Quantum Bayesian Approach for Fair Decision Making
Ece Mutlu, Ozlem Garibay, *United States*

The Role of Human Cognitive Motivation in Human-AI Collaboration on Decision-Making Tasks
Krzysztof Gajos, *United States*

Auditing and Assurance of Algorithms: Towards a Framework to Ensure Ethical Algorithmic Practices in Artificial Intelligence
Ramya Akula, Ivan Garibay, *United State*

Toward Bounded Autonomy: Challenges and Vision
Joseph Konstan, *United State*

MONDAY 10:30 - 12:30

HCI S112

Human–Computer Interaction

AI ART Research & Application - II

Chair(s): Yi Ji, *P.R. China*

Research on Aging Design of News APP Interface Layout Based on Perceptual Features
Zhixin Wu, Zehua Li, Xiang Li, *P.R. China;* Hongqian Li, *Taiwan*, China*

Research on the Relationship between the Partition Position of the Central Control Display Interface and the Interaction Efficiency
JiHong Zhang, Haowei Wang, Zehua Li, *P.R. China*

How to Evaluate a Good Conversation? An Evaluation Framework for Chat Experience in Smart Home
Xiantao Chen, Liang Ma, Menghua Jia, Yajuan Han, Jiaqi Mi, Meng Xu, *P.R. China*

Research on Immersive Virtual Reality Display Design Mode of Cantonese Porcelain based on Embodied Interaction
Shengyang Zhong, Yi Ji, Xingyang Dai, *P.R. China;* Sean Clark, *United Kingdom*

HIMI S113

Human Interface and the Management of Information

Interacting with text and narrative

Chair(s): Juan Zhou, *Japan*

Comprehending Research Article in Minutes: A User Study of Reading Computer Generated Summary for Young Researchers
Shintaro Yamamoto, Ryota Suzuki, Hirokatsu Kataoka, Shigeo Morishima, *Japan*

A Support Interface for Remembering Events in Novels by Visualizing Time-series Information of Characters and their Existing Places
Yoko Nishihara, Jiaxiu Ma, Ryosuke Yamanishi, *Japan*

Notification Timing Control while Reading Text Information
Juan Zhou, Japan; Hao Wu, *P.R. China;* Hideyuki Takada, *Japan*

Research on Perceptual Cues of Interactive Narrative in Virtual Reality
Entang He, Jing Lin, Zhejun Liu, Yize Zhang, *P.R. China*

S114

Improvement in Learning and Educational Environments using ICT - II

Chair(s): Takahito Tomoto, Yusuke Kometani, Takako Akakura, *Japan*

Generalization Training Support System Promoting Focusing Target Changes
Kosuke Minai, Tomoko Kojiri, *Japan*

Development of a Learning Support System for Electromagnetics using Haptic Devices
Konoki Tei, Toru Kano, Takako Akakura, *Japan*

Features Analysis of a Patent Act Based on Legal Condition–Effect Structure: Conversion of Law Texts into Logical Formulas for a Learning Support System
Akihisa Tomita, Masashi Komatsu, Toru Kano, Takako Akakura, *Japan*

Development and Evaluation of a Gaze Information Collection System in e-Testing for Examinee Authentication
Toru Tokunaga, Toru Kano, Takako Akakura, *Japan*

Development of Collaborative Chemistry Experiment Environment using VR
Hisashi Fujiwara, Toru Kano, Takako Akakura, *Japan*

UAHCI S115

Universal Access in Human–Computer Interaction

Sensors and Mobile Applications for Human–Computer Interaction

Chair(s): João M.F. Rodrigues, Pedro J.S. Cardoso, *Portugal*

Continual Learning for Object Classification: a Modular Approach
Daniel Turner, Pedro J.S. Cardoso, João M.F. Rodrigues, *Portugal*

Evaluation on Moodle LMS Data Usage During the First Wave of Covid-19's Pandemic
Luis Pereira, Joel Guerreiro, *Portugal*

Social Network Behavior, from Information Search to Purchase: The case of Generation X and Millennials
Célia M.Q. Ramos, João M.F. Rodrigues, *Portugal*

Framework for Controlling KNX Devices based on Gestures
Jedid Santos, Ivo Martins, João M.F. Rodrigues, *Portugal*

Networks to Stop the Epidemic Spreading
Vincenzo Fioriti, Marta Chinnici, Andrea Arbore, Nicola Sigismondi, Ivan Rosselli, *Italy*

Mobile Application for Determining the Concentration of Sulfonamides in Water Using Digital Image Colorimetry
Pedro Reis, Pedro H. Carvalho, Patrícia S. Peixoto, Marcela A. Segundo, Helder P. Oliveira, *Portugal*

UAHCI   S116

Advanced Accessibility Technologies

Chair(s): Jun-Li Lu, *Japan*

Personalized Navigation that Links Speaker's Ambiguous Descriptions to Indoor Objects for Low Vision People
Jun-Li Lu, Hiroyuki Osone, Akihisa Shitara, Ryo Iijima, Bektur Ryskeldiev, Sayan Sarcar, Yoichi Ochiai, *Japan*

Blind-Badminton: A Working Prototype to Recognize Position of Flying Object for Visually Impaired Users
Masaaki Sadasue, Daichi Tagami, Sayan Sarcar, Yoichi Ochiai, *Japan*

An Evaluation of Eye-foot Input for Target Acquisitions
Xinyong Zhang, *P.R. China*

Analysis of Design Elements for the Treatment of Language Disorders in Autistic Children
Miao Liu, Yingjie Wang, *P.R. China*

Real-world Distance Reduction in a Virtual Reality-based Wheelchair Simulation on Flat Surfaces
Kousuke Motooka, Takumi Okawara, Yuki Yamato, Akihiro Miyata, *Japan*

The Analysis of Brainwaves to Measuring Music Tone impact on Behavior of ADHD Children
Chalakorn Juiter, Ko-Chiu Wu, *Taiwan*, China*

VAMR   S117

Virtual, Augmented and Mixed Reality

Mixed Reality Technology for Immersive Analytics

Chair(s): Simon Su, *United States*

Virtual Reality Compensatory Aid for Improved Weapon Splash-Zone Awareness
Richi Rodriguez, Domenick Mifsud, Chris Wickens, Adam S. Williams, Kathrine Tarre, Peter Crane, Francisco R. Ortega, *United States*

Consistency in Multi-device Service including VR : A Case Study
Tian Xie, Zhifeng Jin, Zhejun Liu, Entang He, *P.R. China*

Pose Estimation and Video Annotation Approaches for Understanding Individual and Team Interaction during Augmented Reality-Enabled Mission Planning
Sue Kase, Vincent Perry, Heather Roy, Katherine Cox, Simon Su, *United States*

IME VR: an MVC Framework for Military Training VR Simulators
Romullo Girardi, Jauvane C. De Oliveira, *Brazil*

GazeXR: A General Eye-tracking System Enabling Invariable Gaze Data in Virtual Environment
Chris Lenart, Yuxin Yang, Zhiqiang Gu, Cheng-chang Lu, Karl Kosko, Richard Ferdig, Qiang Guan, *United States*

Mixed Reality Visualization of Friendly vs Hostile Decision Dynamics
Simon Su, Sue Kase, Chou Hung, Zach Hare, B. Christopher Rinderspacher, Charles Amburn, *United States*

CCD   S118

Cross-Cultural Design

Strategy, Leadership and Culture in Organizations

Chair(s): Pei-Luen Patrick Rau, Robert T.P. Lu, *P.R. China*

Comparison of Chinese and Foreign Studies on Skilled Talents Training for Industrial Internet
Ang Zhang, Shuo Guo, *P.R. China*

Industrial Internet Talent Cultivation in China from the Perspective of Undergraduate Majors
Ziyang Li, Zhuoran Li, Ang Zhang, *P.R. China*

Competency Model of Chinese Internet Product Managers
Pei-Luen Patrick Rau, Ting-Yu Tony Lin, P.R. China; Hao Chen, United States; Jian Zheng, *P.R. China*

Taking Micro-Breaks at Work: Effects of Watching Funny Short-form Videos on Subjective Experience, Physiological Stress, and Task Performance
Yang Liu, Qin Gao, Liang Ma, *P.R. China*

Trust and Trustworthiness in Northeast Asia
Xin Lei, Minjeong Ko, Pei-Luen Patrick Rau, *P.R. China*

S119

CCDHA -- Cross-Cultural Design for Humanity and Arts - IV

Chair(s): Wen-Ko Chiou, Rungtai Lin, Taiwan*, China

The Effect of We'll App on Social-Support, Self-Efficacy, and EPDS for PPD
Szu-Erh Hsu, Taiwan*, China; Hao Chen, Chao Liu, P.R. China; Ding-Hau Huang, Liang-Ming Lo, Tai-He Hong, Wen-Ko Chiou, *Taiwan*, China*

Employing a User-Centered Elder and Youth Co-Creation Approach for a Design of a Medication Bag: A Preliminary Study
Ding-Hau Huang, Taiwan*, China; Yu-Meng Xiao, P.R. China; Ya-Yi Zheng, *Taiwan*, China*

The Unorthodox Use of Bamboo in Fashion Styling Design
Tuck Fai Cheng, Hsiu-Wen Teng, Po-Hsien Lin, *Taiwan*, China*

Universal Design: Auxiliary Chopsticks Design for the Elderly
Chien-Chih Chen, Chiwu Huang, *Taiwan*, China*

MONDAY 10:30 - 12:30

MONDAY 10:30 - 12:30

SCSM S120

Social Computing and Social Media

Customer eXperience and Behavior

Chair(s): Cristian Rusu, *Chile*

Analyzing the Student eXperience Concept: A Literature Review
Sandra Cano, Cristian Rusu, Nicolás Matus, Daniela Quiñones, Ivan Mercado, *Chile*

A Preliminary Methodology to Evaluate the User Experience for People with Autism Spectrum Disorder
Katherine Valencia, Cristian Rusu, *Chile*; Federico Botella, *Spain*

Heuristics for Programming Codes
Jenny Morales, Cristian Rusu, *Chile*

Ethical Design in e-Commerce: Case Studies
Camila Bascur, Catalina Montecinos, Verónica Mansilla, *Chile*

The Presumed Happiness of the Smiling Pile of Poo – How Emojis are Perceived by People
Simon André Scherr, Frauke Neugebauer, Yannika Egler, Frank Elberzhager, *Germany*

Design, Implementation and Evaluation of a Technical Platform that Supports Spanish Speaking Children with Intellectual Disabilities Learn English as a Second Language
Luis Rojas, *Chile;* Katrina Sorbello, *Australia;* Patricia Contreras, Juan Felipe Calderon, *Chile*

S121

Exploring Impacts of Technological Innovation in Education, Training and Online Interaction

Chair(s): James Braman, *United States*

Exploring Factors of an Inclusive Textbook Access Program in Computer Technology Courses
Michele Clements, James Braman, *United States*

Supporting Students while Shifting to Online Learning During COVID-19: Community College Feedback from Several Computing Courses
Fred Bartlett Jr., James Braman, *United States*

The Challenges and Policy Issues Faced by Saudi HEIs when Adopting or Formulating Social Media Policies
Faowzia Alharthy, Yuanqiong Wang, *United States*

Serious Games in STEM: Online Collaborative Design of a Lunar Simulator
Chantil Hunt Estevez, Joshua Jones, Sujan Shrestha, Giovanni Vincenti, *United States*

Facebook Interface in External Communication - Case: Educational Peruvian School, 2020
Moisés David Reyes Pérez, Jhoselit Lisset Facho Cornejo, *Peru;* Alberto Gomez Fuertes, *Spain;* Enrique Roberto Azpeitia Torres, *Mexico*

AC S122

Augmented Cognition

Real-time Physiological Monitoring for Expertise Development and Operational Readiness in Training

Chair(s): Kurtulus Izzetoglu, Roy Gunnarsson, *United States*

Exploring Relationship between Driver's Behavior and Cognitive Measures Observed by fNIRS in a Driving Simulator
Meltem Izzetoglu, Seri Park, *United States*

Cognitive Workload Quantified by Physiological Sensors in Realistic Immersive Settings
Ashley Bishop, Emma MacNeil, Kurtulus Izzetoglu, *United States*

Comparison Study of Attention Between Training in a Simulator vs. Live-fire Range
Gregory P. Kratzig, Chet C. Hembroff, Billea Ahlgrim, *Canada*

Brain Activity Changes Elicited through Multi-Session Training Assessment in the Prefrontal Cortex by fNIRS
Pratusha Reddy, Jaime Kerr, Patricia A. Shewokis, Kurtulus Izzetoglu, *United States*

DHM S123

Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management

Designing for Human Health and Comfort - II

Chair(s): Jicheng Fu, *United States*

Towards a Practical Approach for Assessing Pressure Relief Activities for Manual Wheelchair Users in their Daily Lives
Jicheng Fu, Seth Howell, Shuai Zhang, Gang Qian, Daniel Yan Zhao, Hongwu Wang, *United States*

A Two-step Optimization-based Synthesis of Squat Movements
Bach Quoc Hoa, Vincent Padois, Faiz Benamar, Eric Desailly, *France*

Development and Testing of a Usability Checklist for the Evaluation of Control Interfaces of Electrical Medical Beds
Davide Bacchin, Patrik Pluchino, Valeria Orso, Marcello Sardena, Marino Malvestio, Luciano Gamberini, *Italy*

3D Model of Ergonomic Socket Mechanism for Prostheses of Transtibial Amputees
Isabel Carvalho, Victor Nassar, Gabriel Prim, Jonathan Nishida, Eliete Ourives, Tainá Bueno, Milton Luiz Horn Vieira, *Brazil*

Kits for Patients with Transtibial Amputation in the Pre- and Post-Prosthetic Phases
Isabel Carvalho, Victor Nassar, Milton Luiz Horn Vieira, *Brazil*

DHM S124

Systematic Literature Reviews in Safety, Ergonomics and Risk Management

Chair(s): Vincent G. Duffy, *United States*

A Systematic review of Autonomous Taxi Service and Discussion on its Design
Shekar Sankar Raman, Vincent G. Duffy, *United States*

The Reaches of Crowdsourcing: A Systematic Literature Review
Samantha Dishman, Vincent G. Duffy, *United States*

Systematic Review on How The Internet of Things will Impact Management in the Manufacturing Industry
Jordan Cistola, Vincent G. Duffy, *United States*

A Systematic Literature Review of Potential and Emerging Links Between Remote Work and Motivation
Labiba Imdad, Vincent G. Duffy, *United States*

A Systematic Review of Autonomous Driving in Transportation
Zilin Xu, Vincent G. Duffy, *United States*

A Systematic Literature Review of Wireless Sensor in Safety Application
Zichen Zhang, Vincent G. Duffy, *United States*

Integration of Internet of Things Devices in Manufacturing Workspaces: A Systematic Literature Review
Theodore Hipsher, Vincent G. Duffy, *United States*

DUXU S125

Design, User Experience, and Usability

Enabling Technologies for Marginalised Groups: Removing Barriers and Improving Outcomes

Chair(s): Marc Fabri, Nigel Newbutt, *United Kingdom*

Performing a Disembodied Mind: Neurotechnology between Empowerment and Normalization
Johannes Kögel, *Germany*

Towards a Conceptual Model for Consideration of Adverse Effects of Immersive Virtual Reality for Individuals with Autism
AMatthew Schmidt, *United States;* Nigel Newbutt, *United Kingdom*

Design Your Life: User-Initiated Design of Technology to Support Independent Living of Young Autistic Adults
Thijs Waardenburg, Niels Van Huizen, Jelle Van Dijk, Maurice Magnée, Wouter Staal, Jan-Pieter Teunisse, Mascha Van der Voort, *Netherlands*

Emergence of Polarization and Marginalization in Online Education System of Bangladesh due to COVID-19: Challenges and Policies to Ensure Inclusive Education
Md Montaser Hamid, Tanvir Alam, Md Forhad Rabbi, *Bangladesh;* Khalad Hasan, Anastasia Kuzminykh, *Canada;* Mohammad Ruhul Amin, *United States*

Adapting Participatory Design Activities for Autistic Adults: A Review
Rachael Maun, Marc Fabri, Pip Trevorrow, *United Kingdom*

S126

User Experience and Usability Driven Design: Emerging Theory and Practice: II

Chair(s): Zhen Liu, *P.R. China*

Immersive and Interactive Digital Stage Design based on Computer Automatic Virtual Environment and Performance Experience Innovation
Chen Wang, *P.R. China*

Research on Course Experience Optimization of Online Education Based on Service Encounter
Chuqiong Zhang, Chang Xiao, *P.R. China*

A Study of Teaching Aids Design for Autistic Children with Focus on Hand-eye Coordination
Zaixing Liu, Lijun Jiang, Xiu Wang, Zhelin Li, *P.R. China*

Analysis and Design of Household Intelligent Planting Products Based on Hall Three-dimensional Structure
Wei Xiong, Zhengli Zhang, Yi Liu, Zhen Liu, *P.R. China*

Research on Virtual Reality for Intelligent Sculpting Teaching Experience of Printmaking Art in Primary and Secondary Schools
Ke Zhang, Lan Lin, *P.R. China*

Potential Design Strategies Based on Communication Design and Art Therapy for User Experience in COVID-19
Zhen Liu, Zulan Yang, Ke Zhang, *P.R. China*

Augmented Reality Enhanced Traditional Paper Book Reading Experience Design: A Case for University Library
Peixuan Li, Zhen Liu, *P.R. China*

HCIBGO S127

HCI in Business, Government and Organizations

Value of Human-AI interaction

Chair(s): Qiqi Jiang, *Denmark*

Leveraging Artificial Intelligence in Medicine Compliance Check
Guoping Jia, Wei Zhu, JinJun Tang, Wenping Zhang, *P.R. China*

How Blockchain Innovations Emerge: From the Perspective of Knowledge Search
Jingxuan Huang, Lele Kang, Yiyang Bian, *P.R. China*

Digital Coaching System for Real Options Analysis with Multi-Expert and Machine Learning Support
Jani Kinnunen, Mikael Collan, *Finland;* Irina Georgescu, *Romania;* Zahra Hosseini, *Finland*

MONDAY 10:30 - 12:30

LCT S128

Learning and Collaboration Technologies

Computer-Assisted Language Learning - II

Chair(s): Antigoni Parmaxi, Elis Kakoulli Constantinou, Anna Nicolaou, Maria-Victoria Soulé, *Cyprus*

Digital Competence Assessment Survey for Language Teachers
Mikhail Fominykh, *Norway;* Elizaveta Shikhova, *Russia;* Maria-Victoria Soulé, *Cyprus;* Maria Perifanou, *Greece;* Daria Zhukova, *Russia*

Metasynthesis of EU-Based Initiatives to 'Open Language' to Individuals and Groups with Migrant Biographies
Elena Xeni, Panagiotis Kosmas, Charalambos Vrasidas, *Cyprus*

Digital Technologies Assisting Migrant Population Overcome Language Barriers: The Case of the EasyRights Research Project
Eleftheria Nteliou, *Greece;* Jacques Koreman, Inna Tolskaya, *Norway;* Olga Kehagia, *Greece*

The OPENLang Network Pedagogical Framework: Designing an Open and Collaborative Language Learning Environment for Erasmus+ KA1 Mobility Participants
Maria Perifanou, Anastasios A. Economides, *Greece*

Designing an App for Remotely Children's Spelling Assessment
Jaline Mombach, Fabrizzio Soares, *Brazil*

Optimization to Automated Phonetic Transcription Grading Tool (APTgt) – Automatic Exam Generator
Jueting Liu, Marisha Speights, Dallin Bailey, Sicheng Li, Yaoxuan Luan, Ishaan Mishra, Yang Cao, Cheryl Seals, *United States*

ITAP S129

Human Aspects of IT for the Aged Population

New Media Use in the Everyday Life of Older People - II

Chair(s): Eugene Loos, *Netherlands*

Observing Social Connectedness in a Digital Dance Program for Older Adults: an EMCA Approach
An Kosurko, *Canada;* Ilkka Arminen, *Finland;* Rachel Herron, Mark Skinner, *Canada;* Melisa Stevanovic, *Finland*

Online Representations of Older people Generated by Public Sector Organizations
Wenqian Xu, *Sweden*

The Belief in Health Benefits of Digital Play Modulates Physiological Responses to Games: A Repeated-Measures Quantitative Study of Game Stress in Older Adults Playing Different Game Genres
Atousa Assadi, Sasha Elbaz, Najmeh Khalili-Mahani, *Canada*

Qualitative Usability Evaluation of Tablets and Accessibility Settings for Older Adults
Dipanwita Dasgupta, Beenish Chaudhry, Nitesh Chawla, *United States*

S130

Senior Cloud and Active Aging

Chair(s): Kenichiro Ito, *Japan*

Designing Local Assessment Workshops and Web-mobile Applications for Facilitating the Workshop: Based on the Schemes of Problem / Project-based Learning (PBL) and ADDIE Model
Ken-ichiro Yabu, Takahiro Miura, Tomoko Segawa, Yuki Murakami, Tetsuya Nakahashi, Japan

Evaluation of IoT-setting Method among Senior Citizens in Japan
Daisuke Yoshioka, Hiroki Kogami, SooIn Kang, Reina Yoshizaki, Yuriki Sakurai, Koki Nakano, Jiang Wu, Mahiro Fujisaki-Sueda-Sakai, Ikuko Sugawara, Takahiro Miura, Ken-ichiro Yabu, Kenichiro Ito, Tohru Ifukube, *Japan*

Lesson Learned from the Cases Utilizing Information Systems in Support Sites for Seniors in Japan: Helping Caregivers on Information Sharing by ICT and Seniors on Vitalizing their Life by IoT
Takahiro Miura, Ryogo Ogino, Akiko Nishino, Ken-ichiro Yabu, Mari Kimata, Junichiro Okata, Tohru Ifukube, *Japan*

Determining Possible Risks of Introducing Socially Assistive Robots with Mobility Functions to Aged Care Facilities
Tomoya Hattori, Mio Nakamura, Kazuki Kawamura, Misato Nihei, *Japan*

MR System to Promote Social Participation of People Who Have Difficulty Going Out
Yanjiao Ao, Masayuki Kanbara, Yuichiro Fujimoto, Hirokazu Kato, *Japan*

Designing a Somatosensory Interactive Game of Lower Extremity Muscle Rehabilitation for the Elderly
Chien-Hsiang Chang, Kao-Hua Liu, *Taiwan*, China;* Hiroyuki Kajihara, Japan; Wei-Chih Lien, Peng-Ting Chen, *Taiwan*, China;* Atsushi Hiyama, *Japan;* Yang-Cheng Lin, Chien-Hsu Chen, *Taiwan*, China;* Masahiko Inami, *Japan*

HCI-Games S131

HCI in Games

Gamification toward Information Systems

Chair(s): Fan Zhao, *United States*

Investigating the Impact of Task Significance on Task Engagement and Enjoyment in Digital Games
Manasa Vaidyabhushana, Matthew Kirchoff, Owen Schaffer, *United States*

Gamification of ERP Training in Local Governments
Volha Knysh, Kaitlyn Patrick, Fan Zhao, *United States*

Gamified Education in K-12
Fan Zhao, Roger Mendez, Alec Toubin, Brian Mahan, *United States*

Improve Students' Learning Experience in General Chemistry Laboratory Courses?
Yinghong Sheng, Fan Zhao, *United States*

Gamification Design Predicaments for E-learning
Adam Palmquist, *Sweden;* Robin Munkvold, Ole Goethe, *Norway*

AIS   S132

Adaptive Instructional Systems

IEEE Adaptive Instructional Systems (AIS) Consortium Panel

Chair(s): Robert A. Sottilare, *United States*

Introduction to the AIS Consortium & its Missions
Robert A. Sottilare, *United States*

Frequently Asked Questions about Adaptive Instructional Systems and the AIS Consortium
Robby Robson, *United States*

Overcoming AIS Barriers to Adoption
Chryso Christodoulou, *Cyprus*

Introduction to the AIS Consortium Resource Repository
Richard Tong, *United States*

Introduction to the AIS Consortium Evaluation & Certification Process
Michelle D. Barrett, *United States*

AIS Research Focus Areas
Xiangen Hu, *United States*

S133

Intelligent Training and Analysis

Chair(s): Elizabeth T. Whitaker, Elizabeth Veinott, *United States*

HyWorM: An Experiment in Dynamic Improvement of Analytic Processes
Ethan Trewhitt, Elizabeth T. Whitaker, Elizabeth Veinott, Rick Thomas, Michael Riley, Ashley F. McDermott, Leonard Eusebi, Michael Dougherty, David Illingworth, Sean Guarino, *United States*

Developing an Adaptive Framework to Support Intelligence Analysis
Ashley F. McDermott, Elizabeth Veinott, Leonard Eusebi, Elizabeth T. Whitaker, Ethan Trewhitt, Shane Mueller, David Illingworth, Rick Thomas, Michael Dougherty, Sean Guarino, *United States*

Adaptive Collaborative Intelligence: Key Strategies for Sensemaking in the Wild
Elizabeth Veinott, *United States*

Designing Learning Experiences to Encourage Development of Critical Thinking Skills
Lauren Massey, Roger Smith, Elizabeth T. Whitaker, Robert Wray, *United States*

Designing a Learner Model for use in training Analysts in a Social Media Practice Environment
Elizabeth T. Whitaker, Ethan Trewhitt, Lauren Massey, Robert Wray, Laura Hamel, *United States*

MOBILE S134

Design, Operation and Evaluation of Mobile Communications

Global Issues in Mobile Communications

Chair(s): Taowen Le, *United States*

Accessibility Challenges of Video Conferencing Technology
Nicole Anderson, *United States*

Technology Craving and Withdrawal: Exploring Compulsive Mobile App Use
Jeffrey A. Clements, *United States*

Analysis of Malaria Information on a Social Media Platform
Benjamin Omwando, Jin Zhang, *United States*

Global Challenges of Mobile Communication
Taowen Le, *United States*

Development of Usability Features for Mobile Nutrition
Raquel Troccola Garcia, June Wei, *United States*

C&C   S135   continues...

Culture and Computing

Human Research in Technology Design - II

Chair(s): Pertti Saariluoma, *Finland*

AI Ethics - Critical Reflections on Embedding Ethical Frameworks in AI Technology
Henrikki Salo-Pöntinen, *Finland*

What Could Safety Research Contribute to Technology Design?
Jaana Hallamaa, *Finland*

Films as Technological Artefacts
Jose Cañas-Bajo, *Finland*

Empathy in Technology Design and Graffiti
Mari Myllylä, *Finland*

MONDAY 10:30 - 12:30

MONDAY 10:30 - 12:30 / 13:15 - 17:30

C&C   S136

Design Thinking in Cultural Contexts

10:30 – 12:30
(EDT - Washington DC)

Chair(s): Archi Dasgupta, *United States*

Appropriation for Interdisciplinary Practice: The Case of Participatory Design in Brazilian Computer Science
Bernardo Alves Villarinho Lima, Leonelo Dell Anhol Almeida, *Brazil*

Redefining the Digital Paradigm for Virtual Museums: Towards Interactive and Engaging Experiences in the Post-Pandemic Era
Archi Dasgupta, Samuel Williams, Gunnar Nelson, Mark Manuel, *United States;* Shaoli Dasgupta, *Bangladesh;* Denis Gracanin, *United States*

Core concepts Linking Exhibit Design and the Visitor Experience in Science Centers: an Early Framework
Jose Ocampo-Agudelo, Jorge Maya, *Colombia*

Artificial Intelligence in HCI

AI-HCI   S137

Human-Centered Artificial Intelligence

10:30 – 12:30
(EDT - Washington DC)

Chair(s): Helmut Degen, *United States*

From a Workshop to a Framework for Human-Centered Artificial Intelligence
Helmut Degen, *United States;* Stavroula Ntoa, *Greece*

HCD3A: An HCD Model to Design Data-Driven Apps
Anna Christina Weigand, Martin Christof Kindsmüller, *Germany*

Human-Centered Artificial Intelligence Considerations and Implementations: A Case Study from Software Product Development
Tobias Komischke, *United States*

Towards Design Principles for User-Centric Explainable AI in Fraud Detection
Douglas Cirqueira, *Austria;* Markus Helfert, Marija Bezbradica, *Ireland*

Towards Incorporating AI into the Mission Planning Process
Stephanie Kane, Vanessa Moody, Michael Harradon, *United States*

Putting a Face on Algorithms: Personas for Modelling Artificial Intelligence
Amela Karahasanovic, Asbjørn Følstad, Patrick Schittekat, *Norway*

S138

Signal-Based AI for HCI

10:30 – 12:30
(EDT - Washington DC)

Chair(s): Pei-Hsuan Hsieh, *Taiwan*, China;* Ming Qian, *United States*

Investigating Viewer's Reliance on Captions Based on Gaze Information
Wen-Hung Liao, Chiao-Ju Chen, Yi-Chieh Wu, *Taiwan*, China*

A Deep Learning Based Multi-modal Approach for Images and Texts Recommendation
Haowu Hu, Zhao Huang, *P.R. China*

A Preliminary Study for Identification of Additive Manufactured Objects with Transmitted Images
Kenta Yamamoto, Ryota Kawamura, Kazuki Takazawa, Hiroyuki Osone, Yoichi Ochiai, *Japan*

Development of Real Environment Datasets Creation Method for Deep Learning to Improve Quality of Depth Image
Masahiro Murayama, Yuki Harazono, Hirotake Ishii, Hiroshi Shimoda, Yasuyoshi Taruta, Yuya Koda, *Japan*

Visual Prediction Based on Photorealistic Style Transfer
Everlandio Fernandes, Everton Aleixo, Wesley Jacinto Barreira, Mikhail R. Gadelha, Aasim Khurshid, Sergio Cleger Tamayo, *Brazil*

Special Thematic Sessions on 'Human-Centered AI'

S139 Human-AI Collaboration

Monday, 26 July 2021,
13:15 – 15:15 (EDT - Washington DC)

Chair(s): Joseph Kider, Ozlem Garibay, *United States*

Considerations for Development and Evaluation of Social Intelligence in Artificial Agents
Jessica Williams, Florian Jentsch, Stephen Fiore, *United States*

Human and Artificial Intelligence and Safety at Work
Waldemar Karwowski, *United States*

Preventing Repeated AI Harms by Sharing AI Failures
Sean McGregor, *United States*

Human-Machine Teaming
Isaac Arthur, *United States*

A Situation Awareness Perspective on Human-Agent Collaboration: Tensions and Opportunities
Jinglu Jiang, *United States;* Alexander Karran, Constantinos K. Coursaris, Pierre-Majorique Léger, *Canada;* Joerg Beringer, *United States*

S140 Exploring a Human-Centered Future for AI

Monday, 26 July 2021,
15:30 – 17:30 (EDT - Washington DC)

Chair(s): Sean Koon, Ivan Garibay, *United States*

Developing Distinctive Aims and Characteristics for HCAI
Sean Koon, *United States*

Ambient Systems for Well-Being: The Role of Human-Centred AI
Margherita Antona, *Greece*

Universal Access in AI-enabled Environments
Constantine Stephanidis, *Greece*

Human-Centered AI: Reliable, Safe & Trustworthy
Ben Shneiderman, *United States*

Human-Centered AI: Challenges and Opportunities for the HCI Community
Wei Xu, *P.R. China*

Ethical AI for Social Good
Ramya Akula, Ivan Garibay, *United States*

HCI — S141

Human-Computer Interaction

Social Interaction
Chair(s): Masaaki Kurosu, *Japan*

ERM-AT Applied to Social Aspects of Everyday Life
Masaaki Kurosu, Ayako Hashizume, *Japan*

Ethics in Human-Centered Design
Jun Iio, Atsushi Hasegawa, Shigeyoshi Iizuka, Seiji Hayakawa, Hiroshi Tsujioka, Japan

Fostering Empathy and Privacy: The Effect of Using Expressive Avatars for Remote Communication
Jieun Lee, Jeongyun Heo, Hayeong Kim, Sanghoon Jeong, Korea

EmojiCam: Emoji-Assisted Video Communication System Leveraging Facial Expressions
Kosaku Namikawa, Ippei Suzuki, Ryo Iijima, Sayan Sarcar, Yoichi Ochiai, Japan

An Emotional Tactile Interaction Design Process
Chor-Kheng Lim, Taiwan*, China

Pokerepo Join: Construction of a Virtual Companion Experience System
Minami Nishimura, Yoshinari Takegawa, Kohei Matsumura, Keiji Hirata, Japan

S142

XR in Medicine, Physiotherapy and Nursing - I
Chair(s): Hiroshi Noborio, *Japan*

Comparative Study of Potential-based and Sensor-based Surgical Navigation in Several Liver Environments
Takahiro Kunii, Miho Asano, Kanako Fujita, Katsunori Tachibana, Hiroshi Noborio, *Japan*

Voxel-based Route-search Algorithm for Tumor Navigation and Blood Vessel Avoidance
Takahiro Kunii, Miho Asano, Hiroshi Noborio, *Japan*

Evaluation of Depth-Depth-Matching Speed of Depth Image Generated from DICOM by GPGPU
Daiki Yano, Masanao Koeda, Hiroshi Noborio, Katsuhiko Onishi, *Japan*

VR-Based Surgery Navigation System with 3D User Interface for Robot-Assisted Laparoscopic Partial Nephrectomy
Masanao Koeda, Akihiro Hamada, Atsuro Sawada, Katsuhiko Onishi, Hiroshi Noborio, Osamu Ogawa, *Japan*

Development of a VR/HMD system for Simulating Several Scenarios of Post-Operative Delirium
Jumpei Matsuura, Takahiro Kunii, Hiroshi Noborio, Kaoru Watanabe, Katsuhiko Onishi, Hideo Nakamura, *Japan*

S143

HCI Theory and Practice - I
Chair(s): Hervé Saint-Louis, *Canada*

A Panel to Confront the Differences in Intersectional HCI
Pricila Castelini, Marilia Abrahão Amaral, *Brazil*

Human-Computer Interaction in Education: Keyword and Discipline Network in 20 years
Yongyeon Cho, Huiwon Lim, Hye Jeong Park, *United States*

Machine-Human Interaction: A Paradigm Shift?
Hervé Saint-Louis, *Canada*

Technological Influence on Self-esteem: Towards a Research Agenda through a Systematic Literature Review
Lua Marcelo Muriana, M. Cecília C. Baranauskas, *Brazil*

Understanding Agency in Human-Computer Interaction Design
Romualdo Gondomar, Enric Mor, *Spain*

Implementation Goals for Multimodal Interfaces in Human-Computer Interaction
Sónia Rafael, Victor Almeida, *Portugal*

HIMI — S144

Human Interface and the Management of Information

Virtual Reality 2.0 and Novel Interaction Technologies
Chair(s): Michitaka Hirose, *Japan*

Impact of Long-Term Use of an Avatar to IVBO in the Social VR
Akimi Oyanagi, Takuji Narumi, Kazuma Aoyama, Kenichiro Ito, Tomohiro Amemiya, Michitaka Hirose, *Japan*

Effects of Interpupillary Distance and Visual Avatar's Shape on the Perception of the Avatar's Shape and the Sense of Ownership
Tokio Oka, Takumi Goto, Nobuhito Kimura, Sho Sakurai, Takuya Nojima, Koichi Hirota, *Japan*

Perception of Illusory Body Tilt Induced by Electrical Tendon Stimulation
Nozomi Takahashi, Tomohiro Amemiya, Takuji Narumi, Hideaki Kuzuoka, Michitaka Hirose, Kazuma Aoyama, *Japan*

Asymmetric Gravitational Oscillation on Fingertips Increased the Perceived Heaviness of a Pinched Object
Tomohiro Amemiya, *Japan*

Novel Motion Display for Virtual Walking
Minori Unno, Ken Yamaoka, Vibol Yem, Tomohiro Amemiya, Michiteru Kitazaki, Yasushi Ikei, *Japan*

Information Technology Creative Discussion Method for Collective Wellbeing
Hideyuki Ando, Dominique Chen, Junji Watanabe, Kyosuke Sakakura, *Japan*

Semi-automatic reply avatar for VR training system with adapted scenario to trainee's status
Tomohiro Tanikawa, Keisuke Shiozaki, Yuki Ban, Kazuma Aoyama, Michitaka Hirose, *Japan*

TUESDAY 08:00 - 10:00

EPCE   S145

Engineering Psychology and Cognitive Ergonomics

Studies on Human Physiology and Cognition

Chair(s): Sergey Lytaev, *Russia*

Using Eye Tracking to Analyze the Effects of Spatial Contiguity in MOOC Video Subtitles
Xinyong Zhang, Chengfu Zhang, *P.R. China*

Effect of Red Blue 3D videos on Visual Fatigue
Guilei Sun, Yun Lin, Linghua Ran, Yanhua Meng, *P.R. China*

Monitoring Attention of Crane Operators During Load Oscillations Using Gaze Entropy Measures
Jouh Yeong Chew, Koichi Ohtomi, Hiromasa Suzuki, *Japan*

Preliminary Analysis of Human Error Prediction Model by Using Biological Information
Yuto Saito, *Japan;* Muhammad Nur Adilin Mohd Anuardi, *Malaysia;* Ryota Matsubara, Midori Sugaya, *Japan*

Neurophysiological Visual Classification Indicators in the Brain-Computer Interface
Sergey Lytaev, *Russia*

UAHCI   S146

Universal Access in Human-Computer Interaction

Media Accessibility: Current and Future Trends - I

Chair(s): Gian Maria Greco, *Spain;* Nazaret Fresno, *United States*

Game Accessibility: Taking Inclusion to the Next Level
Carme Mangiron, *Spain*

Live Captioning Accuracy in Spanish-language Newscasts in the United States
Nazaret Fresno, *United States*

When worlds collide: AI-created, human-mediated video description services and the user experience
Sabine Braun, Kim Starr, Jaleh Delfani, *United Kingdom;* Liisa Tiittula, Jorma Laaksonen, Karel Braeckman, Dieter Van Rijsselbergen, *Belgium;* Sacha Lagrillière, Lauri Saarikoski, *Finland*

Creative Media Accessibility: Placing the Focus Back on the Individual
Pablo Romero-Fresco, *Spain*

Easy-to-Understand Access Services: Easy Subtitles
Rocío Bernabé, Germany; Piero Cavallo, *Italy*

The Minority AD: Creativity in Audio Descriptions of Visual Art
Silvia Soler Gallego, *United States*

VAMR   S147

Virtual, Augmented and Mixed Reality

Learning and collaboration in VAMR

Chair(s): Haoran Xie, *Japan*

Design and Research on the Virtual Simulation Teaching Platform of Shanghai Jade Carving Techniques Based on Unity 3d Technology
Beibei Dong, Shangshi Pan, RongRong Fu, *P.R. China*

Development of an AR Training Construction System using Embedded Information in a Real Environment
Yuki Harazono, Taichi Tamura, Yusuke Omoto, Hirotake Ishii, Hiroshi Shimoda, Yoshiaki Tanaka, Yoshiyuki Takahashi, *Japan*

Virtual Fieldwork: Designing Augmented Reality Applications using Virtual Reality Worlds
Kota Gushima, Tatsuo Nakajima, *Japan*

SpatialViewer: A Remote Work Sharing Tool that Considers Intimacy Among Workers
Sicheng Li, *P.R. China;* Yudai Makioka, Kyousuke Kobayashi, Haoran Xie, Kentaro Takashima, *Japan*

A Pilot Study on Progress of Driving Skills with Immersive VR Driving Simulator
Yuejun Xu, Makio Ishihara, *Japan*

CCD   S148

Cross-Cultural Design

Designing the Futures: Innovative Theories, Tools and Practices - I

Chair(s): Zhiyong Fu, *P.R. China*

Design for the Speculative Future as a Knowledge Source
Fangzhou Dong, Sara Sterling, Yuzhen Li, Xiaohui Li, *P.R. China*

Innovation Geometry Model as a Way to Explore Future Innovative Opportunities
Shuxin Cheng, *P.R. China*

Shaping AI as the Tool for Subconscious Design
Wentong Huang, *P.R. China*

NEXT! Toaster: Promoting Design Process with a Smart Assistant
Qing Xia, Zhiyong Fu, *P.R. China*

Future Footprint: A Future Signal-driven Design Ideation Tool
Lin Zhu, Zhiyong Fu, *P.R. China*

The Effectiveness of Scene-based Icons Inspired by the Oracle Bone Script in Cross-cultural Communication
Xiaohua Sun, Lin Bao, Weiwei Guo, Yifei Liao, Xuanye Lu, *P.R. China*

PARALLEL SESSIONS

CCD   S149

Cultural Impact on Social Change and Individual Development

Chair(s): Pei-Luen Patrick Rau, *P.R. China*

Valuing Social Media Affordances
Xingchen Zhou, Pei-Luen Patrick Rau, *P.R. China*

Deep Learning Model for Humor Recognition of Different Cultures
Rosalina Chen, *Italy;* Pei-Luen Patrick Rau, *P.R. China*

The Vista of Information Communication Technology in the Ageing Society: a Perspective from Elderly's Basic Needs
Liang Zhang, Xiaolei Ma, Ningxuan Zhang, Huajun Cao, Chao Ai, Jingyu Zhang, Wenwei Xu, Kan Zhang, *P.R. China*

A Study of Machine Ethics in Human-Artificial Intelligence Interactions
Haoran Sun, Pei-Luen Patrick Rau, Bingcheng Wang, *P.R. China*

Manage Your Agents: An Automatic Tool for Classification of Voice Intelligent Agents
Xiang Ji, Jingyu Zhao, Pei-Luen Patrick Rau, *P.R. China*

Social Computing and Social Media

SCSM   S150

Social Media and Online Deliberation: Assessment of User Discussion Patterns and their Effects - I

Chair(s): Svetlana S. Bodrunova, *Russia*

Global Agendas: Detection of Agenda Shifts in Cross-National Discussions using Neural-Network Text Summarization for Twitter
Svetlana S. Bodrunova, Ivan S. Blekanov, Nikita Tarasov, *Russia*

Readability of Posts and User Engagement in Online Communities of Government Executive Bodies
Konstantin Platonov, Kirill Svetlov, *Russia*

Public Opinion Dynamics in Online Discussions: Cumulative Commenting and Micro-Level Spirals of Silence
Svetlana S. Bodrunova, Ivan S. Blekanov, Alexey Maksimov, *Russia*

Commenting or Discussing? Comment Sections of German Russian-Speaking News Media on Facebook
Anna Smoliarova, Svetlana S. Bodrunova, Elizaveta Ivantey, *Russia*

Empirical Modeling of e-Participation Services as Media Ecosystems
Yuri Misnikov, Olga Filatova, Dmitrii Trutnev, *Russia*

Investigating the User Experience in the Process of Text Mining in Online Social Networks
Jésyka M.A. Gonçalves, Maria L.B. Villela, Caroline Q. Santos, Marcus V.C. Guelpeli, *Brazil*

Augmented Cognition

AC   S151

Augmented Cognition in Cyber Security

Chair(s): Stefan Sütterlin, Ricardo Gregorio Lugo, Benjamin Knox, Torvald Ask, *Norway*

Initial Reflections On the Use of Augmented Cognition in Derailing the Kill Chain
Geir M. Køien, *Norway*

Selecting and Training Young Cyber Talent: A European Cybersecurity Challenge Case Study
Muhammad Mudassar Yamin, Basel Katt, Espen Torseth, *Norway*

Human-Human Communication in Cyber Threat Situations: A Systematic Review
Torvald Ask, Ricardo Gregorio Lugo, Benjamin Knox, Stefan Sütterlin, *Norway*

Human Characteristics and Genomic Factors as Behavioural Aspects for Cybersecurity
Laima Ambrozaityte, Agnė Brilingaitė, Linas Bukauskas, Ingrida Domarkienė, Tautvydas Rančelis, *Lithuania*

Digital Human in Cybersecurity Risk Assessment
Aistė Jurevičienė, Agnė Brilingaitė, Linas Bukauskas, *Lithuania*

Situational States Influence on Team Workload Demands in Cyber Defense Exercise
Torvald Ask, Stefan Sütterlin, Benjamin Knox, Ricardo Gregorio Lugo, *Norway*

Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management

DHM   S152

Human Modeling for Nursing and Medical Art

Chair(s): Akihiko Goto, *Japan*

Scenario Planning in Healthcare Development in the VUCA World
Hiroyuki Nishimoto, *Japan*

Research on Social Innovation Design of SCD Pre-hospital Emergency Equipment Based on IoT Technology
Kun Fang, Yu Wei, *P.R. China*

The Design of Outpatient Services in Children's Hospitals based on the Double Diamond Model
Zhiwei Zhou, Xi Han, Tao Xi, *P.R. China*

Medical-based Pictogram: Comprehension of Visual Language with Semiotic Theory
Yuxiao Wang, *P.R. China*

TUESDAY 08:00 - 10:00

TUESDAY 08:00 - 10:00

Design, User Experience, and Usability

DUXU   S153

Art and Technology

Chair(s): Masasuke Yasumoto, *Japan*

Practical Use of Edutainment Systems for Science Museums with XR Technology
Hiroshi Suzuki, Naoki Tubuku, *Japan*

Resonant Irregularities: Sculpture Creation Through Automatic Changes due to Machine Performance Limits
Masasuke Yasumoto, Daisuke Ichikawa, Yuichi Ito, *Japan*

A Study on Scale Construction of Adjective Pairs for Evaluating Audiovisual Effects in Video Games
Takashi Nakamura, Kazunori Miyata, Haruki Yamamoto, Hisashi Sato, *Japan*

Spheroids as Playful Audiovisual Interface on Tabletop Display
Yuma Ikawa, Akihiro Matsuura, *Japan*

Design of Form and Motion of a Robot Aimed to Provide Emotional Support for Pediatric Walking Rehabilitation
Jaime Alvarez, Eriko Hara, Toshihiko Koyama, Koji Adachi, Yoshihito Kagawa, *Japan*

S154

User Experience and Usability Driven Design: Emerging Theory and Practice: III

Chair(s): Zhen Liu, *P.R. China*

Spatial Interaction Design for Children's Magnetic Resonance Imaging Examination Based on Embodied Cognition
Bao Quan Luo, *P.R. China*

Consumer Experience Research based on the Background of Experience Economy and Digital Economy
Jing Liu, Zhen Liu, *P.R. China*

Research on the Application of Role Theory in Active Aging Education Service System Design
Xiong Ding, Min Ran, *P.R. China*

Research on Service Experience Design Framework Based on Semantics to Improve the Enterprise Service Capability
Kun Zhou, Xi Zhang, Yuanlong Gui, *P.R. China*

Research and Analysis of the Office Socket Design Based on User Experience
Xiangrong Xu, Yuanlong Gui, Bo Fu, Naizheng Liao, *P.R. China*

User Experience Design of Navigation via Sense of Smell in Indoor Environment: A Case of Shopping Mall
Xiaozi Wang, Zhen Liu, *P.R. China*

Distributed, Ambient and Pervasive Interactions

DAPI   S155

Interactive Human and Machine Behaviours

Chair(s): Guochao (Alex) Peng, *P.R. China*

A Systematic Review of Information Quality of Artificial Intelligence based Conversational Agents in Healthcare
Caihua Liu, Bingqian Zhang, Guochao (Alex) Peng, *P.R. China*

Online Medical Platform Oriented Identification of User Needs related to Alzheimer's Disease and Ontology Construction
Xinting Liang, Yongxin Kong, Guochao (Alex) Peng, *P.R. China*

Users Adaptation and Infusion of Smart City App
Bingqian Zhang, Caihua Liu, Yongxin Kong, Yuwen Wang, Guochao (Alex) Peng, *P.R. China*

Research on Cross-Channel Switch Behavior of Users from Smart Government APP to Government Service Platform under PPM Framework
Siyuan Wu, Yuwen Wang, Guochao (Alex) Peng, *P.R. China*

Spatial-temporal Distribution and Cross Impact of "Big Health" Policies, News and Patents
Yongxin Kong, Yuwen Wang, Guochao (Alex) Peng, Bingqian Zhang, *P.R. China*

HCI in Business, Government and Organizations

HCIBGO   S156

HCI in Digital Retail and Online Marketing

Chair(s): Martin Stabauer, Andreas Auinger, Werner Wetzlinger, *Austria*

The New Normal? Motivators for and Hindrances to Telework
Thomas Fischer, Stefan Küll, Ursula Niederländer, Martin Stabauer, *Austria*

Blockchain-Based Load Carrier Management in the Physical Internet
Wolfgang Narzt, Philipp Schützeneder, Petko Dragoev, Bartosz Schatzlmayr-Piekarz, Martin Schwaiger, *Austria*

Consumers´ Acceptance of a Voice Commerce Application in FMCG in Germany, U.S. and U.K.
Elena Adolphs, Silvia Zaharia, *Germany*

Information Technology as Enabler of Transparency in Food Supply Chains - An Empirical Study
Robert Zimmermann, Werner Wetzlinger, Magdalena Mayer, Gabriele Obermeier, Andreas Auinger, *Austria*

Dimensions of Retail Customer Experience and Its Outcomes: A Literature Review and Directions for Future Research
Anna Hermes, René Riedl, *Austria*

TUESDAY 08:00 - 10:00

LCT   S157

Learning and Collaboration Technologies

Learning, training and collaboration

Chair(s): Hiroshi Hosobe, *Japan*

Using Interactive Technology for Learning and Collaboration to Improve Organizational Culture: A Conceptual Framework
Tone Lise Dahl, Lisa S. Græslie, Sobah A. Petersen, *Norway*

To Explore the Influence of Single-Disciplinary Team and Cross-Disciplinary Team on Students in Design Thinking Education
Xiao Ma, Hsien-Hui Tang, *Taiwan*, China*

Effect of Presenting Co-occurrence Networks that Reflect the Activeness of Face-to-face Discussions
Taisei Muraoka, Naruaki Ishikawa, Shigeto Ozawa, Hironori Egi, *Japan*

Use of Simulation Technology in Transportation Training: A Systematic Literature Review
Seanan C. Lee, *Australia;* Vincent G. Duffy, *United States*

A Video Game-Like Approach to Supporting Novices in Learning Programming
Ami Sakakibara, Hiroshi Hosobe, *Japan*

ITAP   S158

Human Aspects of IT for the Aged Population

Gender and Digital Platforms

Chair(s): Inês Amaral, *Portugal*

Digital Aging: Reinforcing Normative Masculinities on Instagram
Inês Amaral, Sofia Jose Santos, Rita Basílio Simões, Maria José Brites, *Portugal*

Cognitive, Mental and Social Benefits of Online non-Native Language Programs for Healthy Older People
Blanka Klimova, *Czech Republic*

New Media, Old Misogyny: Framing Mediated Madonna on Instagram from an Ageing Perspective
Rita Basílio Simões, Inês Amaral, Sofia Jose Santos, Maria José Brites, *Portugal*

Technology, Gender and COVID-19 - Analysis of Perceived Health in Adults and Older People
Vanesa Zorrilla-Muñoz, Maria Silveria Agullo-Tomas, Maria João Forjaz, Eduardo Fernandez, Carmen Rodriguez-Blazquez, Alba Ayala, Gloria Fernandez-Mayoralas, *Spain*

Debunking the #manosphere: An Exploratory Analysis on Patriarchy and Ageism within the Digital Realm
Sofia Jose Santos, Inês Amaral, Rita Basílio Simões, Maria José Brites, *Portugal*

Exploring User Opinion on the Benefits of Cognitive Games through an Online Walkthrough and Interview
Kyle Harrington, Michael L. Craven, Max P. Wilson, Aleksandra Landowska, *United Kingdom*

HCI-CPT   S159

HCI for Cybersecurity, Privacy and Trust

Cybersecurity for SMBs and Workforce Development

Chair(s): Ulku Clark, *United States*

Heuristic Evaluation of Vulnerability Risk Management Leaders' Presentations of Cyber Threat and Cyber Risk
Chris Nichols, Geoff Stoker, Ulku Clark, *United States*

A Study on Online Businesses' Commitment to Consumer Privacy
May Almousa, Yang Liu, Tianyang Zhang, Mohd Anwar, *United States*

It's Not My Problem: How Healthcare Models relate to SME Cybersecurity Awareness
Brian Pickering, *United Kingdom;* Costas Boletsis, Ragnhild Halvorsrud, *Norway;* Stephen Phillips, Mike Surridge, *United Kingdom*

Security Analysis of Transaction Authorization Methods for Next Generation Electronic Payment Services
Daniel Wilusz, Adam Wójtowicz, *Poland*

Enterprise Data Sharing Requirements: Rich Policy Languages and Intuitive User Interfaces
Karsten Martiny, Mark St. John, Grit Denker, Christopher Korkos, Linda Briesemeister, *United States*

HCI-Games S160   continues

HCI in Games

Impact of Game Play

Chair(s): Xiaocen Liu, *P.R. China*

The Factorial Structure and Underlying Contributors of Parents' Behavioral Involvement in Children's Video Game Use
Heqing Huang, You Zhou, Xiaolin Qi, Fangbing Qu, Xiaocen Liu, *P.R. China*

Children's Learning through Touchscreen Games: The Role of Background Music and Touchscreen Experience
Haoxue Yu, Hui Li, *P.R. China;* Kaveri Subrahmanyam, *United States*

Exploratory and Confirmatory Factor Analysis of the Chinese Young Children's Video-gaming Questionnaire
Fangbing Qu, Xiao Niu, Heqing Huang, Xiaocen Liu, *P.R. China*

Design and Application Research of Gamification in University Curriculum —— Taking the Course of TV Camera for Example
Yuan Yao, Ling He, Junjie Shang, *P.R. China*

A Study on Serious Game Practice to Improve Children's Global Competence
Jingying Wang, Jia Li, Qianru Song, Xiaomei Ping, Dengbo Zhang, Qizhong Hu, Shoubao Gao, *P.R. China*

The Foundations and Frontiers of Research on the Effect of Video Games on Child Development: A Scientometrics and Knowledge-Mapping Analysis Based on CiteSpace
Xiaocen Liu, Heqing Huang, Fangbing Qu, Donghui Dou, *P.R. China*

TUESDAY 08:00 - 10:00

HCI-Games S161

Disability, Play and Human-Computer Interaction

Chair(s): Khaldoon Dhou, *United States;* Dena Al-Thani, *Qatar*

Towards the Mixed-Reality Platform for the Learning of Children with Autism Spectrum Disorder (ASD): A Case Study in Qatar
Kamran Khowaja, Dena Al-Thani, Yasmin Abdelaal, Asma Osman Hassan, Younss Ait Mou, Mohamad Hassan Hijab, *Qatar*

Computer-Aided Games-Based Learning for Children with Autism
Christine Dahl, Henrik Skaug Sætra, Anders Nordahl-Hansen, *Norway*

PLAY for LEARNING: Serious Games to Assist Learning of Basic Didactic Concepts: a Pilot Study
Tânia Rocha, João Barroso, *Portugal*

Understanding the Impact on Learners' Reading Performance and Behaviour of Matching E-Learning Material to Dyslexia Type and Reading Skill Level
Weam Gaoud Alghabban, Hadeel Mohammed Al-Dawsari, Robert Hendley, *United Kingdom*

Evaluating the Use of Visual Prompts in Online Meeting Applications for Kindergarteners
Hira Naseem, Osama Halabi, *Qatar*

MobiTAS S162

HCI in Mobility, Transport and Automotive Systems

Understanding Driver Experience and Behavior

Chair(s): Sara Mostowfi, *United States*

Demystifying Interactions between Driving Behaviors and Styles through Self-Clustering Algorithms
Yu Zhang, Wangkai Jin, Zeyu Xiong, Zhihao Li, Yuyang Liu, Xiangjun Peng, *P.R. China*

A Wizard-of-Oz Experiment: How Drivers Feel and React to the Active Interaction of AI Empowered Product in the Vehicle
Qihao Huang, Ya Wang, Xuan Wang, Zijing Lin, Jian He, Xiaojun Luo, Jifang Wang, *P.R. China*

What Humans Might be Thinking While Driving: Behaviour and Cognitive Models for Navigation
Arun Balakrishna, Tom Gross, *Germany*

Investigating the relationship between a driver's psychological feelings and biosensor data
Sara Mostowfi, Jung Hyup Kim, Bill Buttlar, *United States*

Qualitative Examination of Technology Acceptance in the Vehicle: Factors Hindering Usage of Assistance and Infotainment Systems
Dina Stiegemeier, Sabrina Bringeland, Martin Baumann, *Germany*

AIS S163

Adaptive Instructional Systems

Design and Implementation Considerations: Hybrid Adaptive Instructional & Assessment Systems

Chair(s): Michelle D. Barrett, *United States*

A Conceptual Model for Hybrid Adaptive Instructional and Assessment Systems
Michelle D. Barrett, *United States*

Using Principled Assessment Design and Item Difficulty Modeling to Connect Hybrid Adaptive Instructional and Assessment Systems: Proof of Concept
M. Christina Schneider, Jing Chen, Paul Nichols, *United States*

Dynamic Analytics for the Detection of Quality and Alignment Issues in an Online Hybrid Adaptive Instructional and Assessmen System
Jinah Choi, Michelle D. Barrett, *United States*

Why Not Go All-In with Artificial Intelligence?
Kristen DiCerbo, *United States*

Uncertainty of Skill Estimates in Operational Deep Knowledge Tracing
David King, Ziwei Zhou, Windy Therior, *United States*

MOBILE S164

Design, Operation and Evaluation of Mobile Communications

Mobile Communities Research

Chair(s): Peiyan Zhou, *P.R. China*

Research on Risk Management of Digital Currency Based on Blockchain Technology in Mobile Commerce
Xinyu Li, Peiyan Zhou, *P.R. China*

Investigating Issues Related to VAT Collection and Management in Chinese Mobile Commerce
Peiyan Zhou, Xiaochun Lin, *P.R. China*

Research on the Influencing Factors of Mobile Learning Behavior: Taking the Accounting Learning App as an Example
Dan Chen, Xi yuan Guo, Chang Liu, Peiyan Zhou, *P.R. China*

Network Market Orientation, Entrepreneurial Capability and New Venture' Performance: An Evidence from China's Mobile communication Industry
Hongjia Ma, Qing Sun, Juan Wu, *P.R. China*

Mobile Internet Finance, Interest Rate Marketization and Bank Performance
Jing Ge, Yang Gao, Xiangxiang Lang, Mengmeng Zhang, Hongxia Sun, Baoshan Ge, *P.R. China*

C&C   S165

Culture and Computing

Interactive Technology and Culture

08:00 – 10:00
(EDT - Washington DC)

Chair(s): Yiyuan Huang, Mohammad Shidujaman, *P.R. China*

Critical Art with Brain-computer Interfaces: philosophical reflections from Neuromatic Game Art Project
Anna Dobrosovestnova, Mark Coeckelbergh, Margarete Jahrmann, *Austria*

Design Opportunities of Digital Tools for Promoting Healthy Eating Routines among Dutch Office Workers
Sibo Pan, *Netherlands;* Xipei Ren, *P.R. China;* Steven Vos, Aarnout Brombacher, *Netherlands*

A Stranger in the Classroom: Pre-Service Teachers' Anxiety and Negative Attitudes toward Humanoid Social Robots
Violeta Rosanda, Andreja Istenič, *Slovenia*

Culturally Aware Intelligent Learning Environments for Resource-poor Countries
Phaedra S. Mohammed, *Trinidad and Tobago;* Andre Coy, *Jamaica*

Unlocking Learning: Promoting Cultural Brand through Interactions with Ancient Locks in an SL Virtual Space
Pei-Hsuan Hsieh, *Taiwan*, China*

Workshop: "Human-Centered Design Process for AI Applications"

AI-HCI
S197-198
Tuesday, 27 July 2021,
08:00 - 10:00
10:30-12:30
(EDT - Washington DC)

Chair(s): Helmut Degen, *United States*

Mental Models and Interpretability in AI Fairness Tools and Code Environments
Jana Thompson, *United States*

A toolkit to enable the design of trustworthy AI
Stefan Schmager, *Germany;* Sonia Sousa, *Estonia*

Designing AI applications for Accessibility
Marianna Di Gregorio, Fabio Palomba, Giuliana Vitiello, *Italy*

A change in perspective about Artificial Intelligence interactive systems design: Human centric, yes, but not limited to
Pietro Battistoni, Marco Romano, Monica Sebillo, Giuliana Vitiello, *Italy*

NOTES

TUESDAY 08:00 - 10:00 / 10.30 - 12.30

TUESDAY 10:30 - 12:30

Human-Computer Interaction

HCI   S172

Chatbots and Voice Interaction

Chair(s): Siegmar Otto, *Germany*

Bias in, Bias out – The Similarity-Attraction Effect between Chatbot Designers and Users
Sarah Zabel, Siegmar Otto, *Germany*

Exploring Citizens' Attitudes towards Voice-Based Government Services in Switzerland
Matthias Baldauf, Hans-Dieter Zimmermann, Claudia Pedron, *Switzerland*

How Workarounds Occur in Relation to Automatic Speech Recognition at Danish Hospitals
Silja Vase, *Denmark*

Voice Switching in Voice-Enabled Digital Assistants (VDAs)
Dania Bilal, Jessica K. Barfield, *United States*

Success is not Final; Failure is not Fatal – Task Success and User Experience in Interactions with Alexa, Google Assistant and Siri
Miriam Kurz, Birgit Brüggemeier, Michael Breiter, *Germany*

S173

HCI Theory and Practice - II

Chair(s): To be announced

Information Differentiation in the Information Society: From the Perspective of all Stages of Human Information Activities
Ying Zhao, Ting Xiong, Liang Zhou, Lijia Hu, Guangyao Li, *P.R. China*

A Review of Multimodal Interaction in Intelligent Systems
May Jorella Lazaro, Sungho Kim, Jaeyong Lee, Jaemin Chun, Gyungbhin Kim, EunJeong Yang, Aigerim Bilyalova, Myung Hwan Yun, *Korea*

Suggestions for Online User Studies: Sharing Experiences from the Use of Four Platforms
Joni Salminen, Soon-gyo Jung, Bernard J. Jansen, *Qatar*

Secondary Task Behavioral Analysis Based on Depth Image During Driving
Hao Wen, Zhen Wang, Shan Fu, *P.R. China*

S174

XR in Medicine, Physiotherapy and Nursing - II

Chair(s): Hiroshi Noborio, *Japan*

Study on the Image Overlay Approach to AR Navigation System for Transsphenoidal Surgery
Katsuhiko Onishi, Seiyu Fumiyama, Masahiro Nonaka, Masanao Koeda, Hiroshi Noborio, *Japan*

Investigation of the Hashing Algorithm Extension of Depth Image Matching for Liver Surgery
Satoshi Numata, Masanao Koeda, Katsuhiko Onishi, Kaoru Watanabe, Hiroshi Noborio, *Japan*

Selection and Evaluation of Color/Depth Camera for Imaging Surgical Stoma
Michiru Mizoguchi, Masatoshi Kayaki, Tomoki Yoshikawa, Miho Asano, Katsuhiko Onishi, Hiroshi Noborio, *Japan*

Construction of a Knowledge Base for Empirical Knowledge in Neurosurgery
Ayuki Joto, Takahiro Fuchi, Hiroshi Noborio, Katsuhiko Onishi, Masahiro Nonaka, Tsuneo Jozen, *Japan*

Human Interface and the Management of Information

HIMI   S175

Embodied Interaction and Communication

Chair(s): Tomio Watanabe, Teruaki Ito, *Japan*

Structural Changes in Discussions Using Design Thinking and Their Effect on Creativity
Mayumi Kawase, Kazumi Matsumoto, Hiroshi Kamabe, Hidekazu Fukai, Kazunori Terada, *Japan*

Smart Speaker Interaction through ARM-COMS for Health Monitoring Platform
Teruaki Ito, Takashi Oyama, Tomio Watanabe, *Japan*

Development of a Presentation Support System using Group Pupil Response Interfaces
Yoshihiro Sejima, Yoichiro Sato, Tomio Watanabe, *Japan*

Avatar Twin using Shadow Avatar in Avatar-Mediated Communication
Yutaka Ishii, Satoshi Kurokawa, Tomio Watanabe, *Japan*

On-demand Lectures that Enable Students to Feel the Sense of a Classroom with Students who Learn Together
Ryoya Fujii, Hayato Hirose, Saizo Aoyagi, Michiya Yamamoto, *Japan*

HIMI S176

Human-centered Information Systems, Services, and Applications

Chair(s): Ryosuke Saga, *Japan*

Universal Access in Human-Computer Interaction

An Improved Optimized Route Selection Method for a Maritime Navigation Vessel
Yutaro Tsurumi, Ryosuke Saga, Sharath Srinivasamurthy, Yasunori Nihei, *Japan*

Investigation of Sign Language Motion Classification by Feature Extraction using Keypoints Position of OpenPose
Tsukasa Wakao, Yuusuke Kawakita, Hiromitsu Nishimura, Hiroshi Tanaka, *Japan*

Information Management System for Small Automatic Navigation Robot Ships
Kozono Rinto, Yutaro Tsurumi, Yasunori Nihei, Ryosuke Saga, *Japan*

Experimental Evaluation of Auditory Human Interface for Radiation Awareness Based on Different Acoustic Features
Dingming Xue, *P.R. China;* Daisuke Shinma, Yuki Harazono, Hirotake Ishii, Hiroshi Shimoda, *Japan*

Training Tool on Structured Knowledge for Risk Management with VR Technology
Noriyuki Kushiro, Koshiro Nishinaga, Toshihiro Mega, *Japan*

UAHCI S177

Media Accessibility: Current and Future Trends - II

Chair(s): Gian Maria Greco, *Spain;* Nazaret Fresno, *United States*

What Happens Behind The Scenes: A Call for Process Research In Audiovisual Translation and Media Accessibility
Anna Jankowska, *Belgium*

Measuring the quality of intralingual respeaking at live events
Zoe Moores, *United Kingdom*

A Meta-Model for Media Accessibility Quality
Gian Maria Greco, *Spain*

Preferences of Deaf or Hard of Hearing Users for Live-TV Caption Appearance
Akhter Al Amin, Abraham Glasser, Raja Kushalnagar, Christian Vogler, Matt Huenerfauth, *United States*

A Systematic Mapping of Guidelines for the Development of Accessible Digital Games to People with Disabilities
Taynara Cerigueli Dutra, Daniel Felipe, Isabela Gasparini, Eleandro Maschio, *Brazil*

VAMR S178

Designing and implementing VAMR environments

Chair(s): To be announced

Virtual, Augmented and Mixed Reality

A Research on Sensing Localization & Orientation of Objects in VR with Facial Vibrotactile Display
Ke Wang, Yi-Hsuan Li, Chun-Chen Hsu, Jiabei Jiang, *Taiwan*, China;* Yan Liu, Zirui Zhao, Wei Yue, Lu Yao, *P.R. China*

Robust Camera Motion Estimation for Point-of-View Video Stabilization
Wonwoo Lee, Byeongwook Yoo, Deokho Kim, Jaewoong Lee, Sunghoon Yim, Taehyuk Kwon, Gunill Lee, Jiwon Jeong, *Korea*

Omnidirectional Flick View
Ryota Suzuki, Tomomi Sato, Kenji Iwata, Yutaka Satoh, *Japan*

Position Estimation of Occluded Fingertip based on Image of Dorsal Hand from RGB Camera
Zheng Zhao, Takeshi Umezawa, Noritaka Osawa, *Japan*

Designing Limitless Path in Virtual Reality Environment
Raghav Mittal, Sai Anirudh Karre, Y. Raghu Reddy, *India*

User Defined Walking-in-place Gestures for Intuitive Locomotion in Virtual Reality
Woojoo Kim, Eunsik Shin, Shuping Xiong, *Korea*

Haptic Finger Glove for the VR Keyboard Input
Yuya Hoshi, Chenghong Lu, Lei Jing, *Japan*

CCD S179

CCD in Cultural Heritage and Tourism

Chair(s): Yun-Chi Lee, *Taiwan*,* China*

Cross-Cultural Design

A Case Study of Social Innovation based on Ten Years' Practice-Taking the Project of "Design for Country" in Shanghai as an Example
Wei Ding, Xiaolin Li, Junnan Ye, Xinyao Huang, Qianyu Zhang, *P.R. China*

Meet the Local through Storytelling: A Design Framework for the Authenticity of Local Tourist Experience
Wenlin Zhang, *P.R. China*

A Study of Framework Development and Research of jewelry design, based on pattern Egyptian Culture (lotus flower) Used in Culture Product Design
Eman Ramadan, Yu Wu, *P.R. China*

Behavioral Mapping: A Patch of the User Research Method in the Cruise Tourists Preference Research
Jiangyan Lu, Xiaolei Guo, Lu Ding, Zhenyu (Cheryl) Qian, Yingjie (Victor) Chen, *United States*

A Study on the Influence of Intercultural Curation on the Brand Loyalty of Cultural Creative Park Based on the Experiential Marketing Theory
Yun-Chi Lee, Tien-Li Chen, Chi-Sen Hung, Shih-Kuang Wu, *Taiwan*, China*

TUESDAY 10:30 - 12:30

TUESDAY 10:30 - 12:30

CCD   S180

Designing the Futures: Innovative Theories, Tools and Practices - II

Chair(s): Zhiyong Fu, *P.R. China*

Rethinking the Body as a Humanistic Intervention — Teaching HCI with a Recognition of Multiplicity
Hanwei Shi, *P.R. China*

Shift in Computation – Tangible to Intangible
Yufan Xie, *United States*

Design Strategies of Multifunctional Exhibition for Community Regeneration: Two Case Studies in Beijing
Huan Wang, Wen Li, Jie Hao, *P.R. China*

Speculative Scenarios: The Exhibition as a New Space of Thinking
Yu Chen, Zhiyong Fu, *P.R. China*

SCSM   S181

Social Computing and Social Media

Social Media and Covid-19

Chair(s): Najmeh Khalili-Mahani, *Canada*

The Covid-19 Crisis: an NLP Exploration of the French Twitter Feed (February-May 2020)
Sophie Balech, Christophe Benavent, Mihai Calciu, Julien Monnot, *France*

Role of Social Media in Coping with COVID-19 Stress: Searching for Intergenerational Perspectives
Najmeh Khalili-Mahani, Sasha Elbaz, Amber Pahayahay, Janis Timm-Bottos, *Canada*

Isolation and Use of Social Media by Autistic Individuals during Covid-19 Lockdown: Perceptions of Caregivers
Oronzo Parlangeli, Sonia Grifoni, Paola Palmitesta, Alessandro Andreadis, *Italy;* Paul M. Liston, *Ireland;* Stefano Guidi, *Italy*

Identifying Early Opinion Leaders on COVID-19 on Twitter
Zahra Hatami, Margaret Hall, Neil Thorne, *United States*

S182

Social Media and Online Deliberation: Assessment of User Discussion Patterns and their Effects - II

Chair(s): Svetlana S. Bodrunova, *Russia*

Testing Users' Ability to Recognize Fake News in Three Countries - An Experimental Perspective
Victoria Vziatysheva, Yadviga Sinyavskaya, Alexander Porshnev, Maxim Terpilovskii, Sergey Koltcov, Kirill Bryanov, *Russia*

Fake News Detection via English-to-Spanish Translation: Is it Really Useful?
Sebastian Ruiz, Eliana Providel, Marcelo Mendoza, *Chile*

Effects of Conspiracy Thinking Style, Framing and Political Interest on Accuracy of Fake News Recognition by Social Media Users: Evidence from Russia, Kazakhstan and Ukraine
Alexander Porshnev, *Russia;* Alex Miltsov, *Canada;* Tetyana Lokot, *Ireland;* Olessia Koltsova, *Russia*

Pandemic Discussions in VKontakte: Hopes and Fears
Kamilla Nigmatullina, Nikolay Rodossky, *Russia*

Public Responses and Concerns Regarding Vape Bans on Reddit: A Longitudinal Topic Modeling Approach
Yusi Aveva Xu, Hye Min Kim, Yunwen Wang, Jiaxi Wu, Traci Hong, Margaret McLaughlin, *United States*

DHM   S183

Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management

Human-service Robot Interaction: Design, User Experience, Customer Satisfaction

Chair(s): Csilla Herendy, Mária Babicsné Horváth, *Hungary*

What if: Human Rights vs Science – or Both? An Unusual Argument from a Disability Perspective
Laszlo Gabor Lovaszy, *Hungary*

Application of Design Thinking in the Education Segment, Regarding the Human-Computer Interactions
Vanda Orbulov, *Hungary*

Automated Escalation and Incident Management in Healthcare during Mass Casualties and Pandemic Events
Md Yousuf Hossain, Umar Azhar, Yvonne To, Joseph Choi, Loutfouz Zaman, *Canada*

Sustainable Urban Planning and its Connection to Environmental Health: A Literature Analysis
Michael Lambrosa, *United States*

DHM S184

Ergonomics and Safety at Work

Chair(s): Sandy Ingram, *Switzerland*

Well-being at Work: Applying a Novel Approach to Comfort Elicitation
Sandy Ingram, Uchendu Nwakchukwu, Nicole Jan, Jean-Philippe Bacher, Florinel Radu, *Switzerland*

New Approaches to Movement Evaluation Using Accurate Truck Ingress Data
Martin Dorynek, *Germany;* Hongtao Zhang, *P.R. China;* Norman Hofmann, Klaus Bengler, *Germany*

Digital Human-in-the-loop Methodology for Early Design Computational Human Factors
H. Onan Demirel, Lukman Irshad, Salman Ahmed, Irem Y. Tumer, *United States*

Modern Workplace Ergonomics and Productivity – A Systematic Literature Review
Jiachen Jiang, Vincent G. Duffy, *United States*

A Systematic Literature Review on Injury Prevention in Transportation Sector
Jathin Katikala, Vincent G. Duffy, *United States*

Design, User Experience, and Usability

DUXU S186

User Experience and Usability Driven Design: Emerging Theory and Practice: IV

Chair(s): Zhen Liu, *P.R. China*

Methods for Multiple Roles to build Brands of Service System--A Case Study of Guangzhou Baiyun International Airport
Qixuan Su, Yi Liu, *P.R. China*

Research on Interactive Design of Public Art Landscape at Night
Wenjing Yin, *P.R. China*

User Experience Centred Application Design of Multivariate Landscape in Kulangsu, Xiamen
Fengze Lin, Fengming Chen, Mingjian Zhu, *P.R. China*

Research on Information Visualization Design Based on Information Weight - A Case Study of Information-based Scene Design of the Airport
Yiyu Ouyang, Yi Liu, *P.R. China*

User Experience Design Study of Museum Website Based on TRIZ Theory: A Case of Heyuan Dinosaur Museum
Dan Huang, Miao Li, Zhen Liu, *P.R. China*

Spatial Analysis and Comfort Optimal Experience Design of Rural Landscape in Water Network Area of Southern China
Yali Chen, Zhenxi Gong, Shuo Wang, *P.R. China*

Usability Study of A Public Culture Website for Improvement: A Case of Guangzhou Museum of Art
Cihui Wu, Zhen Liu, *P.R. China*

HCI in Business, Government and Organizations

HCIBGO S187

Innovations in Production, Business Management, and Marketing

Chair(s): Carlos Ferreira, *Portugal*

Inside-out: How Internal Social Media Platforms Can Accelerate Innovation and Push External Crowdsourcing towards New Frontiers
Maximilian Rapp, Niclas Kröger, Samira Scheerer, *Germany*

A Survey Study on Successful Marketing Factors for Douyin (Tik-Tok)
Zining Chen, Qiping Zhang, *United States*

Human factors in Industry 4.0 and Lean Information Management: Remodeling the Instructions in a Shop Floor
Juliana Salvadorinho, Leonor Teixeira, Beatriz Sousa Santos, Carlos Ferreira, *Portugal*

A User Interface for Personalising WS-BPEL Scenarios
Dionisis Margaris, Dimitris Spiliotopoulos, Dionysios Vasilopoulos, Costas Vassilakis, *Greece*

Learning and Collaboration Technologies

LCT S188

Game-based learning

Chair(s): Katerina Tzafilkou, *Greece*

Completeness and Collaboration in the Early Design Phase of Learning Games: Do Ideation Cards Provide Scaffolding?
Rabail Tahir, Alf Inge Wang, *Norway*

Mobile Game-Based Learning in Distance Education: A Mixed Analysis of Learners' Emotions and Gaming Features
Katerina Tzafilkou, Anastasios A. Economides, *Greece*

FLCARA: Frog Life Cycle Augmented Reality Game-based Learning Application
Malek EL Kouzi, Victoria McArthur, *Canada*

Heritage Augmented Reality Applications for Enhanced User Experience - A Case Study of AR Videogames for Children at Archeological Site of Empuries, Spain
Isidro Navarro Delgado, Albert Sanchez, Lluis Gimenez, *Spain;* Miguel Angel Pérez, *Mexico;* Teresa Vidal Peig, Alia Besne, Ernesto Redondo, *Spain*

Transforming Classic Learning Games with the Use of AR: The Case of the Word Hangman Game
Ilias Logothetis, George Papadourakis, Iraklis Katsaris, Konstantinos Katsios, Nikolas Vidakis, *Greece*

Educational Video Game Design for Teaching and Learning Musical Harmony
Daniela Medel, Jaime Sánchez, *Chile*

TUESDAY 10:30 - 12:30

ITAP   S189

Human Aspects of IT for the Aged Population

Human Factors and Design

Chair(s): Wang-Chin Tsai, *Taiwan*, China*

Rehabilitate sustain from earth to sea: A design study on interplaying biosocial sculpture in-between the intertidal zone
Jui-Yang Kao, Shu-Wen Chang, Po-Wen Yu, Wang-Chin Tsai, *Taiwan*, China*

Preliminary Investigation of Methods for Graphic Simplification from Representation to Abstraction
Hui-Ping Lu, *Taiwan*, China*

Exploring effectiveness of absorbing health knowledge by the middle-aged and elderly using chatbots
Wang-Chin Tsai, Yu-Chen Hsieh, Chang-franw Lee, *Taiwan*, China*

Gamification Design of Health Apps for the Elderly Based on the Kano Model and Conjoint Analysis Method
Tongyao Yuan, Yongyan Guo, *P.R. China*

A Compact Automated Tablet Dispensing & Packaging System for Community Healthcare Facilities to Provide Unit Dose Repackaging Service
Yiming Chen, Zhenyu Gu, *P.R. China*

S190

Healthy and Active Ageing

Chair(s): Ning An, *P.R. China*

Prediction of Sleep Quality in Live-Alone Diabetic Seniors Using Unobtrusive In-Home Sensors
Barry Nuqoba, Hwee-Pink Tan, *Singapore*

MEMORIDE: An Exergame Combined with Working Memory Training to Motivate Elderly with Mild Cognitive Impairment to Actively Participate in Rehabilitation
Xin Li, Ting Han, Enjia Zhang, Wen Shao, Liang Li, Chenye Wu, *P.R. China*

NEONEO Balance Ball: Designing an Intergenerational Interaction Exergame for In-home Balance Training
Emiran Kaisar, Ren Bo Ding, Ting Han, Shi Qiu, *P.R. China*

Elderly Sleep Support Agent Using Physical Contact Presence by Visual and Tactile Presentation
Yaze Zhang, Xin Wan, Tomoko Yonezawa, *Japan*

A Goal Oriented Storytelling Model for Improvement of Health Game Experiences among Older Adults
Zhengxiang Pan, Hao Zhang, Yaming Zhang, Cyril Leung, Chunyan Miao, *Singapore*

HCI-Games S191

HCI in Games

Users' Experience and Engagement in Esports and Gamification Settings

Chair(s): Amir Zaib Abbasi, *Pakistan*

Persuasive Technology in Games: A Brief Review and Reappraisal
Umair Rehman, Muhammad Umair Shah, *Canada;* Amir Zaib Abbasi, Pakistan; Farkhund Iqbal, *United Arab Emirates;* Ali Arsalan, *United States;* Muhammad Umair Javaid, Pakistan

In-Game Virtual Consumption and Online Video Game Addiction: A Conceptual Model
Ali Hussain, Ding Hooi Ting, Malaysia; Helmut Hlavacs, *Austria;* Amir Zaib Abbasi, *Pakistan*

How Engagement with Gamified Applications Impacts Quality of Life: A Conceptual Model
Amir Zaib Abbasi, Maria Hassan, Pakistan; Umair Rehman, *Canada;* Helmut Hlavacs, *Austria;* Ding Hooi Ting, *Malaysia;* Muhammad Umair Shah, *Canada*

HEROES: an Action Game enabling Players With and Without Disabilities to Play Together
Milan Peschl, Helmut Hlavacs, *Austria*

Analyzing and Prioritizing Usability Issues in Games
Umair Rehman, *Canada;* Amir Zaib Abbasi, *Pakistan;* Muhammad Umair Shah, Amna Idrees, Hassan Ilahi, *Canada;* Helmut Hlavacs, *Austria*

MobiTAS   S192

HCI in Mobility, Transport and Automotive Systems

Hybrid Societies in Automated Driving

Chair(s): Angelika C. Bullinger, *Germany*

Different Types, Different Speeds – The Effect of Interaction Partners and Encountering Speeds at Intersections on Drivers' Gap Acceptance as an Implicit Communication Signal in Automated Driving
Ann-Christin Hensch, Matthias Beggiato, Maike X. Schömann, Josef F. Krems, *Germany*

Communication of Intentions in Automated Driving – the Importance of Implicit Cues and Contextual Information on Freeway Situations
Konstantin Felbel, André Dettmann, Marco Lindner, Angelika C. Bullinger, *Germany*

Users' Expectations, Fears, and Attributions Regarding Autonomous Driving -- A Comparison of Traffic Scenarios
Hannah Biermann, Ralf Philipsen, Teresa Brell, Simon Himmel, Martina Ziefle, *Germany*

Hitting the Apex highly automated? – Influence of trajectory behaviour on perceived safety in curves
Patrick Rossner, Marty Friedrich, Angelika C. Bullinger, *Germany*

Autonomous Vehicles and Pedestrians: A Case Study of Human Computer Interaction
Subasish Das, Hamsa Zubaidi, *United States*

AIS S193

Adaptive Instructional Systems

Intelligence Augmentation for Educators, Training Professionals, and Learners

Chair(s): Jim Goodell, *United States*

Evaluating the Question: The Instructor's Side of Adaptive Learning
James Bennett, Leila Casteel, Kitty Kautzer, *United States*

Intelligence Augmentation for Collaborative Learning
Jeremy Roschelle, *United States*

Intelligence Augmentation for Educators, Training Professionals, and Learners
Nkaepe Olaniyi, *United Kingdom;* Jesse Chuang, *United States*

Predicting Literacy Skills via Stealth Assessment in a Simple Vocabulary Game
Ying Fang, Tong Li, Rod Roscoe, Danielle McNamara, *United States*

MOBILE S195

Design, Operation and Evaluation of Mobile Communications

Business Analytics and Process Management

Chair(s): Manlu Liu, *United States*

An Evaluation on Entity Extraction and Semantic Similarity Metrics to Facilitate Medical Text Analysis Based on WordNet
Qinwei Zhang, Runtong Zhang, *P.R. China*

Task Characteristics and Participants' Creative Performance in Crowdsourcing Contexts
Yuan Sun, Zhoujian Fan, *P.R. China;* Anand Jeyaraj, *United States*

Stakeholder Perceptions in the Context of Community Risk Reduction (CRR): Self-Reported Hazards as Two-Way Communication between First Responders and the Communities They Serve
Katelynn A. Kapalo, Kevin P. Pfeil, Joseph A. Bonnell, Joseph J. LaViola Jr., *United States*

C&C S196

Culture and Computing

The Poetics of Digital Space: Music, Sound and Heritage Modelling

Chair(s): Michael Walsh, *Singapore*

Voyages Along the Star Paths: Capturing Calendrical Cycles from Kauai to Bali
Vibeke Sorensen, *Singapore;* J. Stephen Lansing, *United States;* Nagaraju Thummanapalli, *Singapore*

Can we retrieve / reconstruct the soundscape of Medieval Famagusta?
Michael Walsh, *Singapore*

Soundscape Singapore: Sound as Mediated Cultural Heritage
Marcus Cheng Chye Tan, *Singapore*

A Sonification of the zCOSMOS Galaxy Dataset
Sandro Bardelli, Claudia Ferretti, Luca Andrea Ludovico, Giorgio Presti, Maurizio Rinaldi, *Italy*

Real or Rendered: Designing Soundscapes for Virtual Cultural Heritage
Ross Williams, *Singapore*

NOTES

TUESDAY 10:30 - 12:30

TUESDAY 10:30 - 12:30

HCI S211

Brain-Computer Interface and Artificial Intelligence - Innovative Applications in Medicine and Industry

Chair(s): Günter Edlinger, *Austria;* Danut-Constantin Irimia, *Romania*

Online Classification of Cognitive Control Processes using EEG and fNIRS: a Stroop Experiment
Leonhard Schreiner, Gerald Hirsch, Ren Xu, Patrick Reitner, Harald Pretl, Christoph Guger, *Austria*

Towards Improved Vibro-Tactile P300 BCIs
Rupert Ortner, Josep Dinarès-Ferran, *Spain;* Danut-Constantin Irimia, *Romania;* Christoph Guger, *Austria*

Rehabilitation Aims and Assessed Brain Activity by Means of Brain-Computer Interfaces in People in a Vegetative State- Preliminary Results
Marian-Silviu Poboroniuc, Danut-Constantin Irimia, Gheorghe Popescu, *Romania*

Comparing Eye Tracking and Head Tracking during a Visual Attention Task in Immersive Virtual Reality
Jose Llanes-Jurado, Javier Marín-Morales, Masoud Moghaddasi, Jaikishan Khatri, Jaime Guixeres, Mariano Alcañiz, *Spain*

S212

Input Methods and Techniques - I

Chair(s): Christos Katsanos, *Greece*

It's a Joint Effort: Understanding Speech and Gesture in Collaborative Tasks
Isaac Wang, Pradyumna Narayana, Dhruva Patil, Rahul Bangar, Bruce Draper, Ross Beveridge, Jaime Ruiz, *United States*

Evaluating the Accuracy and User Experience of a Gesture-based Infrared Remote Control in Smart Homes
Heinrich Ruser, Susan Vorwerg, Cornelia Eicher, Felix Pfeifer, Felix Piela, André Kaltenbach, Lars Mechold, *Germany*

Using Real-Pen Specific Features of Active Stylus to Cope with Input Latency
Roman Kushnirenko, Svitlana Alkhimova, Dmytro Sydorenko, Igor Tolmachov, *Ukraine*

Performance Evaluation and Efficiency of Laser Holographic Peripherals
Alexander Fedor, Mulualem Hailom, Talha Hassan, Vu Ngoc Phuong Dinh, *United States;* Vuong Nguyen, *Viet Nam;* Tauheed Khan Mohd, *United States*

FLM-2A: Towards Automated HCI Modeling of Android Applications based on a Modified Version of the Keystroke Level Model
Savvas Theofilou, Nikolaos Vardas, Christos Katsanos, *Greece*

S213

User Experience Design and Evaluation Case Studies - I

Chair(s): To be announced

Civil Aircraft Cockpit Human Machine Interactive Dynamic Assessment Quality Improvement based on System Engineering
Qun Kuang, Jingjin Zhang, Fei Li, *P.R. China*

Am I Conquering the Robot? The Impact of Personality on the Style of Cooperation with an Automatic System
Rou Hsiao, Wei-Chi Chien, *Taiwan*, China*

Engaging New Residents' City Exploration Using a Gamified Location-Based Information Interactive System
Yiyi Zhang, Yujia Cao, Tatsuo Nakajima, *Japan*

Attention to Breathing in Response to Vibrational and Verbal Cues in Mindfulness Meditation Mediated by Wearable Devices
Eunseong Kim, Jeongyun Heo, Jeongmin Han, *Korea*

SketchMeHow: Interactive Projection Guided Task Instruction with User Sketches
Haoran Xie, Yichen Peng, Hange Wang, Kazunori Miyata, *Japan*

Using e-Health in the Prevention Against Covid-19: An Approach Based on the Theory of Planned Behavior
Meryem Zoghlami, Salma Ayeb, Kaouther Saied Ben Rached, *Tunisia*

HIMI S214

User-oriented Technologies and Services

Chair(s): Hiroyuki Miki, *Japan*

Creative Design of Gaussian Sensor System with Encoding and Decoding
Yu-Hsiung Huang, Wei-Chun Chen, Su-Chu Hsu, *Taiwan*, China*

Development of a Survey Instrument to Explore Telehealth Adoption in the Healthcare Domain
Avijit Chowdhury, Abdul Hafeez-Baig, Raj Gururajan, *Australia*

Research on the Smart Traditional Chinese Medicine Service System Based on Service Design
Junnan Ye, Xu Liu, Jingyang Wang, MengLan Wang, Siyao Zhu, *P.R. China*

A Scenario-Based, Self-Taught and Collaborative System for Human-Centered and Innovative Solutions
Der-Jang Yu, Wen-Chi Lin, Meng-Yu Wun, Tian Yeu Tiffany Lee, Tao-Tao Yu, *Taiwan*, China*

Research on Autonomous Vehicle Delivery System Based on Service Design Theory
Chao Fang, Lei Liu, *P.R. China*

WEDNESDAY 08:00 - 10:00

EPCE S215

Engineering Psychology and Cognitive Ergonomics

Cognition Compatible Interface Design and Research

Chair(s):Jingyu Zhang, *P.R. China*

A Preliminary Field Study of Air Traffic Controllers' Fatigue for Interface Design
Zhenling Chen, Jianping Zhang, Wenchao Jing, Xiaofei Peng, Pengxin Ding, Yiyou Chen, Xiaoqiang Tian, Yanzhong Gu, Guoliang Zou, *P.R. China*

System Performance and Empathetic Design Enhance User Experience for Fault Diagnosis Expert System
Li Lin, Xiaoyue Pang, Jingyu Zhang, Xianghong Sun, Liang Zhang, *P.R. China*

A Survey Study of Factors Influencing Smart Phone Fluency
Xinze Liu, Weina Qu, Cheng Wang, Qian Zhang, Yan Ge, *P.R. China*

The Effect of Diagonal Bar Position in Prohibition Signs on Recognition Efficiency of the Signs
Meng Liu, Xiangling Zhuang, Yuhan Huang, Huiling Yang, Guojie Ma, *P.R. China*

Evaluation of Relationship Quality within Dyads through the Performance in Dual-Player Cooperative Tasks
Haijiang Yan, Kai Yu, Guozhen Zhao, *P.R. China*

Effect of Predictive Next-Letter Highlighting and its Delays on the Bare-Handed Input in Virtual Reality
Haikun Lin, Shu Ma, Zhen Yang, Chunyan Kang, Hongting Li, *P.R. China*

A Qualitative Study on the Workload of High-Speed Railway Dispatchers
Zhenqi Chen, Zizheng Guo, Guo Feng, Lei Shi, Jingyu Zhang, *P.R. China*

UAHCI S216

Universal Access in Human-Computer Interaction

Technological Landscape of Deaf/ Hearing Communication

Chair(s): Eleni Efthimiou, *Greece*

Effect of Occlusion on Deaf and Hard of Hearing Users' Perception of Captioned Video Quality
Akhter Al Amin, Saad Hassan, Matt Huenerfauth, *United States*

State of the Art and Future Challenges of the Portrayal of Facial Nonmanual Signals by Signing Avatar
Rosalee Wolfe, John McDonald, Ronan Johnson, Robyn Moncrief, Andrew Alexander, Ben Sturr, Sydney Klinghofer, Fiona Conneely, Maria Saenz, Shatabdi Choudhry, *United States*

Multimodal Fusion and Sequence Learning for Cued Speech Recognition from Videos
Katerina Papadimitriou, Maria Parelli, Galini Sapountzaki, *Greece*; Georgios Pavlakos, *United States*; Petros Maragos, Gerasimos Potamianos, *Greece*

The SL-ReDu Environment for Self-monitoring and Objective Learner Assessment in Greek Sign Language
Eleni Efthimiou, Stavroula-Evita Fotinea, Christina Flouda, Theodor Goulas, Gkioulan Ametoglou, Galini Sapountzaki, Katerina Papadimitriou, Gerasimos Potamianos, *Greece*

Endless Running Game to Support Sign Language Learning by Deaf Children
Diego Roberto Antunes, Janaine Rodrigues, *Brazil*

VAMR S217

Virtual, Augmented and Mixed Reality

Human Vision in VAMR

Chair(s): Johannes Tümler, Germany

Using Head-Mounted Displays for Virtual Reality: Investigating Subjective Reactions to Eye-Tracking Scenarios
Crystal Maraj, *United States*; Jonathan Hurter, *Germany*; Joseph Pruitt, *United States*

Modeling Viewpoint of Forklift Operators Using Context-Based Clustering of Gaze Fixations
Jouh Yeong Chew, Takashi Okuma, Eiichi Yoshida, Yukikazu Koide, *Japan*

Simulation of the Field of View in AR and VR Headsets
Sarah Brauns, Johannes Tümler, *Germany*

Beyond Visible Light: User and Societal Impacts of Egocentric Multispectral Vision
Austin Erickson, Kangsoo Kim, Gerd Bruder, Gregory F. Welch, *United States*

Rendering Tree Roots Outdoors: A Comparison between Optical See Through Glasses and Smartphone Modules for Underground Augmented Reality Visualization
Gergana Lilligreen, Philipp Marsenger, Alexander Wiebel, *Germany*

CCD S218

Cross-Cultural Design

Kansei Issues in Cross-Cultural Design - I

Chair(s): Kuohsiang Chen, P.R. China; Szu-Chi Chen, Australia

Discussing the Aesthetic Emotion of Artworks by AI and Human Artists with the Mediating Variable of Aesthetic Fluency
Rui Xu, P.R. China

Development of More Concept Words Leads to the Generation of More Idea Sketches
Pei-Jung Cheng, Taiwan*, China

A Study of Chinese Audience Preferences for Mythological Film and Television Works
Sheng Ye, P.R. China

Usability of Self-service Beverage and Snack Vending Machines
Zi-Hao Ding, Lan-Ling Huang, P.R. China; Shing-Sheng Guan, Taiwan*, China

The Research of Willingness to Use Japanese Apps and TAM
Tzuhsuan Kuo, P.R. China

Memorability of Japanese Mnemonic Passwords
Kosuke Komiya, Tatsuo Nakajima, Japan

PARALLEL SESSIONS

CCD   S219

User Experience Design in Emergency Situations in Different Culture - II

Chair(s): Hao Tan, Xiuyuan Guo, *P.R. China*

Evaluation of Haptic Feedback Cues on Steering Wheel based on Blind Spot Obstacle Avoidance
Jini Tao, Duannaiyu Wang, Enyi Zhu, *P.R. China*

Driver's Perception of A-Pillar Blind Area: Comparison of two Different Auditory Feedback
Chenxi Cao, Jialing Wei, Xiangyi Wang, Hao Tan, *P.R. China*

User-friendliness of Different Pitches of Auditory Cues in Autonomous Vehicle Scenarios
Xinrui Ren, Yimeng Luan, Xue Zhao, Peifang Du, Hao Tan, *P.R. China*

Explore Acceptable Sound Thresholds for Car Navigation in Different Environments
Yulu Yang, Boxian Qiu, Xuan Liu, *P.R. China*

Effects of Multimodal Warning Types on Driver's Task Performance, Physiological Data and User Experience
Yiqiao Zhang, Hao Tan, *P.R. China*

SCSM   S220

Social Computing and Social Media

Frontiers of Social Media

Chair(s): Christian W. Scheiner, Germany

Effective Social Media Marketing through Customer Journey Mapping
Marc Oliver Opresnik, *Germany*

One Profile, Many Memories: Projecting Memorials for Instagram Via Participatory Design
Aline E.C. Verhalen, Cristiano Maciel, Helia Vannucchi, Daniele Trevisan, *Brazil*

Technoference@ Parenting: The associations between parents' distraction with technology, their problematic use of digital technology, and the psychological state of their children
Michal Dolev-Cohen, Tsameret Ricon, *Israel*

Social Media During the COVID-19 Pandemic: A Public Health Crisis or a Political Battle?
Ashwaq Alsoubai, Jihye Song, Afsaneh Razi, Pallavi Dacre, Pamela Wisniewski, *United States*

Adolescent Sexting and its Associations With Parenting Styles and Sense of Parental Social Control
Michal Dolev-Cohen, Tsameret Ricon, *Israel*

Social Media, Grindr, and PrEP: Sexual health literacy for men who have sex with men in the Internet age
Gavin Goodwin, *Canada*

AC   S221

Augmented Cognition

Informing Augmented Cognition using Consumer-Grade Physiogical Devices

Chair(s): Martha E. Crosby, Michael-Brian Ogawa, Randall K. Minas, *United States*

Pressure Analysis in Dynamic Handwriting for Forgery Detection
Mariam Doliashvili, Dwayne Jeffrey, Michael-Brian Ogawa, Martha E. Crosby, *United States*

Stepwise Evaluation Methodology for Smart Watch Sensor Function and Usability
Blaine Reeder, Malaika Gallimore, Chelsea Howland, Chuka Emezue, Katrina Boles, Allison Anbari, Jo-Ana D. Chase, *United States*

Passphrase Authentication and Individual Physiological Differences
Lila A. Loos, Randall K. Minas, Michael-Brian Ogawa, Martha E. Crosby, *United States*

Visual Hierarchy and Communication Effectiveness in Medical Decision Tools for Surrogate-Decision-Makers of Critically Ill Traumatic Brain Injury Patients
Javad Norouzi Nia, Fatima Varzgani, Soussan Djamasbi, Bengisu Tulu, Christopher Lee, Susanne Muehlschlegel, *United States*

Utilizing Current Technologies to Foster Augmented On-line Learning
T. Liam Herman, Michael-Brian Ogawa, Martha E. Crosby, *United States*

DHM   S222

Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management

Emerging Methods - I

Chair(s): Vincent G. Duffy, *United States*

Influence of the Color and Logo Position of HNB Products on User Experience Based on Eye Tracking
Lili Sun, Lizhong Hu, Lei Xiang, Xiuling Wang, Lei Wu, Huai Cao, *P.R. China*

A Bibliometric Analysis of Intelligent Agent Researches during 2010 ~ 2020 based on VOS Viewer
Yu Liu, Yaqin Cao, Yi Ding, Yun Zhang, *P.R. China*

Learning Effectiveness Evaluation of Lesson Plan on Streamline in Model Design Course
Meng-Dar Shieh, Jia-Lin Tsai, Chih Chieh Yang, Fang-Chen Hsu, *Taiwan*, China*

Addressing Human Factors and Ethics in the design of 'Future Work' and Intelligent Systems for use in Financial Services - person centered operations, Intelligent Work & the Triple Bottom Line
Joan Cahill, Vivienne Howard, Yufei Huang, Junchi Ye, Stephen Ralph, Aidan Dillon, *Ireland*

Wednesday, 28 July   08:00 - 10:00 (EDT - Washington DC)

Design, User Experience, and Usability

DUXU   S223

Human Activities and Thinking in Design through the Lenses of Cognitive Sciences, Neuroscience, and Psychology - I

Chair(s): Wei Liu, P.R. China

Design Research on Visualization of Life Behavior and Rhythm
Wa An, Manhai Li, *P.R. China;* Ye Chen, *United States*

SeatPlus: A Smart Health Chair Supporting Active Sitting Posture Correction
Zuyu Shen, Xi Wan, Yucheng Jin, Ge Gao, Qianying Wang, Wei Liu, *P.R. China*

Envisioning Educational Product User eXperience through Participatory Design Practice
Di Zhu, Sihao Cai, Chenhong Yang, Ruilin Wang, Liuyi Zhao, Siqi Feng, Wei Liu, *P.R. China*

Teaching Practice in the "Empathy Design Thinking" Course for Elementary School Students Grounded in Project-based Learning
Yaru Lyu, Xiaohan Wang, Bowen Zhang, You Wang, Ming Jiang, Qi Zhang, Yiwen Zhang, Wei Liu, *P.R. China*

S224

Design Education

Chair(s): DanDan Yu, *P.R. China*

The Design of Online Teaching in Digital Image Creation Courses in Colleges and Universities -Based on the Short Film Production Course as an Example
Ming Cai, Zhi Chen, Ziyang Li, Limin Wang, *P.R. China*

Participatory Teaching Service Design and Innovation
DanDan Yu, Limin Wang, JingChuan Yao, Ning Zhang, Di Wang, Yu Guo, *P.R. China*

Hybrid Teaching Application and Exploration in the Mobile Media Era——Taking the "Interactive Animation" Course as an Example
Zhi Chen, Ming Cai, *P.R. China*

Research on Practice and Teaching about Digital Media
Xiandong Cheng, Hao He, Ziyang Li, Yue Yin, Shengqi Ba, *P.R. China*

A Brief Discussion on Design Education and Practice in the Hypermedia Era
Pu Ren, Zhe Wang, Mingjun Yang, *P.R. China*

Innovation in Teaching Model Based on University Museum Resources - Taking the Course of Study on Chinese Ethnic Costume Decoration as an Example
Chi Zhang, Xiaomei Hu, Minghong Shi, *P.R. China*

S225

DUXU Case Studies - I

Chair(s): Elena Carolina Li, *Taiwan*, China*

The Effect of User Interface on Experiential Value for E-book Platforms Users
Yen-Shan Tsai, Elena Carolina Li, Chih-Liang Yeh, *Taiwan*, China*

A Photocomposition Search System to Improve Your Photo Skills
Hiroki Tanaka, Tatsuo Nakajima, *Japan*

A Designer Embedded Book Space Experiment
Tao-Tao Yu, Teng-Wen Chang, *Taiwan*, China*

Interaction Design for the Next Billion Users
Sumesh Dugar, Shweta Nandi, Abhishek Mitra, Biswajit Adhikary, Sonit Paul, Madhav Manusuriya, *India*

Applying design thinking to bring more comfort, agility, and safety to the bulk products sector in a supermarket
Paulo Cezar de Queiroz Hermida, Joiceline Pinto, Marcos Silbermann, Ricardo Grunitzki, *Brazil*

Distributed, Ambient and Pervasive Interactions

DAPI   S226

Ambient and Civic Computing

Chair(s): Tatsuo Nakajima, Takuro Yonezawa, *Japan*

Collectively Sharing Human Hearing in Artful CollectiveEars
Risa Kimura, Tatsuo Nakajima, *Japan*

Comparison Between Manual and Automated Annotations of Eco-Acoustic Recordings Collected in Fukushima Restricted Zone
Daisuké Shimotoku, Junya Kawase, *Japan;* Hervé Glotin, *France;* Hill Hiroki Kobayashi, *Japan*

Standard Dialogue Structure and Frequent Patterns in the Agent Dialogue System
Yoshimi Tominaga, Hideki Tanaka, Hiroshi Ishiguro, Kohei Ogawa, *Japan*

A Gaze-based Unobstructive Information Selection by Context-aware Moving UI in Mixed Reality
Nozomi Hayashida, Hitoshi Matsuyama, Shunsuke Aoki, Takuro Yonezawa, Nobuo Kawaguchi, *Japan*

Integrating Inter-Field Data into Space-Time to Grasp and Analyze Activities in Town
Kenro Aihara, Atsuhiro Takasu, *Japan*

Towards Infectious Disease Risk Assessment in Taxis using Environmental Sensors
Hidenaga Ushijima, Shota Ono, Yuuki Nishiyama, Kaoru Sezaki, *Japan*

HCIBGO   S227

HCI in Business, Government and Organizations

Service Design in Business

Chair(s): Yi-Cheng Ku, Yu-Chen Yang, *Taiwan*, China*

Organizational Resilience: Examining the Influence of Information Cost and Organizational Capacity on Business Continuity Management
Wei-Ning Wu, *Taiwan*, China*

The Impact of Integrated Market power on Trade Credit and Cash Holding in US Retail Sector
ShihSian Jhang, Chih-Yang Cheng, *Taiwan*, China;* Winston T. Lin, *United States*

Structure-Behavior Coalescence Method for Mobile Payment FinTech Service Systems Design
Wei-Ming Ma, Yu-Chen Yang, William S. Chao, *Taiwan*, China*

Research on Experience Evaluation of Taobao Shopping Platform Service
Tianhong Fang, Hongyu Sun, P.R. China

Application of User Research in E-commerce App Design
Cong Mu, *P.R. China*

LCT   S228

Learning and Collaboration Technologies

Designing learning environments

Chair(s): To be announced

Research on the Design of E-education Application Interface Based on Kansei Engineering
Zhimeng Qi, *P.R. China*

"Let there be light": Evaluating a Serious Game using Image Schemas for Teaching Preschool Children Scientific Concept and Developing their Creativity
Zhuolin Gu, Wenyuan Ling, Bo Liu, Zhao Liu, *P.R. China*

Design of Children's Entertainment & Education Products Based on AR Technology
Yi Lu, Tao Huang, Jian Liu, Jiao Tao Gong, *P.R. China*

A Blockchain-based Collaboration Framework for Teaching Material Creation
Huichen Chou, Donghui Lin, Takao Nakaguchi, Toru Ishida, *Japan*

ITAP   S229

Human Aspects of IT for the Aged Population

Emerging Technologies in an Aging Society

Chair(s): Chaiwoo Lee, *United States*

An Expert Interview Study of IoT Wearable Technologies for an Aging Population from Product, Data, and Society Dimensions
Sheng-Hung Lee, Ziyuan Zhu, Chaiwoo Lee, Fabio Duarte, Joseph F. Coughlin, *United States*

A Synthetic Elderly Companion Named Lois
Ron Fulbright, *United States*

LifeSenior - A Health Monitoring IoT System based on Deep Learning Architecture
Maicon Diogo Much, César Marcon, Fabiano Hessel, Alfredo Cataldo Neto, *Brazil*

DemSelf, a Mobile App for Self-Administered Touch-Based Cognitive Screening: Participatory Design With Stakeholders
Martin Burghart, Julie O´Sullivan, Robert Spang, Jan-Niklas Voigt-Antons, *Germany*

HCI-CPT   S230

HCI for Cybersecurity, Privacy and Trust

Privacy Strategies and Studies

Chair(s): To be announced

Privacy Design Strategies and the GDPR: A Systematic Literature Review
Marco Saltarella, Giuseppe Desolda, Rosa Lanzilotti, *Italy*

Please Stop Listening while I Make a Private Call: Context-Aware In-Vehicle Mode of a Voice-Controlled Intelligent Personal Assistant with a Privacy Consideration
Jongkeon Kim, Jeongyun Heo, *Korea*

'Just-in-Time' Parenting: A Two-Month Examination of the Bi-directional Influences between Parental Mediation and Adolescent Online Risk Exposure
Zainab Agha, Reza Ghaiumy Anaraky, Karla Badillo-Urquiola, Bridget McHugh, Pamela Wisniewski, *United States*

The Effectiveness of Video Messaging Campaigns to Use 2FA
Elham Al Qahtani, *Saudi Arabia;* Lipsa Sahoo, Mohamed Shehab, *United States*

WEDNESDAY   08:00 - 10:00

WEDNESDAY 08:00 - 10:00

HCI-G_{ames} S231

HCI in Games

Advances in Game UX

Chair(s): Fotis Liarokapis, *Cyprus*

Towards Effective Odor Diffusion with Fuzzy Logic in an Olfactory Interface for a Serious Game
Miguel Garcia-Ruiz, Bill Kapralos, *Canada;* Genaro Rebolledo-Mendez, *Mexico*

The Effects of Vibration on Assisting Game Play and Improving Player Engagement when Lacking Sound
Xinyi Tao, Keyu Wu, Yujie Yang, *P.R. China*

UNITY-Things: An Internet-of-Things Software Framework Integrating Arduino-Enabled Remote Devices with the UNITY Game Engine
Dag Svanaes, Andreas Scharvet Lyngby, Magnus Bärnhold, Terje Røsand, Sruti Subramanian, *Norway*

Peruggia: A First-Person Strategy Game Studying Movement Patterns in Museums
Christian Y. Limsui, *Philippines*

Foresthlon: Investigating Gender Experience through a Hybrid BCI Game
Roman Konečný, *Czech Republic;* Fotis Liarokapis, *Cyprus*

S232

Advancing Gameplay for MMO and Survival Games

Chair(s): To be announced

Research on the Quantization of User Experience of Spectator Mode in Moba Games
Zhigang Zhang, Hao Luo, Zi Zheng, *P.R. China*

The Design of Buttons in MMO Mobile Game's Battle Interface
Si-si Yuan, Jia-sheng Hu, Zun-gui Lu, Zhang-jian Wei, Zhi-Peng Hu, *P.R. China*

Research on User Experience Optimization of Tutorial Design for Battle Royale Games Based on Grey AHP Theory
Jinghan Lin, Wei Zhou, Si-si Yuan, *P.R. China*

UI Development of Hardcore Battle Royal Game for Novice Users
Woo Jin Choi, Chang Joo Lim, *Korea*

M_{obi}TAS   S233

HCI in Mobility, Transport and Automotive Systems

User Experience Design for Smart Vehicles

Chair(s): Cyriel Diels, *United Kingdom*

User Interface for Vehicle Theft Recovery System
Lawrence J. Henschen, Julia C. Lee, *United States*

Designing A New Electric Vehicle Charging System: People's Preference and Willingness-to-pay
Lanyun Zhang, *P.R. China;* Tracy Ross, Rebecca Cain, *United Kingdom*

Solve the Problem of Urban Parking through Carpooling System and Blockchain Advertising
Sheng-Ming Wang, Wei Min Cheng, *Taiwan*, China*

Research on the Function Design of 5G Intelligent Network Connected Cars Based on Kano Model
Zheyin Yu, Junnan Ye, P.R. China

Great Expectations: On the Design of Predictive Motion Cues to Alleviate Carsickness
Cyriel Diels, *United Kingdom;* Jelte Bos, *Netherlands*

AIS   S234

Adaptive Instructional Systems

Adaptive Instructional System in Learning Ecosystems

Chair(s): Khanh-Phuong Thai, *United States*

Scaling Adaptive Instructional System (AIS) Architectures in Low-Adaptive Training Ecosystems
Robert A. Sottilare, Keith W. Brawner, *United States*

Core to the Learning Day: The Adaptive Instructional System as an Integrated Component of Brick-and-mortar, Blended, and Online Learning
Lynelle Morgenthaler, Michelle D. Barrett, *United States*

Personalized Mastery Learning Ecosystems: Using Bloom's Four Objects of Change to Drive Learning in Adaptive Instructional Systems
Anastasia Betts, Khanh-Phuong Thai, Sunil Gunderia, *United States*

Enhance Conversation-Based Tutoring System with blended Human Tutor
Faruk Ahmed, Keith Shubeck, Liang Zhang, Lijia Wang, Xiangen Hu, *United States*

MOBILE S235

Design, Operation and Evaluation of Mobile Communications

Communications in Learning and Culture

Chair(s): Su Mon Chit, *Malaysia*

Design City Trip Management App in the Kuala Lumpur Context During Pandemic Covid-19: A Preliminary Research Case
Chee Ling Thong, Su Mon Chit, Lee Yen Chaw, Chiw Yi Lee, *Malaysia*

Learners' Perception on Integration of Human Personality Types on Mobile Learning Platform
Kasthuri Subaramaniam, Sellappan Palaniappan, *Malaysia*

Augmented Reality-based Dance Training System: A Study of its Acceptance
Javid Iqbal, Manjit Singh Sidhu, *Malaysia*

Developing a Mobile Learning Application for Preschooler
Yaw Hee Man, Su Mon Chit, Abdul Samad Bin Shibghatullah, *Malaysia*

Investigation of Information Requirements for Smartwatch-Based Evacuation Support System
Tomoko Izumi, Fumiya Takarai, Takayoshi Kitamura, Yoshio Nakatani, *Japan*

C&C S236

Culture and Computing

Interactive Creation and Culture

Chair(s): Yiyuan Huang, Mohammad Shidujaman, *P.R. China*

Towards AI Aesthetics: Human-AI Collaboration in Creating Chinese Landscape Painting
Rong Chang, Yiyuan Huang, *P.R. China*

Transformation of Landscape into Artistic and Cultural Video Using AI for Future Car
Mai Cong Hung, Mai Xuan Trang, *Viet Nam;* Naoko Tosa, Ryohei Nakatsu, *Japan*

The Ontology of Mixed Reality Agents Memorializing the Dead and Dying
Joshua A. Fisher, *United States*

Ethical Stance and Evolving Technosexual Culture – A Case for Human-Computer Interaction
Rebekah Rousi, *Finland*

AI-HCI S237

Artificial Intelligence in HCI

Meta-user Interfaces for Ambient Environments

Chair(s): Giuliana Vitiello, Marco Romano, *Italy;* Phillip Sheu, *United States*

Natural Interaction with Traffic Control Cameras through Multimodal Interfaces
Marco Grazioso, Alessandro Sebastian Podda, Silvio Barra, Francesco Cutugno, *Italy*

A Tactile User Device to Interact with Smart Environments
Pietro Battistoni, Monica Sebillo, *Italy*

Towards an Ambient Smart City: Using Augmented Reality to Geospatially Filter the Right Airbnb via Artificial Intelligence
Shreya Chopra, Omar Addam, *Canada*

Human Pose Estimation in UAV-Human Workspace
Ju Wang, Wookjin Choi, Igor Shtau, Tyler Ferro, Zhenghua Wu, Curtrell Trott, *United States*

NOTES

WEDNESDAY 08:00 - 10:00

Wednesday, 28 July 10:30 - 12:30 (EDT - Washington DC)

WEDNESDAY 10:30 - 12:30

Human-Computer Interaction

HCI S238

Emotion Recognition and User Experience

Chair(s): Constantinos K. Coursaris, Canada

Facial Emotion Recognition in UX Evaluation: a Systematic Review
Erico De Souza Veriscimo, Joao Luiz Bernardes Junior, Luciano Antonio Digiampietri, *Brazil*

Analysis of Emotion in Socioenactive Systems
Diego Addan Gonçalves, Ricardo Edgard Caceffo, M. Cecília C. Baranauskas, *Brazil*

Automatic Recognition of Experienced Emotional State from Body Movement
Jan-Niklas Voigt-Antons, Petr Devaikin, Tanja Kojic, *Germany*

Guidelines for Collecting Automatic Facial Expression Detection Data Synchronized with a Dynamic Stimulus in Remote Moderated User Tests
Félix Giroux, Pierre-Majorique Léger, David Brieugne, François Courtemanche, Frédérique Bouvier, Shang-Lin Chen, Salima Tazi, Emma Rucco, Marc Fredette, Constantinos K. Coursaris, Sylvain Senecal, *Canada*

Distributed Remote Psychophysiological Data Collection for UX Evaluation: A Pilot Project
Aurélie Vasseur, Pierre-Majorique Léger, François Courtemanche, Elise Labonte-Lemoyne, Vanessa Georges, Audrey Valiquette, David Brieugne, Emma Rucco, Constantinos K. Coursaris, Marc Fredette, Sylvain Senecal, *Canada*

S239

Input Methods and Techniques - II

Chair(s): Takashi Komuro, *Japan*

Detection of Finger Contact with Skin based on Shadows and Texture around Fingertips
Yuto Sekiya, Takeshi Umezawa, Noritaka Osawa, *Japan*

Research on Hand Detection in Complex Scenes Based on RGB-D Sensor
Jin Wang, Zhen Wang, Shan Fu, Dan Huang, *P.R. China*

Talking Through the Eyes: User Experience Design for Eye Gaze Redirection in Live Video Conferencing
Wooyeong Park, Jeongyun Heo, *Korea;* Jiyoon Lee, *Australia*

Interaction with Objects and Humans based on Visualized Flow using a Background-oriented Schlieren Method
Shieru Suzuki, Shun Sasaguri, Yoichi Ochiai, *Japan*

3D Hand Pointing Recognition over a Wide Area using Two Fisheye Cameras
Azusa Kuramochi, Takashi Komuro, *Japan*

S240

User Experience Design and Evaluation Case Studies - II

Chair(s): James Trujillo, *Netherlands*

Mobile Multitasking in Urban Contexts: Habituation and Countermeasures
Zoubeir Tkiouat, Pierre-Majorique Léger, Ryad Titah, *Canada*

Learn & Share to Control Your Household Pests: Designing a Communication Based App to Bridge the Gap between Local Guides & The New Users Looking for a Reliable & Affordable Pest Control Solutions
Shima Jahani, Raman Ghafari Harivand, Jung Joo Sohn, *United States*

Human-Centered Design Reflections on Providing Feedback to Primary Care Physicians
Ashley Loomis, Enid Montague, *United States*

Comparative Study of the Interaction of Digital Natives with Mainstream Web Mapping Services
Marinos Kavouras, Margarita Kokla, *Greece;* Fotis Liarokapis, *Cyprus;* Katerina Pastra, Eleni Tomai, *Greece*

Visual Information in Computer-Mediated Interaction Matters: Investigating the Association Between the Availability of Gesture and Turn Transition Timing in Conversation
James Trujillo, Stephen Levinson, Judith Holler, *Netherlands*

The Tap Strap 2: Evaluating Performance ofOne-Handed Wearable Keyboard and Mouse
Kristian Mrazek, Brian Holton, Tanner Klein, Izan Khan, Thomas Ayele, Tauheed Khan Mohd, *United States*

Human Interface and the Management of Information

HIMI S241

Transitioning from Face-to-Face to Virtual Research, Teaching and Training: Lessons Learned

Chair(s): Kim-Phuong L. Vu, *United States*

Preparing Undergraduate Students for Summer Research Experiences and Graduate School Applications in a Pandemic Environment: Development and Implementation of Online Modules
Kim-Phuong L. Vu, Chi-Ah Chun, Keisha Chin Goosby, Young-Hee Cho, Jesse Dillon, Panadda Marayong, *United States*

From On-campus to Online Undergraduate Research Experience in Psychology: Transition during the COVID-19 Pandemic
Ya-Hsin Hung, Robert Proctor, *United States*

Advancing Inclusive Mentoring through an Online Mentor Training Program and Coordinated Discussion Group
Kelly A. Young, Malcolm A. Finney, Panadda Marayong, Kim-Phuong L. Vu, *United States*

Enhancing Preparedness for Emergency Alternative Modes of Instruction: Construction and Evaluation of a Remote Teaching Curriculum
Gabriella M. Hancock, Christopher R. Warren, Amy Wax, *United States*

Developing Academic Engagement Through a Virtual Week of Research, Scholarly, and Creative Activity: Rethinking Collaboration
Enri'que Flores, Simon Kim, Kim-Phuong L. Vu, *United States*

The Annual BUILD Snapshot: Tracking Alumni Outcomes
Nancy Carrada, Ashley Colbern, *United States*

PARALLEL SESSIONS

HIMI S242

Productive Safety

Chair(s): Miwa Nakanishi, *Japan*

Extraction and Extended Analysis of Good Jobs from Safety Reports Using Text Mining -Focusing on the Voluntary Information Contributory to Enhancement of the Safety (VOICES) Data-
Tsubasa Takagi, Ayumu Osawa, Miwa Nakanishi, *Japan*

A Modeling Research on How to Solve Ventilator Alarms from Behavioral and Cognitive Perspectives
Jun Hamaguchi, Sakae Yamamoto, *Japan*

Research on Innovative Application Mode of Human-Computer Interaction Design in Data Journalism
Rui Fang, Qiang Lu, Feng Liu, *P.R. China*

UAHCI S243

Universal Access in Human-Computer Interaction

Citizen-centered Smart Cities and Technologies toward Accessibility, Health, and Smart Living

Chair(s): Troy McDaniel, *United States*

Designing a Consumer Framework for Social Products within a Gamified Smart Home Context
Juana Isabel Mendez, Pedro Ponce, Othoniel Miranda, Citlaly Perez, Ana Paula Cruz, *Mexico*; Therese Peffer, Alan Meier, Troy McDaniel, *United States*; Arturo Molina, *Mexico*

Human Body Parts Tracking from Pressure Data: Toward Effective Pressure Injury Assessment
Carlos Lastre-Dominguez, *Mexico*; Nasim Hajari, Chester Ho, *Canada*; Oscar Ibarra-Manzano, *Mexico*; Irene Cheng, *Canada*

Parkinson's Disease Detection and Diagnosis from fMRI: a Literature Review
Guillermina Vivar-Estudillo, *Mexico*; Nasim Hajari, *Canada*; Mario-Alberta Ibarra-Manzano, *Mexico*; Irene Cheng, *Canada*

Ski for Squat: A Squat Exergame with Pneumatic Gel Muscle-Based Dynamic Difficulty Adjustment
Priyanka Ramasamy, Swagata Das, Yuichi Kurita, *Japan*

Analysis of the Impact of Educational Technology on Social Inequity in the United States
Nicole Darmawaskita, Troy McDaniel, *United States*

Smart City Concept Based On Cyber-Physical Social Systems With Hierarchical Ethical Agents Approach
Omar Mata, Pedro Ponce, *Mexico*; Troy McDaniel, *United States*; Juana Isabel Mendez, *Mexico*; Therese Peffer, *United States*; Arturo Molina, *Mexico*

S244

Designing for Cognitive Disabilities

Chair(s): To be announced

Reading Experiences and Reading Efficiency among Adults with Dyslexia: An Accessibility Study
Gerd Berget, Siri Fagernes, *Norway*

Methods of Usability Testing for Users with Cognitive Impairments
Cathleen Schöne, Ulrike Große, Alexander Wölfel, Heidi Krömker, *Germany*

Collaborative Virtual Environment to Encourage Teamwork in Autistic Adults in Workplace Settings
Ashwaq Zaini Amat, Michael Breen, Spencer Hunt, Devon Wilson, Yousaf Khaliq, Nathan Byrnes, Daniel J Cox, Steven Czarnecki, Cameron L Justice, Deven A Kennedy, Tristan C Lotivio, Hunter K McGee, Derrick M Reckers, Justin W Wade, Medha Sarkar, Nilanjan Sarkar, *United States*

ACF: An Autistic Personas' Characteristics Source to Develop Empathy in Software Development Teams
Áurea Hiléia da Silva Melo, Ana Carolina Oran, Jonathas Silva dos Santos, Luis Rivero, Raimundo Barreto, *Brazil*

VAMR S245

Virtual, Augmented and Mixed Reality

Haptics in VAMR

Chair(s): Katelynn A. Kapalo, *United States*

HaptMR: Smart Haptic Feedback for Mixed Reality based on Computer Vision Semantic
Yueze Zhang, Ruoxin Liang, Zhanglei Sun, Maximilian Koch, *Germany*

Pseudo-haptic Perception in Smartphones Graphical Interfaces: a Case Study
Edmilson Domaredzki Verona, Beatriz Regina Brum, Claiton De Oliveira, Silvio Ricardo Rodrigues Sanches, Cléber Gimenez Corrêa, *Brazil*

Exploring Human-to-Human Telepresence and the Use of Vibro-Tactile Commands to Guide Human Streamers
Kevin P. Pfeil, Katelynn A. Kapalo, Seng Lee Koh, Pamela Wisniewski, Joseph J. LaViola Jr., *United States*

The Effect of Body-Based Haptic Feedback on Player Experience during VR Gaming
Michael Carroll, Caglar Yildirim, *United States*

WEDNESDAY 10:30 - 12:30

Cross-Cultural Design

CCD S246

User Experience Design in Emergency Situations in Different Culture - I

Chair(s): Hao Tan, Xiuyuan Guo, *P.R. China*

The Study of the User Preferences of the Request Channel on Taking over During level-3 Automated Vehicles' Driving Process
Qiao Yan, Yujing Wang, Jiaru Chen, *P.R. China*

Automated Driving: Acceptance and Chances for Young People
Shiying Cheng, Huimin Dong, Yifei Yue, Hao Tan, *P.R. China*

Acceptance Factors for Younger Passengers in Shared Autonomous Vehicles
Hao Li, Sisi Yu, Jiatai Zheng, Xue Zhao, Peifang Du, Hao Tan, *P.R. China*

Where is the Best Autonomous Vehicle Interactive Display Place When Meeting a Manual Driving Vehicle in Intersection?
Junzhang Li, Haowen Guo, Shuyu Pan, Hao Tan, *P.R. China*

Analyze the Impact of Human Desire on the Development of Vehicle Navigation Systems
Feng Lan, Chunman Qiu, Weiheng Qin, Peifang Du, Hao Tan, *P.R. China*

S247

Kansei Issues in Cross-Cultural Design - II

Chair(s): Kuohsiang Chen, *P.R. China;* Szu-Chi Chen, *Australia*

Exploring the Creation of Substandard Stones in Fuzhou Shoushan Stone
Xi Xu, P.R. China

The Living Inheritance and Protection of Intangible Cultural Heritage Lingnan Tide Embroidery in the Context of New Media
Shujun Zheng, *P.R. China*

Cross-cultural Education: The Effects of AR Technology and Learning Styles on Learning Achievements of Sculpture Course
Weilong Wu, *P.R. China;* Yen Hsu, *Taiwan*, China;* Xin Cao, Jiangjie Chen, *P.R. China*

Study on Creative Learning Strategies of Gender Grouping in Collaborative Learning of Graduation Project
Hung-Chug Ou, *P.R. China;* Yen Hsu, *Taiwan*, China*

A Step towards Inclusive Design and Cross-Cultural Communication: Rethinking the Design of Public Bus Services in Hefei based on the behaviour of International Student Users
Chunxiao Zhu, Honglei Lu, *P.R. China*

Exploring the Applicability of User-Centred Design Practices in Rural Yemen
Abdulwahed Bin Mothana, Anke Dittmar, *Germany*

Social Computing and Social Media

SCSM S248

Experiences in Computing and Social Media

Chair(s): Daniela Quiñones, *Chile*

Consumer Attitude and Behavior during Black Friday and Cyber Monday
Diego Yáñez, Cristobal Fernandez-Robin, Gonzalo Améstica, *Chile;* Scott McCoy, *United States*

Life Clock: Developing a Technological Platform to Promote Active Ageing
Milda Galkute, Luis Rojas, Erick Folch, *Chile*

Student eXperience in Times of Crisis: A Chilean Case Study
Cristian Rusu, Sandra Cano, Virginica Rusu, Nicolás Matus, Daniela Quiñones, Ivan Mercado, *Chile*

Identifying Customer eXperience Touchpoints in Tourism on the Hotel Industry
Luis Rojas, Daniela Quiñones, Cristian Rusu, Chile

Online Learning and Student Satisfaction in the Context of the COVID-19 Pandemic
Cristobal Fernandez-Robin, Gonzalo Améstica, Diego Yáñez, Edgard Toledo, *Chile*

ECUXH: A Set of User eXperience Heuristics for e-Commerce
Camila Bascur, Cristian Rusu, Daniela Quiñones, *Chile*

S249

Community Building and Engagement in SCSM

Chair(s): Paola Palmitesta, *Italy*

Up for Debate: Effects of Formal Structure on Argumentation Quality in a Crowdsourcing Platform
Stephen L. Dorton, Samantha B. Harper, Glory A. Creed, H. George Banta, *United States*

Being Part of an "Intermediate Community" and Aggressive Behavior on the Net: A Study on Cyberbullying Inside the Contrade of Siena in Italy
Oronzo Parlangeli, Enrica Marchigiani, Margherita Bracci, Maurizio Boldrini, Ileana Di Pomponio, Paola Palmitesta, *Italy*

Layer Zero: An Approach for Deepening Self-Reflection on Instagram Shares
Pelin Karaturhan, Asim Evren Yantac, Kemal Kuscu, *Turkey*

Identifiability as an "Antidote": Exploring Emotional Contagion and the Role of Anonymity in Twitter Discussions on Misinformation
Chen (Crystal) Chen, Hao Yuan, Mike Z. Yao, *United States*

Optimal Community-Generation Methods for Acquiring Extensive Knowledge on Twitter
Yuichi Okada, Naoya Ito, Tomoko Yonezawa, *Japan*

Queermuseu – Frameworks in Social Network
Rodolfo Ward, Suzete Venturelli, *Brazil*

Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management

DHM S250

Artificial Intelligence: Opportunities and Challenges for Occupational Safety and Health

Chair(s): Sebastian Korfmacher, Sonja Miesner, *Germany*

The relevance of standardization for artificial intelligence in the context of occupational safety and health
Sebastian Korfmacher, *Germany*

Artificial Intelligence in Standardisation - A union perspective on OSH-related aspects
Michael Bretschneider-Hagemes, *Germany*

Opportunities of Digitalization and Artificial Intelligence for Occupational Safety and Health in Production Industry
Tim Jeske, Sebastian Terstegen, Catharina Stahn, *Germany*

Sources of Risk and Design Principles of Trustworthy Artificial Intelligence
André Steimers, Thomas Bömer, *Germany*

Benchmarking Robots by Inducing Failures in Competition Scenarios
Santosh Thoduka, Nico Hochgeschwender, *Germany*

S251

Emerging Methods - II

Chair(s): Vincent G. Duffy, *United States*

Evaluating the Performance in the Environmental Management and Reverse Logistics in Companies of Plastic Sector: An Integration of Fuzzy AHP, DEMATEL and TOPSIS Methods
Genett Jimenez-Delgado, Daniel Alcazar-Franco, Diana Garcia-Tamayo, Pedro Oliveros-Eusse, Melissa Gomez-Diaz, *Colombia*

Bibliometric Analysis on Cybercrime in Nigeria
Chidubem Nuela Enebechi, *United States;* Monica Enebechi, *Nigeria;* Vincent G. Duffy, *United States*

Brown Hands Aren't Terrorists: Challenges in Image Classification of Violent Extremist Content
Margaret Hall, Christian Haas, *United States*

Data Mining in Systematic Reviews: A Bibliometric Analysis of Game-based Learning and Distance Learning
Jingjing Xu, Brendan M. Duffy, Vincent G. Duffy, *United States*

Systematic Review of The Importance of Human Factors in Incorporating Healthcare Automation
Jessica Kurniawan, Vincent G. Duffy, *United States*

Automation Surprises in Transportation: a Systematic Literature Review
Daniel Tillinghast, Vincent G. Duffy, *United States*

Design, User Experience, and Usability

DUXU S252

Digital Health UX

Chair(s): Sarah Swierenga, Fuad Abujarad, *United States*

Building a Digital Health Risk Calculator for Older Women with Early-Stage Breast Cancer
Fuad Abujarad, Shi-Yi Wang, Davis Ulrich, Sarah S. Mougalian, Brigid K. Killelea, Liana Fraenkel, Cary P. Gross, Suzanne B. Evans, *United States*

Usability of a Digital Elder Mistreatment Screening Tool for Older Adults with Visual and Hearing Disabilities
Sarah Swierenga, Jennifer Ismirle, Chelsea Edwards, Fuad Abujarad, *United States*

Lessons Learned in Developing a Patient-Centered Website to Support Stroke Patients and Caregivers during Transitions of Care
Michele Fritz, Sarah Swierenga, Paul Freddolino, *United States;* Constantinos K. Coursaris, *Canada;* Amanda Woodward, Mathew Reeves, *United States*

Is Your App Conducive to Behaviour Change? A Novel Heuristic Evaluation
Roxana M. Barbu, *Canada*

S253   continues...

UX Research in Information Visualization

Chair(s): Johanna Silvennoinen, *Finland*

Democratizing Information Visualization. A Study to Map the Value of Graphic Design
Matteo Zallio, *United Kingdom*

An Interface for User-centered Process and Correlation between Large Datasets
Dimitris Spiliotopoulos, Theodoros Giannakopoulos, Costas Vassilakis, Manolis Wallace, Marina Lantzouni, Vassilis Poulopoulos, Dionisis Margaris, *Greece*

Development of User-centred Interaction Design Patterns for the International Data Space
Torsten Werkmeister, *Germany*

The Influence of Icons on the Visual Search Performance of APP List Menu
Miao Liu, Shinan Yang, *P.R. China*

Interactionist Approach to Visual Aesthetics in HCI
Johanna Silvennoinen, *Finland*

WEDNESDAY 10:30 - 12:30

DUXU   S254

DUXU Case Studies - II

Chair(s): Fangli Song, *United States*

Exploring the Factors Aiding Speech-to-Text Emotional Restoration
Xin Chen, Qingxin Deng, *P.R. China*

CV MNEMONIC: Encoding Numeric Codes for Digital Usability
Tojin Eapen, Bimal Balakrishnan, Nowfal Khadar, Lokesh Venkataswamy, *United States*

Understanding Graphical User Interface (GUI) Trends based on Kawaii (Cute)
Anirudh Kundu, *India;* Michiko Ohkura, *Japan*

A Study on Dual-language Display Method Using the Law of Common Fate in Oscillatory Animation on Digital Signage
Takumi Uotani, Yuki Takashima, Kimi Ueda, Hirotake Ishii, Hiroshi Shimoda, Rika Mochizuki, Masahiro Watanabe, *Japan*

Design of Traditional Brand H5 Game Advertisement based on EEG and Eye Movement Analysis: Example of MAXAM
Junxuan Li, RongRong Fu, *P.R. China*

Designing the Security Enhancement Features in the Future Headphone Experience
Fangli Song, Wei Wang, *United States*

S255

Human Activities and Thinking in Design through the Lenses of Cognitive Sciences, Neuroscience, and Psychology - II

Chair(s): Wei Liu, *P.R. China*

A Study on VR Training of Baseball Athletes
Jack A. Kincaid, Fengchen Gong, Tianjie Jia, Hong Z. Tan, Casey Kohr, Gary Bertoline, *United States*

An Experimental Study of the Cognitive Load of In-vehicle Multiscreen Connected HUD
Yancong Zhu, Yuchen Jing, Ming Jiang, Ziwei Zhang, Dawei Wang, Wei Liu, *P.R. China*

Research on In-vehicle Haptic Interactions as Crucial Resources for Driver Perceptions
Xin Xin, Wei Liu, Yiji Wang, Wenmin Yang, Nan Liu, Hang Dong, *P.R. China*

Content and Mechanism of Car Experience: A Case Study based on Interpretive Phenomenological Analysis
Jingpeng Jia, Xueyan Dong, *P.R. China*

HCIBGO   S256

HCI in Business, Government and Organizations

HCI in Business

Chair(s): Fiona Fui-Hoon Nah, *United States*

Physiological Measures of Stress
Valerie Bartelt, Fiona Fui-Hoon Nah, *United States*

The Effect of Gamification on Knowledge Contribution in Online Q&A Communities: A Perspective of Social Comparison
Langtao Chen, *United States*

An Analysis and Evaluation of the Design Space for Online Job Hunting and Recruitment Software
Bowen Hui, Eileen Wood, Carlos Khalil, *Canada*

Perceptions of Using Tracking and Tracing Systems in Work Environments
Christian Jandl, Florian Taurer, Martina Hartner-Tiefenthaler, Markus Wagner, Thomas Moser, Sebastian Schlund, *Austria*

Addressing the "Unseens": Digital Wellbeing in the Remote Workplace
Holtjona Galanxhi, Fiona Fui-Hoon Nah, *United States*

Users' Reception of Product Recommendations: Analyses Based on Eye Tracking Data
Feiyan Jia, Yani Shi, *P.R. China;* Choon Ling Sia, *Hong Kong;* Chuan-Hoo Tan, *Singapore;* Fiona Fui-Hoon Nah, Keng Siau, *United States*

LCT   S257

Learning and Collaboration Technologies

STEM Learning

Chair(s): Doga Demirel, *United States*

Quiz Tools in Algorithms Courses: Applying Educational Gamification Design Principles and Encouraging Students' Interaction
Carmen Scorsatto Brezolin, Larissa De Quadros, Milene Selbach Silveira, *Brazil*

CodeLab: an Online Laboratory for Learning to Code
Carles Garcia-Lopez, Enric Mor, Susanna Tesconi, *Spain*

E-Learning and M-Learning Technological Intervention in Favor of Mathematics
Omar Cóndor-Herrera, Carlos Ramos-Galarza, *Ecuador*

Tangible Solutions for Learning Basic Math Skills: Exploring Concepts of Emotions and Enaction
Julio Alberto Vansan Gonçalves, Rodrigo Bonacin, Julio Cesar Dos Reis, *Brazil*

Towards a New Chemistry Learning Platform with Virtual Reality and Haptics
Doga Demirel, Abdelwahab Hamam, Caitlin Scott, Bayazit Karaman, Onur Toker, Lyan Pena, *United States*

The Effects of the Sudden Switch to Remote Learning Due to Covid-19 on HBCU Students and Faculty
Mariele Ponticiello, Mariah Simmons, Joon Suk Lee, *United States*

WEDNESDAY 10:30 - 12:30

ITAP   S258

Human Aspects of IT for the Aged Population

Ergonomic Design for Healthy Life

Chair(s): Yan Luximon, *Hong Kong*

A Conceptual Design and Research of Automatic Blood Sampling Device
Ran Chen, Jing Luo, *P.R. China;* Yan Luximon, *Hong Kong*

A Human-Machine Interaction Solution for Household Medical Furniture Design
Yunhui Li, Jing Luo, Qianqian Jing, P.R. China; Yan Luximon, Hong Kong

Building Trust in Mobile Medical Consultations: The Roles of Privacy Concerns, Personality Traits, and Social Cues
Jiaxin Zhang, Hong Kong; Qingchuan Li, *P.R. China;* Yan Luximon, *Hong Kong*

A Research on the Correlation between Tactile Perception Characteristics and Aging-Suitable Design in the Elderly based on A Testing Tools Development
Delai Men, Yiya Li, *P.R. China*

Design and Evaluation of Model-based Optimized Touchscreen Keyboards for Older Adults with Hand Tremor and Dyslexia
Sayan Sarcar, *Japan*

Research on Influencing Factors of Elderly Wearable Device Use Behavior Based on TAM Model
Jin Zhou, Meiyu Zhou, *P.R. China*

S259

Older Adults in the Web Ecology Experiences

Chair(s): Ana Isabel Veloso, *Portugal*

Online News and Gamification Habits in Late Adulthood: A Survey
Francisco Regalado, Liliana Vale Costa, Ana Isabel Veloso, *Portugal*

Promoting Active Aging through Location-based Games: A Survey of Older Pokémon Go Players
Jesse Nery Filho, *Brazil;* Ana Isabel Veloso, *Portugal*

Co-designing with Senior Citizens: A Systematic Literature Review
Sónia Machado, Liliana Vale Costa, Óscar Mealha, *Portugal*

Fostering Senior Community-based Cyclotourism Using Transmedia: A Proposal
Cláudia Ortet, Ana Isabel Veloso, Liliana Vale Costa, *Portugal*

Older Adults "Jump" into coDesiging a Digital Game: A Field Study
Liliana Vale Costa, Ana Isabel Veloso, Liliana Sousa, Portugal; Michael Loizou, Sylvester Arnab, *United Kingdom*

HCI-Games S260

HCI in Games

Serious Games for Learning and Social Awareness

Chair(s): Lu Tang, *United States*

LUDUS MAGNUS – A Serious Game for Learning the Latin Language
David A. Plecher, Christian Eichhorn, Moritz Naser, Gudrun Klinker, *Germany*

JomGames: Creating a Motivating Learning Environment
W.L. WilliamCheng, P.S. JosephNg, H.C. Eaw, K.Y. Phan, *Malaysia*

'The Woods': A Mixed-Reality Multiplayer Cooperative Game
Kyoung Swearingen, Scott Swearingen, *United States*

Experimenting with a Prototype Interactive Narrative Game to Improve Knowledge and Beliefs for the HPV Vaccine
Anna Zhu, Muhammad Amith, Lu Tang, Rachel Cunningham, Angela Xu, Julie Boom, Cui Tao, *United States*

MobiTAS   S261

HCI in Mobility, Transport and Automotive Systems

Cooperative Driving and Automated Vehicles

Chair(s): Jamie Craig, *United States*

Understanding Take-over in Automated Driving: A Human Error Analysis
Jue Li, Long Liu, Liwen Gu, P.R. China

Multimodal Takeover Request Displays for Semi-Automated Vehicles: Focused on Spatiality and Lead Time
Harsh Sanghavi, Myounghoon Jeon, *United States;* Chihab Nadri, *Morocco;* Sangjin Ko, *United States;* Jaka Sodnik, Kristina Stojmenova, *Slovenia*

How is the Automation System Controlling my Vehicle? The Impact of the Haptic Feedback of the Joystick on the Driver's Behavior and Acceptance
Cho Kiu Leung, Toshihisa Sato, *Japan*

Talking Automated Vehicles – Exploring Users' Understanding of an Automated Vehicle During Initial Usage
Mikael Johansson, Fredrick Ekman, MariAnne Karlsson, Helena Strömberg, Lars-Ola Bligård, Sweden

Should Self-Driving Cars Mimic Human Driving Behaviors?
Jamie Craig, Mehrdad Nojoumian, *United States*

WEDNESDAY   10:30 - 12:30

AIS   S262

Adaptive Instructional Systems

On the Efficacy and Usability of Adaptive Instructional Systems

Chair(s): Thomas E.F. Witte, Germany; Rachel Van Campenhout, *United States*

Intersectionality and Incremental Value: What Combination(s) of Student Attributes Lead to the Most Effective Adaptations of the Learning Environment?
Jenna Olsen, Sydney Shackelford, *United States*

Investigating Adaptive Activity Effectiveness Across Domains: Insights into Design Best Practices
Rachel Van Campenhout, Bill Jerome, Jeffrey S. Dittel, Benny G. Johnson, *United States*

Teachers' Perspectives on the Adoption of an Adaptive Learning System based on Multimodal Affect Recognition for Students with Learning Disabilities and Autism
Penny J. Standen, David J. Brown, Gosia M Kwiatkowska, *United Kingdom;* Matthew K. Belmonte, *India;* Maria J. Galvez Trigo, Helen Boulton, Andrew Burton, Madeline J. Hallewell, Nicholas Shopland, *United Kingdom;* Maria A Blanco Gonzalez, *Spain;* Elena Milli, Stefano Cobello, Annaleda Mazzucato, Marco Traversi, *Italy*

Learning Engineering as an Ethical Framework: A Case Study of Adaptive Courseware Development
Rachel Van Campenhout, *United States*

Evaluation Methods for an AI-Supported Learning Management System: Quantifying and Qualifying Added Values for Teaching and Learning
Lisa Rerhaye, Daniela Altun, Christopher Krauss, Christoph Müller, *Germany*

Adaptive Modules on Prerequisite Chemistry Content Positively Impact Chiropractic Students' Proficiency in Biochemistry
Verena Van Fleet, *United States*

S263

Special Topics in Adaptive Instruction

Chair(s): Joost Van Oijen, *Netherlands*

Staying Ahead of the Curve: Selecting Students for Newly Arising Tasks
Armon Toubman, Maxim Van Oldenbeek, Olivier Claessen, *Netherlands*

Teaching Reinforcement Learning Agents with Adaptive Instructional Systems
Joost Van Oijen, Armon Toubman, Olivier Claessen, *Netherlands*

SQLearn: A Browser Based Adaptive SQL Learning Environment
Pushkar Bhuse, Jash Jain, Abheet Shaju, Varun John, Abhijit Joshi, Ramkumar Rajendran, *India*

C&C   S264

Culture and Computing

Reflections on Cultural Computing Research

Chair(s): Matthias Rauterberg, *Netherlands*

How to Access and Transform the Unconscious for Cultural Development
Matthias Rauterberg, *Netherlands*

Bie-Modernism and Cultural Computing
Jianjiang Wang, Haiguang Chen, *P.R. China*

Research on the Public Design Innovation Method based on the Sharing Concept of Cultural Computing
Xin Zhang, Jieming Hu, *P.R. China*

Using Information Divergence to Differentiate Deep from Superficial Resemblances among Discourses
Zachary K. Stine, James E. Deitrick, Nitin Agarwal, *United States*

Cultural Understanding Using In-context Learning and Masked Language Modeling
Ming Qian, Davis Qian, Charles Newton, *United States*

AI-HCI   S265

Artificial Intelligence in HCI

Artificial and Augmented Intelligence Applications on Language, Text, and Speech Related Tasks

Chair(s): Ming Qian, *United States*

Assisting Text Localization and Transcreation Tasks Using AI-based Masked Language Modeling
Ming Qian, Jessie Liu, *United States*

Morality Beyond the Lines: Detecting Moral Sentiment using AI-generated Synthetic Context
Ming Qian, Jaye Laguardia, Davis Qian, *United States*

KLSI Methods for Human Simultaneous Interpretation and Towards Building a Simultaneous Machine Translation System Reflecting the KLSI Methods
Kevin Lin, *United Kingdom;* Ming Qian, *United States*

A Questionnaire Data Clustering Method Based on Optimized K-Modes Algorithm
Wen-jun Hou, Jia-xin Liu, Xiang-yuan Yan, *P.R. China*

Human-Computer Interaction

HCI

S266

Lean and HCI in Practice

Chair(s): Yu-Hsiu Hung, *Taiwan*, China*

Building Common Ground: Applying Mutual Learning in the UI/UX Education
Wan-Ling Chang, Wen-Hsiang Lu, *Taiwan*, China*

Improving Patient Service Quality in Physical therapy: A Perspective of Lean
Yu-Hsiu Hung, Mei-En Chen, Jiabao Liang, *Taiwan*, China*

Developing a Knowledge-based System for Lean Communications between Designers and Clients
Yu-Hsiu Hung, Jiabao Liang, *Taiwan*, China*

Elderly-Centered Design: A New Numeric Typeface for Increased Legibility
Yu-Ren Lai, Hsi-Jen Chen, Taiwan*, China

Implementation of Lean Product Development in a University Course and an Industry Project: Lessons Learned from a Comparative Study
Yu-Hsiu Hung, Chia-Hui Fang, *Taiwan*, China*

S267

Communication Enhancement

Chair(s): Tomohito Yamamoto, *Japan*

CHIAPON: An Anthropomorphic Character Notification System that Discourages their Excessive Smartphone Use
Kazuyoshi Murata, *Japan*

Feasibility of Estimating Concentration Level for Not Disturbing Remote Office Workers Based on Kana-Kanji Conversion Confirmation Time
Kinya Fujita, Tomoyuki Suzuki, *Japan*

Verification of the Appropriate Number of Communications between Drivers of Bicycles and Vehicles
Yuki Oshiro, Takayoshi Kitamura, Tomoko Izumi, *Japan*

Measurement and Analysis of Body Movements in Playing Futsal using Smartphones
Tomohito Yamamoto, Kento Sugiyama, Ryouhei Fukushima, *Japan*

A Robot that Tells you it is Watching you with its Eyes
Saizo Aoyagi, Yoshihiro Sejima, Michiya Yamamoto, *Japan*

Improving Satisfaction in Group Dialogue: A Comparative Study of Face-to-Face and Online Meetings
Junnan Ye, Wenhao LI, Chaoxiang Yang, *P.R. China*

S268

Quality in Interaction - I

Chair(s): Chair(s): Maria Laura Mele, Stefano Federici, *Italy;* Simone Borsci, *Netherlands;* Antonio Opromolla, Italy; Tihomir Orehovački, *Croatia*

A Chatbot Solution for eGLU-box Pro: The Usability Evaluation Platform for Italian Public Administrations
Stefano Federici, Maria Laura Mele, Marco Bracalenti, Maria Laura De Filippis, Rosa Lanzilotti, Giuseppe Desolda, *Italy;* Simone Borsci, *Netherlands;* Giancarlo Gaudino, Antonello Cocco, Massimo Amendola, Emilio Simonetti, *Italy*

Quality in Use -Case Study for Evaluation-
Shin'ichi Fukuzumi, Noriko Wada, *Japan*

Exploring the Antecedents of Verificator Adoption
Tihomir Orehovački, Danijel Radošević, *Croatia*

Smart Speakers for Inclusion: how can Intelligent Virtual Assistants Really Assist Everybody?
Eliseo Sciarretta, Lia Alimenti, Italy

Effect of Shifting Own Hand Position in Virtual Space on Mental Body Model
Hikari Kobayashi, Miki Matsumuro, Fumihisa Shibata, Asako Kimura, *Japan*

Research on Modular Design of Children's Furniture based on Scene Theory
Junnan Ye, Wenhao LI, Chaoxiang Yang, *P.R. China*

S269

Design Approaches and Case Studies - I

Chair(s): To be announced

Integrating SSTQUAL, Kano Model and Attractiveness Engineering to Analyze User's Emotional Needs in Self Check-in Service
Hsuan-Min Hsu, Hsi-Jen Chen, *Taiwan*, China*

Developing User Interface Design Strategy to Improve Media Credibility of Mobile Portal News
Min-Jeong Kim, *Korea*

Research on Emotional Design of Visual Interaction based on Cognitive Psychology
Zhang Zhang, Yilian Hao, *P.R. China*

Attention-based Design and Selective Exposure Amid COVID-19 Misinformation Sharing
Zaid Amin, Nazlena Mohamad Ali, Malaysia; Alan F. Smeaton, *Ireland*

Research on Information Design Matching with User's Need for Cognitive
Xuanyi Chen, Yanfei Zhu, Chengqi Xue, *P.R. China*

THURSDAY   08:00 - 10:00

THURSDAY   08:00 - 10:00

HIMI S270

Human Interface and the Management of Information

Relationality Design and Relationality-oriented Systems

Chair(s): Katsunori Shimohara, Japan

Can Community Point System Promote the Interaction between Residents?
Yurika Shiozu, Mizuki Tanaka, Ryo Shioya, Katsunori Shimohara, Japan

Possibility of Reading Notes as Media to Enrich Communications between Reader and Book
Satoko Yoshida, Madoka Takahara, Ivan Tanev, Katsunori Shimohara, Japan

Proposal of Wisdom Science
Tetsuya Maeshiro, Japan

Research on Supporting an Operator's Control for OriHime as a Telepresence Robot
Kosei Furukawa, Madoka Takahara, Hidetsugu Suto, Japan

Analyzing Early Stage of Forming a Consensus from Viewpoint of Majority/Minority Decision in Online-Barnga
Yoshimiki Maekawa, Tomohiro Yamaguchi, Keiki Takadama, Japan

EPCE S271

Engineering Psychology and Cognitive Ergonomics

Flight safety and human factors

Chair(s): Lei Wang, P.R. China

Floating Iceberg Model of Psychological Competence towards Airline Transport Pilots' Professionalism Lifecycle Management System
Shu Li, Lei Wang, Ming Zeng, P.R. China

Evaluation of Fatigue Induced During the Flight Tasks
Bo Shao, Zhen Wang, Shan Fu, P.R. China

The Relationship Between Cognitive Ability and Flight Driving Performance in Adolescent Pilot Cadets
Jun Tan, Xianghong Sun, P.R. China

Multiple Physiological Indexes Analysis in Commercial Flight Tasks for Fatigue Evaluation
Xi Yang, Zhen Wang, Shan Fu, P.R. China

Emotional Stressor on Human Errors in Flight: A Heart Rate Variance Examination
Shuo Wang, Lei Wang, Shu Li, P.R. China

An Improved Washout Algorithm for UPRT Scenario
Wei Tang, Zhen Wang, Shan Fu, P.R. China

UAHCI S272

Universal Access in Human-Computer Interaction

Universal Design and Accessibility for Remote and Online Learning; Lessons Learned from COVID-19 Era

Chair(s): Daniela Marghitu, United States

A Multimodal Platform to Teach Mathematics to Students with Vision-Impairment
Abhishek Jariwala, Daniela Marghitu, Richard Chapman, United States

Accessible Block-Based Programming for K-12 Students who are Blind or Low Vision
Meenakshi Das, Daniela Marghitu, Mahender Mandala, Ayanna Howard, United States

Developing an Online Music Teaching and Practicing Platform via Machine Learning: A Review Paper
Fatemeh Jamshidi, Daniela Marghitu, Richard Chapman, United States

TabGO: Towards Accessible Computer Science in Secondary School
Ken H. Andriamahery-Ranjalahy, Léa Berquez, Nadine Jessel, Philippe Truillet, France

VAMR S273

Virtual, Augmented and Mixed Reality

Novel applications of VAMR - I

Chair(s): Victoria L. Claypoole, United States

A Survey on Applications of Augmented, Mixed and Virtual Reality for Nature and Environment
Jason Rambach, Gergana Lilligreen, Alexander Schäfer, Ramya Bankanal, Alexander Wiebel, Didier Stricker, Germany

Virtual Solutions for Gathering Consumer Feedback on Food: A Literature Review and Analysis
Summer D. Jung, Sahej Claire, Julie Fukunaga, Joaquin Garcia, Soh Kim, United States

Modernizing Aircraft Inspection: Conceptual Design of an Augmented Reality Inspection Support Tool
Clay D. Killingsworth, Charis K. Horner, Stacey A. Sanchez, Victoria L. Claypoole, United States

A Review of Virtual Therapists in Anxiety and Phobias Alleviating Applications
Oana Mitrut, Alin Moldoveanu, Livia Petrescu, Catalin Petrescu, Florica Moldoveanu, Romania

Interacting with FEM simulated tubes in AR
Manuel Olbrich, Andreas Franek, Daniel Weber, Germany

Flexible Low-Cost Digital Puppet System
Nanjie Rao, Sharon Lynn Chu, Ranger Chenore, United States

CCD   S274

Cross-Cultural Design

Cultural Creativity, Design, and Sustainability

Chair(s): Cheng-Hung Lo, *P.R. China*

A Project-Based Study on User Guidance for Interaction Design
Shuangyuan Cao, Fang Liu, *P.R. China*

'Blooming': A Design Concept for Period Poverty in Rural Areas of China
Jingchun Zeng, Bingjian Liu, Xu Sun, Jiang Wu, *P.R. China*

The Museum of Dreams: Exploring a "Dreaming" Visual Experience via Machine Vision and Visual Synthesis
Judy Zixin Li, Aven Le Zhou, *P.R. China*

Smart Product Design for Food Waste Problem in the Canteen of Chinese University
Xinrong Han, Bingjian Liu, Xu Sun, Jiang Wu, *P.R. China*

Disseminating Intangible Cultural Heritage through Gamified Learning Experiences and Service Design
Yunpeng Xiang, Jingzhi Wang, Jing Fa, Naixiao Gu, Cheng-Hung Lo, *P.R. China*

SCSM   S275

Social Computing and Social Media

Advertising Digital Literacy: of Humans and Machines

Chair(s): Karine Berthelot-Guiet, France

Notes on Advertising Logics in Food Applications
Eneus Trindade, *Brazil*

Advertising on the Web: Soft Narration or Hard Promotion
Karine Berthelot-Guiet, *France*

The solitary connected. Media places and emotional flows in the platform society
Mauro Ferraresi, *Italy*

Studying the Influence of Social Media Use on Sales Performance: the Role of Relational Mediators
Romain Franck, Maud Damperat, *France*

AC   S276

Augmented Cognition

Augmenting Conscious Experience

Chair(s): Suraj Sood, *United States*

Holarchic HCI and Augmented Psychology ("AugPsy")
Suraj Sood, *United States*

Repurposing the Quality Adjusted Life Year: Inferring and Navigating Wellness Cliques from High Sample Rate Multi-Factor QALY
Monte Hancock, Ben Bowles, Robert Hanlon, Joshua Wiser, *United States*

Kantian Computational Linguistics
Karina Ionkina, Suraj Sood, Monte Hancock, Charlotte Walker, Raman Kannan, *United States*

Configurable Parallel Induction Machines
Karina Ionkina, Monte Hancock, Raman Kannan, *United States*

Neurochat: Artistic Affective State Facial Filters in Online Video Communication
Sarah Garcia, Marvin Andujar, *United States*

DHM   S277

Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management

Cultural and Tourism Digital Services

Chair(s): Yanlin Liu, *P.R. China*

Research on Tourism Marketing Based on Community E-commerce
Wei Feng, Feng Liu, *P.R. China*

The Digital Dilemma and the Healthy Nation
Xueying Niu, *P.R. China*

Research on Chinese Traditional Garden Immersive Aesthetic Experience in the Era of Artificial Intelligence
Lili Zhang, *P.R. China*

Analysis of the Application of Artificial Intelligence in the Creative Space
BeiLe Su, *P.R. China*

Comprehensive Study of Digital Restoration of Buddha Statues in Qingzhou by 3D Technology
Yunqiao Su, *P.R. China*

THURSDAY 08:00 - 10:00

THURSDAY 08:00 - 10:00

Design, User Experience, and Usability

DUXU S278

Advances in Design, Ergonomics, Usability, and User-experience - I
Chair(s): Marcelo M. Soares, *P.R. China*

Ergonomic and Usability Analysis of Platform for Communication of People with Limited Talk
Caroline Torres, *Brazil;* Marcelo M. Soares, *P.R. China*

Usability Assessment of the OSMO Pocket Mini Sports Video Camera and Improvement Plan
Chengzhi Zhang, Yawen Cong, Jiaqian Long, Xinyang Wang, Marcelo M. Soares, Jiayu Zeng, *P.R. China*

Usability Assessment of Xiaomi Smart Band 4
Yiqing Zhou, Junchi Wu, Jiaqi Tang, Jiayu Zeng, Marcelo M. Soares, *P.R. China*

Usability Assessment of the GoPro Hero 7 Black
Chang Le, Guo Shengnan, Chen Jia, Jiayu Zeng, Marcelo M. Soares, *P.R. China*

Usability Assessment of the XiaoAi Touch Screen Speaker
Naixin Liu, Shuyue Li, Wang Xiang, Yue Xu, Jiayu Zeng, Marcelo M. Soares, *P.R. China*

Behavioral Analysis of eSports Spectators: a Research Proposal
Eulerson Rodrigues, Ernesto Filgueiras, João Valente, *Portugal*

S279

Design Innovation and Service Design
Chair(s): Wenjing Li, *P.R. China*

GA-based Research on Suitability of Recreational Space in Gardens to the Elderly— With Yangzhou Geyuan Garden as an Example
Tian Cao, Fumei Zhang, P.R. China

Research on Design Collaboration Strategy for the Transformation of Historical and Cultural Blocks in Beijing
Fumei Zhang, Tian Cao, Ran Huo, *P.R. China*

Path of Protecting Intellectual Property Rights on Fashion Design
Jia Liu, Wenjing Li, *P.R. China*

A Study on the Application of Innovative Strategies on Intelligent Mutual-Aid Delivery Services on College Campuses
Hong Liu, Zhong Siyang, Wan Yixing, Junya Yu, Wei Cao, *P.R. China*

Design Innovation of Intangible Cultural Heritage: Challenges on the Basis of Mobile Phone Culture
Xiangnuo Li, Ziyang Li, *P.R. China*

Changes of Designers' Roles Based on Self-organizing Design Institutions
Wenjing Li, Jia Liu, Yinan Zhang, DanDan Yu, *P.R. China*

S280

Collaboration and Creativity in the Design Process
Chair(s): Martin Maguire, *United Kingdom*

Newspapers Do Work: Quick and Effective Entanglement Material for Speculation
Wan-Chen Lee, Hsiu-Chen Tseng, Rung-Huei Liang, *Taiwan*, China*

Research on the Influence of Team Members with Different Creativity Levels and Academic Background on the Collaborative Design Process
Zhengyu Wang, Meiyu Zhou, Zhengyu Shi, *P.R. China*

A Study of Student Creative Thinking in User-Centred Design
Martin Maguire, *United Kingdom*

Examining the Impact of Covid-19 Pandemic on UX Research Practice Through UX Blogs
Sedef Süner-Pla-Cerdà, Gülşen Töre Yargın, Hilal Şahin, Semih Danış, *Turkey*

Science Fiction — An Untapped Opportunity in HCI Research and Education
Philipp Jordan, *Germany;* Paula Alexandra Silva, *Portugal*

Research on the Influence Factors of Designer's Emotion in the Design Process
Xuelin Tang, Jiapei Zou, Weiwen Chen, Zhensheng Liu, *P.R. China*

Distributed, Ambient and Pervasive Interactions

DAPI S281

Urban Life in Smart Cities, Learning Cities, and Future Cities
Chair(s): H. Patricia McKenna, *Canada*

The Importance of Theory for Understanding Smart Cities: Making a Case for Ambient Theory
H. Patricia McKenna, *Canada*

What are we Supposed to be Learning? Motivation and Autonomy in Smart Learning Environments
Pen Lister, *Malta*

The Inclusion of Citizens in Smart Cities Policymaking: the Potential Role of Development Studies' Participatory Methodologies
Diogo Correia, *Portugal;* José Feio, *United Kingdom;* Leonor Teixeira, Joao Lourenço Marques, *Portugal*

Crowdsourced Urban Annotations and Augmented Reality as Design Thinking Tools to Navigate and Interact with Urban Data
Omar Al Faleh, *United States*

HCIBGO S282

HCI in Business, Government and Organizations

The Meteoric Rise of Academic and Practical Research for Human-Computer Interaction

Chair(s): Bo-chiuan Su, *Taiwan*, China*

The Study of Factors Influencing the Adoption of Cloud-Based ERP System: The Perspective of Transaction Cost Economics
Bo-chiuan Su, Chun-Der Chen, *Taiwan*, China*

Social Commerce: The Mediating Effects of Trust and Value Co-Creation on Social Sharing and Shopping Intentions
Bo-chiuan Su, Li-Wei Wu, Ju-Ching Hsu, *Taiwan*, China*

Transferring Customers Trust and Loyalty on Offline Banks towards Online Payment Platforms in Integrated Ecosystem
Bo-chiuan Su, Li-Wei Wu, Ying-Chi Yen, *Taiwan*, China*

A Study of Teamwork's Productivity and Search Behavior Using Talent Themes for Grouping
Jeng-Her Alex Chen, Bo-chiuan Su, Chi-Hui Chen, *Taiwan*, China*

The Effect of Hubert Dreyfus's Epistemological Assumption on the Philosophy of Artificial Intelligence
Bo-chiuan Su, *Taiwan*, China*; Batnasan Luvaanjalba, *Mongolia*

LCT S283

Learning and Collaboration Technologies

Novel learning experiences

Chair(s): Mondheera Pituxcoosuvarn, *Japan*

From Studios to Laptops: Challenges in Imparting Design Education Virtually
Surbhi Pratap, Abhishek Dahiya, Jyoti Kumar, *India*

Towards a Computerized Approach to Identify Attentional States of Online Learners
Indika Karunaratne, Ajantha Athukorale, *Sri Lanka*

A Feasible Design of Ballet Learning Support System with Automated Feedback
Mondheera Pituxcoosuvarn, Yohei Murakami, *Japan*

ITAP S284

Human Aspects of IT for the Aged Population

Facilitating Integration of Technologies into the Daily Life of Older Adults

Chair(s): Jia Zhou, *P.R. China*

A Prospective Study of Haptic Feedback Method on a Lower-Extremity Exoskeleton
Yilin Wang, Jing Qiu, Hong Cheng, Lu Wang, *P.R. China*

Study on the Control-Display Gain of Touch Zoom Gestures for Older Adults
Ziyao Zhou, Jia Zhou, *P.R. China*

A Novel Mobile Application for Medication Adherence Supervision Based on AR and OpenCV Designed for Elderly Patients
Songlin Yang, Xiaoping Pang, Xingxi He, *P.R. China*

Effect of Different Secondary Tasks Types on the Driving Safety of Older Drivers
Jinjun Xia, Yi Liu, Yingjie Wang, Na Xu, *P.R. China*

Data Cleaning of Binary Sensor Events in Activity Recognition by Cluster-Based Methods
Chunyang Zhao, Xia Que, Yue Yin, Xiaoman Xing, Jiaoyun Yang, Ning An, *P.R. China*

Visualizing Wellness: the Myant Skiin System Connected Life App
Sara Diamond, Ajaz Hussain, Renn Scott, Rittika Basu, Shunrong Cao, Manisha Laroia, *Canada*; Veda Adnani, *United Kingdom*

HCI-CPT S285

HCI for Cybersecurity, Privacy and Trust

Human Aspects of Security and Privacy

Chair(s): Yusuf Albayram, *United States*

Understanding User Behavior, Information Exposure, and Privacy Risks in Managing Old Devices
Mahdi Nasrullah Al-Ameen, *United States*; Tanjina Tamanna, *Bangladesh*; Swapnil Nandy, *India*; Huzeyfe Kocabas, *Turkey*

Emics and Etics of Usable Security: Culturally Specific or Culturally Universal?
Aniqa Alam, Robert Biddle, Elizabeth Stobert, *Canada*

Gaming Apps' and Social Media Partnership: A Privacy Perspective
Tian Wang, Masooda Bashir, *United States*

CyberPin - Challenges on Recognizing Youngest Cyber Talents
Birgy Lorenz, Kaido Kikkas, Aleksei Talisainen, Taavi Eomäe, *Estonia*

Brand Validation: Security Indicator to Better Indicate Website Identity
Tetsuya Okuda, Naoko Chiba, Mitsuaki Akiyama, Toshinori Fukunaga, Ryohei Suzuki, Masayuki Kanda, *Tetsuya Okuda, Naoko Chiba, Mitsuaki Akiyama, Toshinori Fukunaga, Ryohei Suzuki, Masayuki Kanda, Japan*

THURSDAY 08:00 - 10:00

THURSDAY   08:00 - 10:00

HCI-Games S286

HCI in Games

Game Experience Design

Chair(s): Scott Swearingen, *United States*

Adaptive Gamification and its Impact on Performance
Christian E. Lopez, Conrad S. Tucker, *United States*

Dynamic Difficulty Adjustment using performance and affective data in a Platform Game
Marcos Paulo Cayres Rosa, Eduardo De Azevedo dos Santos, Iago Lobo Ribeiro de Moraes, Tiago Barros Pontes e Silva, Mauricio M. Sarmet, Carla Castanho, Ricardo Pezzuol Jacobi, *Brazil*

Toward a Theory-Driven Model of Emotional Interaction Design in Mobile Games Research
Weiwen Chen, Xiaobo Lu, Xuelin Tang, *P.R. China*

Player Types and Game Element Preferences: Investigating the Relationship with the Gamification User Types HEXAD Scale
Jeanine Krath, Harald F. O. Von Korflesch, *Germany*

A Specific Measurable Model - How Can Test Results be Influenced by Interactive Prototypes and Design Manuscripts?
Xiang Gao, Nian Liu, Yong-Cheng Liu, Si-si Yuan, Zhi-Peng Hu, *P.R. China*

S287

Studies on Game Impact

Chair(s): Fabrizio Palmas, *Germany*

Influence of a Video Game on Children's Attention to Food: Should Games Be Served with a Character during Mealtime?
Weiwei Ma, Bo Liu, Zhao Liu, *P.R. China*

Research of the interaction design of minors game anti-addiction based on Flow Theory
Xin Liang, Yu Wei, Xueqing Zhao, *P.R. China*

Research on Improving Empathy Based on the Campus Barrier-free Virtual Experience Game
PJunyu Yang, Yawen Zheng, Zhao Tianjiao, Mu Zhang, *P.R. China*

In-Game Advertising: Brand Integration and Player Involvement as Key Influencing Factors on Brand Recall
Fabrizio Palmas, Ramona Reinelt, Gudrun Klinker, *Germany*

MobiTAS S288

HCI in Mobility, Transport and Automotive Systems

HCI for Urban Transport Systems

Chair(s): To be announced

Augmented Reality Passenger Information on Mobile Public Displays – an Iterative Evaluation Approach
Waldemar Titov, Christine Keller, Thomas Schlegel, *Germany*

In-Vehicle Information Design to Enhance the Experience of Passengers in Autonomous Public Buses
Myunglee Kim, Jeongyun Heo, *Korea;* Jiyoon Lee, *Australia*

Design of Natural Human-Computer Interaction for Unmanned Delivery Vehicle Based on Kinect
Kaidi Wang, Lei Liu, *P.R. China*

A Deep Learning based Novel Road Distress Visual Inspection System Using Modified U-Net
Thitirat Siriborvornratanakul, *Thailand*

AIS S194

Adaptive Instructional Systems

Supporting Instructors with Recommendations for Adaptive Learning

Chair(s): Benjamin Bell, *United States*

Helping Instructor Pilots Detect and Respond to Engagement Lapses in Simulations
Benjamin Bell, Winston ("Wink") Bennett, Benjamin Nye, Elaine Kelsey, *United States*

Using Synthetic Datasets to Hone Intuitions within an Adaptive Learning Environment
Walter Warwick, Rod Ford, Matt Funke, *United States*

The Role of Participatory Codesign in a Learning Engineering Framework to Support Classroom Implementation of an Adaptive Instructional System
Kelly J. Sheehan, Meagan K. Rothschild, Sarah Buchan, *United States*

Skill Mastery Measurement and Prediction to Adapt Instruction Strategies
Priya Ganapathy, Lakshmi Priya Rangaraju, Gautam Kunapuli, Jacob Yadegar, *United States*

AIS   S289

AIS Initiatives in the Developing World

Chair(s): Ma. Mercedes T. Rodrigo, *Philippines*

Impediments to AIS Adoption in the Philippines
Ma. Mercedes T. Rodrigo, *Philippines*

Towards the Design and Development of An Adaptive Gamified Task Management Web Application to Increase Student Engagement in Online Learning
Miguel Alfredo C. Madrid, David Matthew A. De Jesus, *Philippines*

Considerations towards Culturally-Adaptive Instructional Systems
May Marie P. Talandron-Felipe, *Philippines*

Early Prediction of At-risk Students in a Virtual Learning Environment using Deep Learning Techniques
Nisha S. Raj, Sreelakshmi Prasad, Parvathy Harish, Maria Boban, Nidhuna Cheriyedath, *India*

Towards the Design of An Adaptive Presence Card and Trust Rating System for Online Classes
Jonathan Casano, Jenilyn Agapito, *Philippines*

MOBILE   S290

Design, Operation and Evaluation of Mobile Communications

The impact of mobile information technology on advanced manufacturing industry

Chair(s): Caihong Liu, P.R. China

The Influence and Prospect of Mobile Communication Technology on Advanced Manufacturing Industry
Mei Shao, Miao Zhang, Yue Jiang, P.R. China

Competitive Intelligence in Technological Innovation: An Exploratory Study
Peng Zhou, *P.R. China*

A Review on the Research of Producer Services Supply Chain in China
Siqi Yin, Caihong Liu, Yi Xie, Yu Shui, *P.R. China*

C&C   S291

Culture and Computing

Inclusive HCI

Chair(s): Jong-Il Park, Korea

Toward Extended Sensory Interface for Impaired Person
Kanghoon Lee, Jong-Il Park, Korea

Digital Literacy-based User Experience Design for Medication-allergy Patients Care
SungHee Ahn, Min-Gyu Kang, *Korea*

The Collection Method of Heterogeneous Smart Farm Data based on Model Transformation Technique for Human Computer Friendly Learning
Woo Sung Jang, Jang Hwan Kim, Chae Yun Seo, R. Young Chul Kim, *Korea*

NOTES

THURSDAY 08:00 - 10:00

Workshop "Use Cases of Designing AI-enabled Interactive Systems"

AI-HCI
S321-322
Thursday, 29 July 2021,
08:00 - 10:00
10:30 - 12:30
(EDT - Washington DC)

Chair(s): Stavroula Ntoa, Greece

Using Cobots, Virtual Worlds, and Edge Intelligence to Support On-Line Learning
Robert Reynolds, Ana Djuric, Meina Zhu, Weisong Shi, Thomas Palazzolo, *United States*

Virtual Control Panel API: An Artificial Intelligence Driven Directive to Allow Programmers and Users to Create Customizable, Modular, and Virtual Control Panels and Systems to Control IoT Devices via Augmented Reality
Shreya Chopra, *Canada*

Challenges and Solutions for Increase Trust in AI in Medical Domain Workflows
Sonia Sousa, *Estonia*

Benefitting Users from an ML-enabled Root Cause Analysis
Helmut Degen, Christof Budnik, *United States*

Can low-cost Brain-Computer Interfaces control an Intelligent Powered Wheelchair?
Adina Panchea, Dahlia Kairy, François Ferland, *Canada*

Dementia Caregiver Assessment Using Serious Gaming Technology (CAST) during Covid-19
Swati Padhee, Venkata Hema Charan Pinninty, William L. Romine, Jennifer C. Hughes, Tanvi Banerjee, *United States*

USE CASE: Developing a User-Centered Interface for Sensor-Based Health Monitoring of Older Adults
Marjorie Skubic, Erin Robinson, Geunhye Park, Gashaye Melaku Tefera, Brianna Markway, Noah Marchal, Amanda Hill, *United States*

NOTES

Human-Computer Interaction

HCI S294

Design Approaches and Case Studies - II

Chair(s): Luis Rivero, *Brazil*

A Vibrothermal Haptic Display for Socio-Emotional Communication
Shubham Shriniwas Gharat, Yatiraj Shetty, Troy McDaniel, *United States*

Design Requirements for Crop-Specific Online and Web-based Portals
Isaac Nyabisa Oteyo, *Belgium;* Philip Oyier, Stephen Kimani, *Kenya*

Applying Exploratory Testing and Ad-Hoc Usability Inspection to Improve the Ease of Use of a Mobile Power Consumption Registration App: An Experience Report
José Oliveira, Anderson Paiva, Victor Ferreira, Simara Rocha, Ítalo Santos, Luis Rivero, João Almeida, Geraldo Braz Junior, Anselmo Paiva, Aristofanes Silva, Hugo Nogueira, Eliana Monteiro, Eduardo Fernandes, *Brazil*

S295

Quality in Interaction - II

Chair(s): Maria Laura Mele, Stefano Federici, *Italy;* Simone Borsci, Netherlands; Antonio Opromolla, Massimiliano Dibitonto, *Italy*

Human Computer Interacting through a Game Engine: Qualifying Inclusive Design in Architecture
Anders Hermund, *Denmark*

Blinking LEDs: Usability and User Experience of Domestic Modem Routers Indicator Lights
Massimiliano Dibitonto, *Italy*

The Use of a Sex Doll as Proxy Technology to Study Human-Robot Interaction
An Jacobs, Charlotte I. C. Jewell, Shirley A. Elprama, *Belgium*

Human Computer Interaction Challenges in Designing Pandemic Trace Application for the Effective Knowledge Transfer between Science and Society inside the Quadruple Helix Collaboration
Alba Mª Gallego, Eugenio Gaeta, *Spain;* Anni Karinsalo, Ville Ollikainen, Pekka Koskela, *Finland;* Lutz Peschke, *Turkey;* Frans Folkvord, *Spain;* Eleni Kaldoudi, Timo Jämsä, *Belgium;* Francisco Lupiañez-Villanueva, *Spain;* Leandro Pecchia, *Belgium;* Giuseppe Fico, *Spain*

Human Interface and the Management of Information

HIMI S296

Information design

Chair(s): To be announced

NearMe: Dynamic Exploration of Geographical Areas
Noemi Mauro, Liliana Ardissono, Federico Torrielli, Gianmarco Izzi, Claudio Mattutino, Maurizio Lucenteforte, Marino Segnan, *Italy*

Wearable Haptic Array of Flexible Electrostatic Transducers
Ian Trase, Hong Z. Tan, Zi Chen, John Zhang, *United States*

Evaluating Digital Nudging Effectiveness Using Alternative Questionnaires Design
Andreas Mallas, Michalis Xenos, Maria Karavasili, *Greece*

Preventing Decision Fatigue with Aesthetically Engaging Information Buttons
Andrew Flangas, Alexis R. Tudor, Frederick C. Harris Jr., Sergiu Dascalu, *United States*

Improving User Experience through Recommendation Message Design: A Systematic Literature Review of Extant Literature on Recommender Systems and Message Design
Antoine Falconnet, Wietske Van Osch, *Canada;* Joerg Beringer, *Germany;* Pierre-Majorique Léger, Constantinos K. Coursaris, *Canada*

Thematic Units Comparisons between Analog and Digital Brainstorming
Shannon Briggs, Matthew Peveler, Jaimie Drozdal, Hui Su, Jonas Braasch, *United States*

Engineering Psychology and Cognitive Ergonomics

EPCE S297

Virtual Environments for Situational Awareness

Chair(s): To be announced

Validation of Virtual Reality Cognitive Assessment for Pilots Across the Lifespan
Oluchi Audu, Kathleen Van Benthem, Chris M. Herdman, *Canada*

Electroencephalographic Signals and Pilot Situation Awareness during Simulated Flight: A Case for Enhanced Digital Technology in General Aviation
Alexia Ziccardi, Kathleen Van Benthem, Chris M. Herdman, *Canada*

Effect of Height Perception on State Self-Esteem and Cognitive Performance in Virtual Reality
Grace Y. S. Leung, Adrian K. T. Ng, Henry Y. K. Lau, *Hong Kong*

THURSDAY 10:30 - 12:30

THURSDAY 10:30 - 12:30

UAHCI   S298

Universal Access in Human-Computer Interaction

Techology for Inclusion and Participation (TIP)
Chair(s): Ingo Bosse, Susanne Dirks, Christoph Kaletka, *Germany*

Citizen Science for All?
Elisabeth Unterfrauner, Claudia M. Fabian, *Austria;* Johanna Casado, Gonzalo De la Vega, Beatriz Garcia, Wanda Díaz-Merced, *Argentina*

Designing Accessible Videos for People with Disabilities
Leevke Wilkens, Vanessa N. Heitplatz, Christian Bühler, *Germany*

2D and 3D Visualization of Eye Gaze Patterns in a VR-based Job Interview Simulator: Application in Educating Employers on the Gaze Patterns of Autistic Candidates
Michael Breen, James McClarty, Caleb Langley, Jamshid Farzidayeri, Kyle Trevethan, Brandon Swenson, Medha Sarkar, Joshua Wade, Nilanjan Sarkar, *United States*

A Multidisciplinary User-Centered Approach to Designing an Information Platform for Accessible Tourism: Understanding User Needs and Motivations
Pedro Teixeira, Joana Alves, Tiago Correia, Leonor Teixeira, Celeste Eusébio, Samuel Silva, António Teixeira, *Portugal*

Wheelchair Users' Perceptions of a Novel Device Enabling Them to Traverse Rough Terrain Using Their Own Wheelchair
Nirit Gavish, Avi Weiss, Uri Ben-Hanan, Matan Madar, *Israel*

S299

Inclusive Technologies: Development Experiences in Latin America
Chair(s): J. Andrés Sandoval-Bringas, *Mexico*

Diagnosis for School Inclusion in Teacher Training in one Higher Normal School in Mexico
Francisco Alvarez Rodríguez, Romelia Chavez, Mónica Carreño, Olivia Fragoso, *Mexico*

Analysis of specialized websites in digital libraries: Evaluation of UX with blind users
Teresita Alvarez Robles, Francisco Alvarez Rodríguez, Yadira Alejandra Orozco Osuna, J. Andrés Sandoval-Bringas, *Mexico*

Image Adaptation Based on Color Saturation and Linear Matrices for People with Deuteranopia-type Color Blindness
Daniel Delgado-Cedeno, Mario Chacon-Rivas, *Costa Rica*

Making Parking Lot Accessible through IoT
Jose Rafael Rojano-Caceres, Jesus Antonio Rosas Percastre, Teresita Álvarez-Robles, J. Andrés Sandoval-Bringas, *Mexico*

Use of a video game with tangible interfaces to work emotions in children with autism
J. Andrés Sandoval-Bringas, Mónica Carreño, Teresita Alvarez Robles, Israel Durán-Encinas, Alejandro Leyva-Carrillo, Italia Estrada-Cota, *Mexico*

Extended Analysis Procedure for Inclusive Game Elements: Accessibility Features in The Last of Us Part 2
Patricia da Silva Leite, Leonelo Dell Anhol Almeida, *Brazil*

VAMR   S300

Virtual, Augmented and Mixed Reality

Novel applications of VAMR - II
Chair(s): Vassilis Charissis, *United Kingdom*

LibrARy – Enriching the Cultural Physical Spaces with Collaborative AR Content
Andreea-Carmen Ifrim, Florica Moldoveanu, Alin Moldoveanu, Alexandru Grădinaru, *Romania*

Exploratory Study on the Use of Augmentation for Behavioural Control in Shared Spaces
Vinu Kamalasanan, Frederik Schewe, Monika Sester, Mark Vollrath, *Germany*

An Industry-Adapted AR Training Method for Manual Assembly Operations
Lavric Traian, Emmanuel Bricard, Marius Preda, Titus Zaharia, *France*

Virtual Reality for Simulation and Evaluation: Technology Acceptance Models for Automotive Consumer Electronics
Vassilis Charissis, Kweku Bram-Larbi, Ramesh Lagoo, *United Kingdom;* Shu Wang, *P.R. China;* Soheeb Khan, *United Kingdom;* Samar Altarteer, *Saudi Arabia;* David Harrison, United Kingdom; Dimitris Drikakis, *Cyprus*

A Cost-Effective Immersive Telexistence Platform for Generic Telemanipulation Tasks
Reem Al-Remaihi, Aisha Al-Raeesi, Reem Al-Kubaisi, *Qatar;* Mohammed Al-Sada, Tatsuo Nakajima, *Japan;* Osama Halabi, *Qatar*

Towards Improving Situation Awareness of Maritime Field Operators Using Augmented Reality
Marcel Saager, Marcus Behrendt, Patrick Baber, *Germany*

CCD   S301

Cross-Cultural Design

Cultural Differences and Cross-Cultural Design
Chair(s): Vincent G. Duffy, *United States*

Expressing Agreement in Swedish and Chinese: A Case Study of Communicative Feedback in First-Time Encounters
Anna Jia Gander, Nataliya Berbyuk Lindstrom, Pierre Gander, *Sweden*

Observing the Influence of Cultural Differences within India on User Experience of an E-Commerce Application: an Experimental Investigation
P S Amalkrishna, Surbhi Pratap, Jyoti Kumar, India

Cross-Cultural Design in Consumer Vehicles to Improve Safety: A Systematic Literature Review
Priyanka Koratpallikar, Vincent G. Duffy, *United States*

Cultural Discourse in User Behavior: Transfer of Thought in Keyboard Key Practice
Chunyan Wang, *P.R. China;* Xiaojun Yuan, *United States*

Factors Influencing Trust in WhatsApp: A Cross-Cultural Study
Gabriela De Moraes Beltrão, Sonia Sousa, *Estonia*

Factors Affecting e-Commerce Satisfaction in Qatar: A Cross-Cultural Comparison
Mary Abraham, Pilsung Choe, *Qatar*

Cross-cultural differences of designing mobile health application for africans
Helina Oladapo, Joyram Chakraborty, *United States*

CCD   S302

Kansei Issues in Cross-Cultural Design - III

Chair(s): Kuohsiang Chen, *P.R. China*; Szu-Chi Chen, *Australia*

The Strategic Advantages of Artificial Intelligence System for Product Design Teams with Diverse Cross-Domain Knowledge
Yen Hsu, Yu-Houng Chaing, *Taiwan*, China*

The Impact of Cross-Cultural Trade Conflicts on the Product Design Strategies of Chinese Home Appliance Enterprises
Honglei Lu, *P.R. China*; Yen Hsu, *Taiwan*, China*

Identification of Product Functional Images among Older Adults
Li-Hao Chen, Yi-Chien Liu, Chun Wang, *Taiwan*, China*

Cross-cultural Design: A Set of Design Heuristics for Concept Generation of Sustainable Packagings
Xin Cao, *P.R. China*; Yen Hsu, *Taiwan*, China*; Weilong Wu, *P.R. China*

Hybrid Kansei Research of Product's Interactive Design Experience Based on "Sensing" Technology
Min Shi, Cheng-Wei Fan, *P.R. China*

S303

User Experience Design in Emergency Situations in Different Culture - III

Chair(s): Hao Tan, Xiuyuan Guo, *P.R. China*

Research on the Inheritance and Innovation Path of Intangible Cultural Heritage from the Perspective of Consumer Sociology——Take Changsha Kiln as an Example
Wen Lu, Yulu Ouyang, *P.R. China*

User Experience: The Motivation and Promotion of Livestreaming Innovation in Chinese Marketing
Lijun Han, *P.R. China*

Description of Role Orientation of College Teachers in Online Education under Epidemic Emergency
Zhengliang Li, Miaoqi Tian, *P.R. China*

A Study on User Experience of COVID-19 Emergency Communication Platform from Cross-cultural Perspective of View
Ting Gao, Shipei Xue, Yuqi Zeng, Jiayao Xu, Xiuyuan Guo, *P.R. China*

A Study on the User Experience of Consultation De-signed by China's Medical Mobile Media Platforms un-der the Background of COVID-19
Lingxi Chen, Yuxuan Xiao, Linda Huang, *P.R. China*

SCSM   S304

Social Computing and Social Media

Impact of Multicultural Environments on Social Computing and Social Media

Chair(s): Simona Vasilache, *Japan*

Safeguarding Academic Integrity in Crisis Induced Environment: A Case Study of Emirati Engineering and IT Students in a Private University in the UAE
Ajrina Hysaj, Sara Suleymanova, *United Arab Emirates*

Efficacy of Group Work in the Online Platform: An Exploration of Multicultural Undergraduates' Attitudes in Online Academic Writing Classes
Ajrina Hysaj, Doaa Hamam, Sandra Baroudi, *United Arab Emirates*

"Culture, Heritage and Hash tags: The Representation of Japanese Culture and Sport Heritage in Social Media in the lead up to Tokyo 2020"
Devena Haggis, *Japan*

Citizen Analytics: Statistical Tools for Studying Multicultural Environments and Distributed Cognition on Social Media
Nick V. Flor, *United States*

AC   S305

Augmented Cognition

Real World Applications of XR to Assess and Improve Performance

Chair(s): Robert Hubal, *United States*

A Phenotypic Plasticity Platform for the Assessment of Resilient Decision-Making in XR Simulated Sport
Adam Kiefer, *United States*

Evaluation of a Virtual Reality Simulation Tool for Studying Bias in Police-Civilian Interactions
Long Doan, Rashawn Ray, Connor Powelson, Genesis Fuentes, Rebecca Shankman, Shaun Genter, Jasmón Bailey, *United States*

New Methods for Metastimuli: Architecture, Embeddings, and Neural Network Optimization
Rico Picone, Dane Webb, *United States*; Finbarr Obierefu, *France*; Jotham Lentz, *United States*

THURSDAY 10:30 - 12:30

DHM S306

Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management

Robotics and AI in Health Care

Chair(s): Deep Seth, *India*

Evaluating the Risk of Muscle Injury in Football-kicking Training with OpenSim
Jing Chang, *P.R. China;* Wenrui Wang, Damien Chablat, Fouad Bennis, *France*

Comparisons of Hybrid Mechanisms Based on Their Singularities for Bone Reduction Surgery: 3-RPS-3-PRP and 3-PRP-3-RPS
Annisa Pratiwi, Indonesia; Sinh Nguyen Phu, Terence Essomba, *Taiwan*, China;* Latifah Nurahmi, *Indonesia*

Development of Autonomous UVC Disinfectant Robot
Vishal Reddy Gade, Deep Seth, Manish Kumar Agrawal, Bhaskar Tamma, *India*

A Control Method of Upper Limb Rehabilitation Exoskeleton Based on Motion intensity Perception
WenDong Wang, Junbo Zhang, Dezhi Kong, Xin Wang, XiaoQing Yuan, Peng Zhang, *P.R. China*

S307

Modeling Behavior under Uncertainty

Chair(s): André Calero Valdez, *Germany*

Finding a Structure: Evaluating Different Modelling Languages Regarding their Suitability of Designing Agent-based Models
Poornima Belavadi, Laura Burbach, Martina Ziefle, André Calero Valdez, *Germany*

Fairness and the Need for Regulation of AI in Medicine, Teaching, and Recruiting
Laila Wegner, *Germany;* Yana Houben, *Netherlands;* Martina Ziefle, André Calero Valdez, *Germany*

The History of Agent-Based Modeling in the Social Sciences
Carl Orge Retzlaff, Martina Ziefle, André Calero Valdez, *Germany*

Expectation, Perception, and Accuracy in News Recommender Systems: Understanding the Relationships of User Evaluation Criteria using Direct Feedback
Poornima Belavadi, Laura Burbach, Stefan Ahlers, Martina Ziefle, André Calero Valdez, *Germany*

Performance Comparison of User-Estimated and Learned Task Recognition Models for Maintenance Procedures
Marcus Behrendt, Bertram Wortelen, *Germany*

DUXU S308

Social Computing and Social Media

Designing and Evaluating User Experience (UX) in Interactive Systems

Chair(s): Claudia Zapata Del Rio, *Peru*

Integration of User Experience and Agile Techniques for Requirements Analysis: A Systematic Review
Silvana Almeyda, Claudia Zapata Del Rio, Dennis Cohn, *Peru*

A Prototyping Framework for Human-Centered Product Design: Preliminary Validation Study
Salman Ahmed, H. Onan Demirel, *United States*

Operational Usability Heuristics: A Question-Based Approach for Facilitating the Detection of Usability Problems
Anas Abulfaraj, Adam Steele, *United States*

A Review of Automated Website Usability Evaluation Tools: Research Issues and Challenges
Abdallah Namoun, Ahmed Alrehaili, Ali Tufail, *Saudi Arabia*

Understanding Customer Value Propositions through the Lens of Value Equations Method: A Systematic Approach
Jerica Drapp, Sasanka Prabhala, *United States*

S309

Usability and UX Studies in Contemporary Application Domains

Chair(s): Patricia Morreale, *United States*

Research on the Influencing Factors of Users' Satisfaction with the Usability of News App Interface Under the Epidemic
Xi Han, Tao Xi, Zhiwei Zhou, *P.R. China*

Cultural Usability of E-Government Portals: A Comparative Analysis of Job Seeking Web Portals Between Saudi Arabia and the United States
Asma Aldrees, Denis Gracanin, *United States*

Check-!n Toolkit for Capturing Guests' Momentary Experiences without Disturbing their Traveling
Jingrui An, Yaliang Chuang, Pengcheng An, *Netherlands*

Usability Evaluation of Music Applications for Stress Reduction
Moushume Hai, Ariana Lacue, Yuwei Zhou, Yogesh Patel, Asturias Roncal, Patricia Morreale, *United States*

Reprojecting a Fitness App Regarding Retention and Usability Using Nielsen's Heuristics
Renata Faria Gomes, Maria de Fatima Costa de Souza, *Brazil*

Euros from the Heart: Exploring Digital Money Gifts in Intimate Relationships
Freya Probst, Hyosun Kwon, Cees De Bont, *United Kingdom*

DUXU S310

Advances in Design, Ergonomics, Usability, and User-experience - II

Chair(s): Marcelo M. Soares, *P.R. China*

Understanding Task Differences to Leverage the Usability and Adoption of Voice Assistants (VAs)
Isabela Motta, Manuela Quaresma, *Brazil*

UX Aspects of AI Principles: The Recommender System of VoD Platforms
Cinthia Ruiz, Manuela Quaresma, *Brazil*

Virtual Reality and Ergonomics: Making the Immersive Experience
Janaina Ferreira Cavalcanti, *Spain;* Fernanda Carolina Armando Duarte, Rodrigo Crissiuma Figueiredo Ayabe, Anderson Gonçalves Barbosa Da Silva, Brazil

The Canadian Cultural Diversity Dashboard: Data Storytelling and Visualization for the Cultural Sector
Sara Diamond, Rittika Basu, Shunrong Cao, Ajaz Hussain, *Canada*

Interfacing with the Macromedium: The Web 4.0 And The Digital Media Converging into a Medium of all Media
Herlander Elias, *Portugal*

The real meaning of Design: Semantics user analysis in furniture Design
João Fidalgo, Ernesto Filgueiras, *Portugal*

HCIBGO S311

HCI in Business, Government and Organizations

Digital Innovations of Societal Impact

Chair(s): Kaveh Abhari, *United States*

Disentangling Technostress and Financial Stress Impacts on Users' Psychophysiological Responses and Coping Behaviors in the Context of Mobile Banking
Marion Korosec-Serfaty, Aurélie Vasseur, Pierre-Majorique Léger, Sylvain Senecal, *Canada*

Toward a Theory of Digital Mindfulness: A Case of Smartphone-based Self-monitoring
Kaveh Abhari, Melissa Klase, Farzan Koobchehr, Fernando Olivares, Michael Pesavento, Luis Sosa, Isaac Vaghefi, *United States*

The Role of IOT in the Fight Against Covid-19 to Restructure the Economy
Abhishek Sharma, *Australia*

Usability Assessment of a Jurisprudence System
Edna Dias Canedo, Ana Paula Morais do Vale, Rafael Leite Patrão, Leomar Camargo de Souza, Rogério Machado Gravina, Vinicius Eloy Dos Reis, Felipe Alberto Moreira Dias, Fabio Lúcio Lopes Mendonça, Rafael T. De Sousa Jr, *Brazil*

LCT S312

HCI in Mobility, Transport and Automotive Systems

Technology-based Telepresence in a Learning Context

Chair(s): Nicholas H. Müller, *Germany*

Driving Success: Virtual Team Building through Telepresence Robots
Lisa Keller, Oliver Gawron, Tamin Rahi, Philipp Ulsamer, Nicholas H. Müller, *Germany*

Acceptance of Social and Telepresence Robot Assistance in German Households
Karin Winterstein, Lisa Keller, Karsten Huffstadt, Nicholas H. Müller, *Germany*

Effect of Height in Telepresence Robots on the Users' Spatial Awareness
Oliver Gawron, Lisa Keller, Karsten Huffstadt, Nicholas H. Müller, *Germany*

Gender Differences in Psychosocial Experiences with Humanoid Robots, Programming, And Mathematics Course
Solveig Tilden, Ricardo Gregorio Lugo, Karen Parish, Deepti Mishra, Benjamin Knox, *Norway*

Improving Learnability Capabilities in Desktop VR Medical Applications
Laurie-Jade Rochon, Alexander-John Karran, Frédérique Bouvier, Constantinos K. Coursaris, Sylvain Sénécal, Jean-François Delisle, Pierre-Majorique Léger, *Canada*

S313

Intelligent Learning Environments

Chair(s): Weiqin Chen, *Norway*

Towards a New Tool for Individualized Content Delivery in Classrooms
Markus Maageng Jakobsen, *Norway;* Mads Nyborg, Andrea Valente, Denmark

User Perception of Wearables in Everyday Learning Contexts: The Impact of Prior Device Experience
Neha Rani, Sharon Lynn Chu, *United States*

Effectiveness of System-Facilitated Monitoring Strategies on Learning in an Intelligent Tutoring System
Daryn A. Dever, *United States;* Franz Wortha, *Germany;* Megan D. Wiedbusch, Roger Azevedo, *United States*

Goals Matter: Changes in Metacognitive Judgments and their Relation to Motivation and Learning with an Intelligent Tutoring System
Elizabeth B. Cloude, *United States;* Franz Wortha, *Germany;* Megan D. Wiedbusch, Roger Azevedo, *United States*

Usability of Learning Management Systems for Instructors – the Case of Canvas
Weiqin Chen, Norun Christine Sanderson, Anna Nishchyk, Way Kiat Bong, Siri Kessel, *Norway*

Accompanying Reflection Processes by an AI-based StudiCoachBot: A Study on Rapport Building in Human-Machine Coaching using Self Disclosure
Vanessa Mai, Annika Wolff, Anja Richert, Ivonne Preusser, *Germany*

THURSDAY 10:30 - 12:30

THURSDAY   16:30 - 18:30

ITAP   S314

Human Aspects of IT for the Aged Population

Supporting Positive Ageing In Place

Chair(s): Qin Gao, Yue Chen, *P.R. China*

How do Older Adults Learn Informally via Social Media? A Pilot Study of Chinese Urban Older Adults
Yue Chen, Qin Gao, *P.R. China*

Understanding the Acceptance of Robo-Advisors: Towards a Hierarchical Model Integrated Product Features and User Perceptions
Man Wu, Qin Gao, *P.R. China*

Development of Smartphone based Personal Health Tracking System for Older People
Xuan Wang, Qin Gao, *P.R. China*

A Brief Study on Excessive Online Game Playing among Older Adults
Haijing Tang, Qin Gao, *P.R. China*

ZhiTu: A Smartphone Photo Managing Application for the Elderly
Mei Yang, Qin Gao, Qiang Liu, *P.R. China*

HCI-CPT   S315

HCI for Cybersecurity, Privacy and Trust

Developing Robust Socio-technical Approaches to Measure Human Cybersecurity Strengths, Vulnerabilities and Biases

Chair(s): Phillip L. Morgan, *United Kingdom*

A Human Factor Approach to Threat Modeling
Lauren Ferro, Andrea Marrella, Tiziana Catarci, Italy

Human Individual Difference Predictors in Cyber Security: Exploring an Alternative Scale Method and Data Resolution to Modelling Cyber Secure Behavior
George Raywood-Burke, Laura M. Bishop, Phoebe M. Asquith, Phillip L. Morgan, *United Kingdom*

Beyond Murphy's Law: Applying wider Human Factors Behavioural Science Approaches in Cyber-Security Resilience
Nicola Fairburn, Andrew Shelton, Frances Ackroyd, Rachel Selfe, *United Kingdom*

Understanding the Last Line of Defense: Human Response to Cybersecurity Events
Summer Rebensky, Meredith Carroll, Andrew Nakushian, Maria Chaparro, Tricia Prior, *United States*

Study on the Impact of Learning about Information Security Measures on Mental Models: Applying Cybersecurity Frameworks to Self-learning Materials
Satoshi Ozaki, Hiroshi Furukawa, *Japan*

HCI-Game   S316

HCI in Games

Video Game Accessibility

Chair(s): Kevin Keeker, *United States*

Accessibility at Blizzard: Leveling Up Our Epic Entertainment
Nikki Crenshaw, *United States*

Video Games Accessibility: Methods and Pathways for Academic-Industry Research Partnership
Melissa Boone, *United States*

Orpheus: A Voice-Controlled Game to Train Pitch Matching
Jiahui Li, Zhenyu Gu, *P.R. China*

Motion Sickness and Console Gaming
Liz Schmidlin, *United States*

Expectations, Frustrations and Barriers of Players with Disabilities
Olivier Nourry, Maxime Viry, Angélina Madelaine, *France*

MobiTAS   S317

HCI in Mobility, Transport and Automotive Systems

Human Factors Aspects of New Forms of Urban Mobility

Chair(s): Matthias Rötting, Felix Wilhelm Siebert, *Germany*

Future of Urban Mobility - New Concepts instead of New Technologies?
Katja Karrer-Gauß, Julia Seebode, *Germany*

Do German (Non)Users of E-Scooters Know the Rules (and Do They Agree with Them)?
Tibor Petzoldt, Madlen Ringhand, Juliane Anke, Nina Schekatz, *Germany*

Requirement Analysis for Personal Autonomous Driving Robotic Systems in Urban Mobility
Kathrin Bärnklau, Matthias Rötting, Eileen Roesler, Felix Wilhelm Siebert, *Germany*

Safety Related Behaviors and Law Adherence of Shared e-scooter Riders in Germany
Felix Wilhelm Siebert, Michael Hoffknecht, Felix Englert, Timothy Edwards, *Germany;* Sergio Useche, *Spain;* Matthias Rötting, *Germany*

Are e-scooter Riders More Oblivious to Traffic than Cyclists? A Real World Study Investigating the Execution of Shoulder Glances
Maximilian Pils, Nicolas Walther, Mathias Trefzger, Thomas Schlegel, *Germany*

Evaluation Driver Mental Load: a Survey Study of Cyclists who Require to Repair the e-bike
Fei-Hui Huang, *Taiwan*, China*

AIS   S318

Adaptive Instructional Systems

Examining Instructional Strategies in Adaptive Training

Chair(s): Cheryl I. Johnson, *United States*

Designing Adaptive Blended Learning Experiences for Military Formal School Courses
Jody Barto, Tarah Daly, *United States*

Setting Goals in Adaptive Training: Can Learners Improve with a Moving Target?
Bradford L. Schroeder, Nicholas W. Fraulini, Wendi L. Van Buskirk, Cheryl I. Johnson, Matthew D. Marraffino, *United States*

Using Adaptive Flashcards for Automotive Maintenance Training in the Wild
Daphne E. Whitmer, Cheryl I. Johnson, Matthew D. Marraffino, Jeremy Hovorka, *United States*

Applying Adaptive Intelligent Tutoring Techniques to Physical Fitness Training Programs
Jessica Voge, Alex Negri, Paul Woodall, Derek Thayer, Brent Ruby, Walter Hailes, Andrew Reinert, James Niehaus, Spencer Lynn, *United States*

Learning the Cognitive Skill of Topographic Map Reading Through Adaptive, High-Repetition Training
Paul J. Reber, Evan Grandoit, Kevin D. Schmidt, Thomas C. Dixon, Caelie P. McRobert, *United States*

Adapting to the Times: Examining Adaptive Instructional Strategies in Preferred and Non-Preferred Class Types
Meredith Carroll, Maria Chaparro, Summer Rebensky, Kendall Carmody, Rian Mehta, Warren Pittorie, *United States*

S319

Tailoring Adaptive Instructional Systems to a Competency-Based Learning Approach

Chair(s): Barbara Buck, United States

Automating Team Competency Assessment in Support of Adaptive Dynamic Simulations
Jeremiah Folsom-Kovarik, Anne M. Sinatra, Robert A. Sottilare, *United States*

Alignment of Competency-based Learning and Assessment to Adaptive Instructional Systems
Laurie Dunagan, Douglas A. Larson, *United States*

Competency-Based Experiential-Expertise and Future Adaptive Learning Systems
Kevin Owens, *United States*

An Experiential Competency Application Framework
Elliot Robson, Robby Robson, Tom Buskirk, Fritz Ray, Kevin Owens, *United States*

Total Learning Architecture (TLA) Data Pillars and their Applicability to Adaptive Instructional Systems
Brent Smith, Laura Milham, United States

C&C   S320

Culture and Computing

Hierarchical Knowledge Representations for Cultural Artefacts

Chair(s): Antonio Rodà, *Italy;* Geraint Wiggins, *Belgium;* Filippo Carnovalini, *Italy*

Symbolic Representation and Processing of Musical Structure: Stream Segments, Pitch Interval Patterns, General Chord Types
Emilios Cambouropoulos, Greece

The Multileveled Rhythmic Structure of Ragtime
Jason Yust, Phillip B. Kirlin, United States

On the role of hierarchical structures in computational creativity
Filippo Carnovalini, Italy; Nicholas Harley, Belgium; Antonio Rodà, Italy; Geraint Wiggins, Belgium

NOTES

- **Exploring an immersive User Interface in Virtual Reality storytelling**
  Gapyuel Seo, *Korea*

- **A Study of Sound Presentation Effects on Silence during Video Conferencing**
  Arata Higashiguchi, Yu Shibuya, *Japan*

- **Lego®-like Bricks to go from the Real to the Virtual World**
  Alejandro Cabrerizo, Will Zeurcher, Thomas Wright, Peter Jamieson, *United States*

- **A Smartphone User Verification Method Based on Finger-Writing of a Simple Symbol**
  Atsushi Takahashi, Yohei Masegi, Isao Nakanishi, *Japan*

- **Implementation of ICTs in a university curriculum for the development of math skills and Critical Reading during COVID-19 pandemic**
  Derlis Aminta Villadiego Rincón, Alex Castellar, Harold Gamero, Adriana del Rosario Pineda, *Colombia*

- **Use of virtual resources as a tool for teaching language skills at the Colombian Caribbean Region Primary Basic Level**
  María Moreno, Sonia Duran, Margel Parra, Irmina Hernández-Sanchez, Javier Ramírez, *Colombia*

- **A study on User Interface Design based on Geo-infographic and Augmented Reality technology**
  Heehyeon Park, *Korea*

- **A Study on the Creativity of Algorithmic Art Using Artificial Intelligence (AI)**
  Ryan Seo, *Korea*

- **The Message is Unclear: Evaluating Disinformation in Anti-Vaccine Communities**
  Alicia J.W. Takaoka, *United States*

- **Phone-Pointing Remote App: Using Smartphones as Pointers in Gesture-Based IoT Remote Controls**
  Ilan Kirsh, *Israel;* Heinrich Ruser, *Germany*

- **Advancing Reminiscence Therapy using Virtual Reality Applications for Persons with Dementia**
  Daniel Presas, Rob Shewaga, Alvaro Uribe-Quevedo, Winnie Sun, Sheri Hornsburgh, *Canada*

- **Effective Movie Recommendation Using User Frequency Based Collaborative Filtering Algorithm**
  Litao Fan, Zhao Huang, Chao Qi, *P.R. China*

- **Rheumatism Information Extraction from Electronic Medical Records Using Deep Learning Approach**
  Ning Liu, NanNan Gai, Zhao Huang, *P.R. China*

- **Adoption of Smart Hospital Services by Patients: An Empirical Study**
  Pi-Jung Hsieh, Hui-Min Lai, Zhi-Cheng Liu, Shui-Chin Chen, *Taiwan*, China*

- **Developing a Technology of Tracing a Trigger Spot for Human Behavior through Voxelization of Atypical Architectural Shapes**
  Yun Gil Lee, Hyun Seo Jang, Su Jin Kim, Hong Jung Kim, Ho Min Jo, *Korea*

- **Developing a Virtual Agent that Exhibits Behavioral Conformity as a Social Interaction in the Atypical Architectural Space**
  Hong Jung Kim, Ho Min Jo, Hyun Seo Jang, Su Jin Kim, Yun Gil Lee, *Korea*

- **A User-Centered Mobile Interface Design, Promoting Physical Activity in the Covid 19 Pandemic's sedentary Lifestyle**
  Zahra Alizadeh Elizei, *Iran*

- **Sensorimotor EEG rhythms during action observation and passive**

mirror-box illusion.
Nikolay Syrov, Anatoly Vasliev, Alexander Kaplan, *Russia*

- **A Trial of Active Learning Method for Business Management Education in Online Environment**
  Tomofumi Uetake, Takashi Majima, Akimichi Aoki, Sugio Baba, *Japan*

- **What Functions on the Medicare Plan Finder Do Older Medicare Beneficiaries Use?**
  Mohammad Shahidul Kader, Wi-Suk Kwon, Salisa Westrick, Kassandra Ross, Yi Zhao, Xiao Huang, *United States*

- **Artificial Intelligence in Pilot Training and Education – Towards a Machine Learning Aided Instructor Assistant for Flight Simulators**
  Shuiqiao Yang, Kun Yu, Thorsten Lammers, Fang Chen, *Australia*

- **Accelerometer-Based Estimation of the User Interest While Viewing Content on Smartphones Considering Viewing Conditions**
  Chisato Amada, Tota Mizuno, Yu Matsumoto, Kazuyuki Mito, Naoaki Itakura, Taiyo Nakashima, Takeshi Hanada, *Japan*

- **Investigating What You Share: Privacy Perceptions of Behavioural Biometrics**
  Sally Earl, James Campbell, Oliver Buckley, *United Kingdom*

- **Usability of digital numeration training for students at primary school**
  Frédéric Vella, *France*

- **Preliminary Findings from a Single Session of Virtual Reality Attentional Bias Modification Training in Healthy Women**
  Bruno Porras-Garcia, Alana Singh, Helena Miquel, Marta Ferrer-Garcia, Sergio López, Guillem Hopmans, Jesus Fleta, José Gutiérrez-Maldonado, *Spain*

- **Participation in the Intelligibility Testing of Easy-to-Read Texts: Development of an Interface for People with Learning Difficulties**
  Claudia Hösel, Susan Labude, Elisabeth Christoph, Christian Roschke, Matthias Baumgart, Marc Ritter, *Germany*

- **Development of a Holistic Web-Based Interface Assistance System to Support the Intralingual Translation Process**
  Matthias Baumgart, Claudia Hösel, Dominik Breck, Martin Schuster, Christian Roschke, Marc Ritter, *Germany*

- **Ideating for Co-designing with Blind and Visually Impaired Users: Exploring Possibilities for Designing User-Centered Healthcare Information in Pandemic Conditions**
  Sushil K. Oswal, Lohitvenkatesh Oswal, *United States*

- **Effectiveness of Self-Customized Refresher and Just-In-Time-Training for Mechanical Repair Task Performance**
  Christopher Stevens, John Karasinski, Kimberly Jenks, Sarah O'Meara, Savannah Buchner, Tanisha Potnis, Ryan Rocha, Stephen Robinson, *United States*

- **A Typing Training System for Beginners using a Mixed Reality Device**
  Kouki Kakuta, Hidetoshi Miyao, Minoru Maruyama, *Japan*

- **Leveraging Virtual Reality and Exergames to Promote Physical Activity**
  Thomas Stranick, Christian E. Lopez, *United States*

- **Detection of Hand Strength Distribution with E-Textile-Based Tactile Glove for Peach Harvesting**
  Daisuke Miyada, Lei Jing, *Japan*

- **Hurdle Relay: A Participatory Design Method for Understanding the**

Information Gap Through Iterative Comparison
Keunwoo Kim, Seoyeon Jang, Hyeonju Park, Kyung Je Jo, Hankyung Kim, Youn-kyung Lim, *Korea*

- **Seat Design Based on Subconscious Behavior**
Ruoyue Tang, Luwei Chen, Geqi Lin, *P.R. China*

- **Effectiveness of Manga Technique in Expressing Facial Expressions of Welfare Robot**
Junpei Sanda, Masayoshi Kanoh, *Japan*

- **Utilitarian or Relational? Exploring Indicators of User Orientation Towards Intelligent Agents**
Hankyung Kim, Hoyeon Nam, Uichin Lee, Youn-kyung Lim, *Korea*

- **Exploring the Effect of Activity Intervention on Reducing Social Media Use: Lessons Learned in a Field Study**
JuLing Ko, Chieh Yuan, Cheng-Han Yang, Billy Malherbe, Pei-Yi (Patricia) Kuo, *Taiwan*, China*

- **Estimation of Consumer Needs Using Review Data in Hotel Industry**
Shin Miyake, Kohei Otake, Tomofumi Uetake, Takashi Namatame, *Japan*

- **An AR-Enabled See-Through System for Vision Blind Areas**
Shaohua Zhang, Weiping He, Shuxia Wang, Shuo Feng, Zhenghang Hou, Yupeng Hu, *P.R. China*

- **Using Abstract Icon Systems in the Digital Divide Era: are Users Icon Blind?**
Antonio Capobianco, Karim Chibout, Pegdwinde Kontiebo, David Cazier, *France*

- **In-Vehicle Frustration Mitigation via Voice-User Interfaces – a Simulator Study**
Sandra Krüger, Esther Bosch, Klas Ihme, Michael Oehl, Germany

- **Research on Projection Interaction Based on Gesture Recognition**
Zhiwei Cao, Weiping He, Shuxia Wang, Jie Zhang, Bingzhao Wei, Jianghong Li, *P.R. China*

- **Toward Standardizing Wizard of Oz Driving Behavior: A Decision Ladder Analysis of the Driving Wizards' Task**
Andrea Isabell Scheiter, Michael Domes, Uwe Herbst, Klaus Bengler, *Germany*

- **A Study on the Promotion Strategy of the Taichung Learning City Project as the Development Process of the Culture Identity of a City**
Chi-Sen Hung, Yun-Chi Lee, *Taiwan*, China*

- **Smartphone-based Recognition Aid of Upward Staircases with People for the Visually Impaired**
Hotaka Takizawa, Genki Sekita, Makoto Kobayashi, Akihisa Ohya, Mayumi Aoyagi, *Japan*

- **Perceptions in Two-Dimensional and Three-Dimensional Aperture Problems**
Guang-Dah Chen, *Taiwan*, China*; Hsiwen Fan, *Japan*

- **Towards Commonsense Reasoning in AAL Environments**
Athanasios Tsitsipas, Lutz Schubert, *Germany*

- **"X-8": an Experimental Interactive Toy to Support Turn-Taking Games in Children with Autism Spectrum Disorders**
Beste Ozcan, Valerio Sperati, Flora Giocondo, Gianluca Baldassarre, *Italy*

- **Measuring the Apparent Movement Perception Thresholds of Kinetic Forms with Surface Lines and Forms of Various Color Combinations**
Chih-Wei Lin, Lan-Ling Huang, Chi-Meng Liao, *P.R. China*; Hsiwen Fan, *Japan*

- **Toothbrush Force Measurement and 3D Visualization**
Kasum Sakuma, Haicui LI, Lei Jing, *Japan*

- **Research on Furniture Design Based on Parametric Urbanism**
  Weijia Zhao, Maoqi Xu, *P.R. China*

- **Collaborative Explainable AI: A non-algorithmic approach to generating explanations of AI**
  Tauseef Ibne Mamun, Robert Hoffman, Shane Mueller, *United States*

- **Health Data Management for Nursing Practice: An Intelligent, Holographic Mixed-Reality System**
  Syed Hammad Hussain Shah, Bjørnar Longva, Ibrahim A. Hameed, Mads Solberg, Anniken Susanne T. Karlsen, *Norway*

- **Design of Intelligent Household Mushroom Cultivation Equipment**
  Cheng Huang, Yu Wei, *P.R. China*

- **ABLE Family: Remote, Intergenerational Play in the Age of COVID-19**
  Paula Gardner, Stephen Surlin, Caitlin McArthur, Adekunle Akinyema, Jessica Rauchberg, Rong Zheng, Jenny Hao, Alexandra Papaioannou, *Canada*

- **Touchless Information Provision and Facial Expression Training using Kinect**
  Seiji Hayashi, Hiroki Igarashi, *Japan*

- **Decision Support Systems in Disaster Risk Management Policies for Adaptation to Climate Change**
  Jose Ricardo Mondragon Regalado, Carmen Graciela Arbulú Pérez Várgas, *Peru*

- **Efficient Communication of Automated Vehicles and Manually Driven Vehicles through an External Human-Machine Interface (eHMI): Evaluation at T-Junctions**
  Hüseyin Avsar, Fabian Utesch, Marc Wilbrink, Michael Oehl, Caroline Schiessl, *Germany*

- **Reflections on engaging expert knowledge in learning technology design - cases: 3D game and VR mediation simulation**
  Kirsi Aaltola, *Finland*

- **Prototyping-based Study of Designs for Eye-tracking Interface in Augmentative and Alternative Communication Applications**
  Nayan Adhikari, Pedro Lind, Gustavo B. Moreno e Mello, *Norway*

- **Comparative Study on Differences in User Reaction by Visual and Auditory Signals for Multimodal eHMI Design**
  Seonggeun Ahn, Dokshin Lim, Byungwoo Kim, *Korea*

- **Social Media in Politic: Political Campaign on United States Election 2020 Between Donald Trump and Joe Biden**
  Paisal Akbar, Bambang Irawan, Mohammad Taufik, Achmad Nurmandi, Suswanta Suswanta, *Indonesia*

- **Co-Designing M-Healer: Supporting lay practitioner Mental Health Workers in Ghana**
  Liam Albright, Hoa Le, Suzanne Meller, Angela Ofori-Atta, *United States;* Dzifa Attah, Seth Asafo, *Ghana;* Pamela Collins, Dror Ben-Zeev, Jaime Snyder, *United States*

- **Storytelling Robots for Training of Emotion Recognition in Children with Autism; Opinions from Experts**
  Maryam Alimardani, Lisa Neve, Anouk Verkaart, *Netherlands*

- **Smart 3D Simulation of Covid-19 for Evaluating the Social Distance Measures**
  Abdulrahman Alkhayarin, Osama Halabi, *Qatar*

- **Old-looking yet Usable! : An Investigation of Consumer's Usability Perception of Retro Products**
  Nektar Ege Altintoprak, Turkey; Wei Wang, *United States*

- **Attacks and Anomaly Detection in IoT Network Using Machine Learning**
  Amani Alzahrani, Tahani Baabdullah, Danda Rawat, *United States*

- **Disruptive Technology in the Transportation Sector (Case in Indonesia)**
  Pahmi Amri, Achmad Nurmandi, Dyah Mutiarin, *Indonesia*

- **Using Experience-based Co-design to Develop mHealth App for Digital Pulmonary Rehabilitation Management of Patients with Chronic Obstructive Pulmonary Disease (COPD)**
  Qingfan An, *P.R. China;* Marjorie Kelley, Po-Yin Yen, *United States*

- **Handgrip Force Sensor to Measure Mental Workload**
  Carlos Arce-Lopera, Rafael Ospina, Juan Madrid, *Colombia*

- **Designing Data Visualization Assistance for a Bioacoustics Labeling Software**
  Carlos Arce-Lopera, Paula Garcia-Muñoz, Sebastián Restrepo-Quiceno, Daniel Gómez-Marín, Gustavo A. Londoño, *Colombia*

- **Collaborative Spatial Problem-Solving Strategies Presented by first Graders by Interacting with Tangible User Interface**
  Jorge Hernán Aristizábal Zapata, Julián Esteban Gutierrez Posada, *Colombia*

- **A Speech-Based Data Collection Interface for Contact Tracing.**
  Tamara Babaian, *United States*

- **Student eXperience: A survey in Argentinian universities about education in the pandemic context**
  Iván Balmaceda Castro, *Argentina;* Cristian Rusu, *Chile;* Silvana Aciar, *Argentina*

- **User state Detection using Facial Images with Mask Cover**
  Danushka Bandara, *United States*

- **Scaling the Phish: Advancing The NIST Phish Scale**
  Fern Barrientos, Jody Jacobs, Shanee Dawkins, *United States*

- **Learning Interactions: Robotics Supporting the Classroom**
  Giovana Barros, Beatriz Motta, Vitor Teixeira, Alexandre Gravatá, Sérgio Silva Junior, Leandro De Sá, Marilia Abrahão Amaral, Leonelo Dell Anhol Almeida, *Brazil*

- **Development of a Digital Collaborative Whiteboard**
  Armin Beckmann, Marc Bollmann, Tim Buchholz, Rafael Geiser, Daniel Kerpen, Jan Conrad, *Germany*

- **Privacy Concerns in Chatbot Interactions: When to Trust and When to Worry**
  Rahime Belen Saglam, Jason R.C. Nurse, Duncan Hodges, *United Kingdom*

- **A Feasibility Study of an Ict Based Training for Older People with Mild Cognitive Impairment: Future Perspective for Designers and Health Professionals**
  Roberta Bevilacqua, Elena Gambella, Elisa Felici, Sara Pasquini, Patrizia Civerchia, Giovanni Renato Riccardi, Susy Paolini, Pietro Pelliccioni, Giuseppe Pelliccioni, Elvira Maranesi, *Italy*

- **For a New Protocol to Promote Empathy Towards Users of Communication Technologies**
  Samip Bhurtel, Pedro Lind, Gustavo B. Moreno e Mello, *Norway*

- **Transform Motion Design into Ready-to-go Assets**
  Andrii Bogachenko, Inna Bondarenko, Daria Voskoboinikova, Yevhenii Buhera, *Ukraine;* Dongjoo Ko, *Korea;* Svitlana Alkhimova, *Ukraine*

- **Mobile application to disseminate the history of historical buildings.**
  Ana Cecilia Borja Arce, Daniela González, Alma Itzel Méndez Lara, Alba Rocio Núñez Reyes, Joaquín Sergio Zepeda Hernández, *Mexico*

- **Customer value co-creation behavior in tourism: The effect on customer loyalty**
  Zineb Bouchriha, Sabra Farid, Smail Ouiddad, *Morocco*

- **mHealthINX – A Virtual Reality-based Occupational Stress Management Solution for Older Employees**
Elisabeth Broneder, Fabian Wagner, Christoph Weiß, *Austria;* Julia Fritz, *Switzerland;* Miroslav Sili, *Austria;* Matthieu Arendse, *Netherlands*

- **Three Methods for Adapting Physical Games to Virtual Formats in STEM Courses - Easy (Google Suite), Medium (Web GL games in Unity) and Hard (Virtual Reality)**
Eric Bubar, Susan Agolini, Deana Jaber, Amanda Wright, *United States*

- **Agrihood: A Motivational Digital System for Sustainable Urban Environments**
Antonio Bucchiarone, Giulia Bertoldo, Sara Favargiotti, *Italy*

- **Sharing Secrets with Agents: Improving Sensitive Disclosures using Chatbots**
Oliver Buckley, Jason R.C. Nurse, Natalie Wyer, Helen Dawes, Duncan Hodges, Sally Earl, Rahime Belen Saglam, *United Kingdom*

- **Unidentified users*Of design documentation**
Agnes Cadier, *Sweden*

- **Intelligent Work: Person Centered Operations, Worker Wellness & the Triple Bottom Line**
Joan Cahill, Vivienne Howard, Yufei Huang, Junchi Ye, Stephen Ralph, Aidan Dillon, *Ireland*

- **A Machine Learning Approach to Football Match Result Prediction**
Luca Carloni, Andrea De Angelis, Giuseppe Sansonetti, Alessandro Micarelli, *Italy*

- **Implementation of Virtual Learning Objects in the Development of Mathematical Skills: A Qualitative Analysis from the Student Experience**
Omar Cóndor-Herrera, Carlos Ramos-Galarza, Pamela Acosta Rodas, *Ecuador*

- **Technological Intervention through the Virtual Assistant Alexa in the Development of Linguistic Skills of a New Language**
Omar Cóndor-Herrera, Janio Jadán-Guerrero, Pamela Acosta Rodas, Carlos Ramos-Galarza, *Ecuador*

- **Constructing 3D Mesh Indoor Room Layouts from 2D Equirectangular RGB 360 Panorama Images for the Unity Game Engine**
James C.P. Chan, Adrian K. T. Ng, Henry Y. K. Lau, *Hong Kong*

- **A Comparative Analysis of Attention to Facial Recognition Payment Between China and South Korea: A News Analysis Using Latent Dirichlet Allocation**
Shaopeng Che, *P.R. China;* Dongyan Nan, *Oman;* Pim Kamphuis, *Netherlands;* Jang Hyun Kim, *Korea*

- **Optimizing the Information of Sport Graphics in the Major League Baseball**
Chih-Yung Chen, Meng-Cong Zheng, *Taiwan*, China*

- **Tile-related Factors in Modern User Interface and their Effects on Gaze Pointing Movement Time**
Chin-Lung Chen, *Taiwan*, China*

- **Usability Optimization of National Health Insurance Express App**
Li-Hsin Chen, Meng-Cong Zheng, *Taiwan*, China*

- **Co-Immersive-Creation: A Hybrid Approach for Using Virtual Reality and Telepresence Systems in Co-Design Research**
M.F. Yang Chen, *United States*

- **Orientalism and Kung Fu Panda**
Xu Chen, *P.R. China*

- **Social Presence in Evaluations for a Humanoid Robot and Its Effect on Children-Robot Relationship**
Yi-Chen Chen, Edwinn Gamborino, Li-Chen Fu, Hsiu-Ping Yueh, Su-Ling Yeh, *Taiwan*, China*

- **Product Meaning-Making in High-Tech Companies: A Case Study of DJI Drones**
  Lin Cheng, *P.R. China*

- **Obtaining External Motivation from Strangers: A Study on Customer-to-Customer Interaction in Gymnasiums**
  Ying-Yu Chiang, Hsien-Hui Tang, Shu-Yi Chen, *Taiwan*, China*

- **Developing a Parametric System for Pointe Shoe Customization**
  Marilena Christodoulou, Isidro Navarro Delgado, Pau De Solà-Morales, *Spain*

- **Wearable device to aid impaired vision people against Covid-19**
  Sandro Costa Mesquita, Tiago Diógenes de Araújo, Victor Hazin Da Rocha, *Brazil*

- **Software Developers are People, Too: Using Participatory Research in the Tech Industry**
  Ana F. Couvinhas, Andre F. Pinto, *Portugal;* Denis A. Coelho, Sweden; Brad Paul, *United States*

- **Common Interactive Style Guide for Designers and Developers Across Projects**
  Bryan Croft, Mike Nithaworn, Seana Rothman, Odalis Felix, Jeff Clarkson, Eric Voncolln, *United States*

- **A Chatbot that Uses a Multi-Agent Organization to Support Collaborative Learning**
  Mateus Da Silveira Colissi, Renata Vieira, *Brazil;* Viviana Mascardi, *Italy;* Rafael H. Bordini, *Brazil*

- **A Decision Matrix for Implementing AR, 360° and VR Experiences into Mining Engineering Education**
  Lea M. Daling, Samira Khodaei, Stefan Thurner, Anas Abdelrazeq, Ingrid Isenhardt, *Germany*

- **Smooth Operator: A Virtual Environment to Prototype and Analyse Operator Support in CCTV Surveillance Rooms**
  Jonas De Bruyne, Jamil Joundi, Jessica Morton, Niels Van Kets, Glenn Van Wallendael, Durk Talsma, Jelle Saldien, Lieven De Marez, Wouter Durnez, Klaas Bombeke, *Belgium*

- **Systematic Literature Review of Nuclear Safety Systems in Small Modular Reactors**
  Tucker Densmore, *Canada;* Vincent G. Duffy, *United States*

- **User-Centric Explainability in Fintech Applications**
  Sahil Deo, Neha Sontakke, *India*

- **Web Interface for Power Grid Database**
  Sujan Devkota, Pedro Lind, Norun Christine Sanderson, *Norway*

- **LABSONLINE - An opportunity to access high quality laboratory during Covid breakout**
  Romi Dey, Rashmi Rajan, Kailash Manjhi, *India*

- **Conversational Agents in Language Education: Where They Fit and Their Research Challenges**
  Rahul Divekar, Vikram Ramanarayanan, Haley Lepp, Pravin Chopade, Aaron Albin, Daniel Brenner, *United States*

- **From a Drone's Point of View**
  Daniel Dolgin, David Van Der Like, Jeremy London, Chantry Holdman, *United States*

- **A Study on the Usability Evaluation of Teaching Pendant for Manipulator of Collaborative Robot**
  Jeyoun Dong, *Korea*

- **The Design and Evaluation of a Chatbot for Human Resources**
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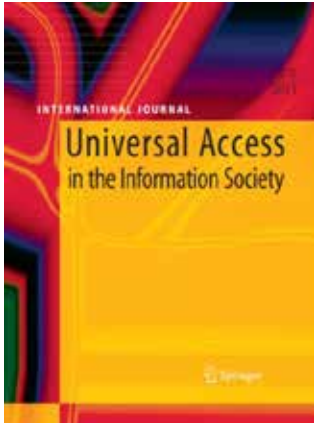Eric Cesar E. Vidal Jr., Ma. Mercedes T. Rodrigo, *Philippines*

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