



2021 IHSED International

4th International Conference on Human
Systems Engineering and Design: Future
Trends and Applications (IHSED 2021)

Final Program

September 23-25, 2021

Dubrovnik, Croatia

Conference *Scientific Program*

Technical Sessions will be held on Fri, September 24, 2021 and Saturday, September 25, 2021. Access will be provided to registered participants.

Plenary Session and Keynote Address: 13:30-15:00 (EDT) Thursday, September 23, 2021.

For inclusion in the Conference Proceedings, at least one unique registration per paper or poster is required.

CONFERENCE SCHEDULE	DAY 1	DAY 2
Thursday, September 23, 2021	Friday, September 24, 2021	Saturday, September 25, 2021
13:30-15:00 (EDT) Plenary Session and Keynote	9:00-10:30 (EDT) Technical Program	9:00-10:30 (EDT) Technical Program
	11:00 – 12:30 (EDT) Technical Program	11:00 – 12:30 (EDT) Technical Program
	13:30-15:00 (EDT) Technical Program	13:30-15:00 (EDT) Technical Program
	15:30-17:00 (EDT) Technical Program	
	10:00-17:00 (EDT) Poster Demonstration Sessions	10:00-17:00 (EDT) Poster Demonstration Sessions

Technical Sessions:

**PLENARY
SESSION**

Thu, Sep 23 Plenary Session and Keynote Address

13:30-15:00 Keynote Title: "**Winning in a Digital Economy**"

(EDT) Speaker: Matija Ražem, Infobip - VP Business Development

Track Room

ALL ALL

DAY 1

SESSION 1 Human-centered Design I

Track Room

IHSED 1 1

Fri, Sep 24 Session Chair(s): Matthias Beggiato, Germany and Ana Keselj, Croatia

9:00 - Multi-camera Face Tracking for Estimating User's Discomfort with Automated Vehicle Operations

10:30 (EDT) Matthias Beggiato, Nadine Rauh, Josef Krems, Germany

Comparison of Accessibility in EU Public Sector Websites

Ana Kešelj, Petra Bego, Krunoslav Zubrinic, Mario Milicevic, Croatia

Exploration of Multi-Touch Sliding Gesture Usage in In-Vehicle Infotainment System

Ziyi Shen, Yin Guodong, China

People interaction as the driving force of the knowledge city

Sonia Cueva Ortiz, Cesar Guevara, Ecuador

Dynamics among User, Management and Policy: A Case Study of Playgrounds during the COVID-19 Pandemic in Hong Kong

Yi Lin Wong, Hong Kong SAR China

Design of an application of computer for memory rehabilitation using the method of loci

Doris Perez, José Varela-Aldás, Jorge Buele, Guillermo Palacios-Navarro, Ecuador

Urban strategies for the recovery of public spaces in the northern area of Esmeraldas in Ecuador

Ivana Jacho, Milagros Fois, Ecuador

DAY 1

SESSION 2 Systems Design and Human Diversity I

Track Room

IHSED 2 2

Fri, Sep 24 Session Chair(s): Carlos Ramos-Galarza, Ecuador

- 9:00 -** Technological proposal to stimulate memory and attention: DR. LOBUS
10:30 (EDT) Carlos Ramos Galarza, Janio Jadán Guerrero, Hugo Arias-Flores, Pamela Acosta Rodas, Mónica Bolaños Pasquel, Ecuador
- The Role of Digital Interactive Whiteboards in students' learning and participation
 Omar Córdor-Herrera, Mónica Bolaños Pasquel, Pamela Acosta Rodas, Jorge Cruz, Carlos Ramos Galarza, Ecuador
- Conceptual Proposal of a Technological Application to improve the decision making process
 Micaela Silva Barragán, Pamela Acosta Rodas, Mónica Bolaños Pasquel, Carlos Ramos Galarza, Ecuador
- Conceptual Proposal of a Technological Application for the treatment of Addictions to Psychoactive Substances
 María Judith López Cárdenas, Pamela Acosta Rodas, Carlos Ramos Galarza, Ecuador

DAY 1

Track Room

SESSION 3 Safety Engineering and Systems Complexity I

IHSED 4 3

Fri, Sep 24 Session Chair(s): Aki Jaaskelainen, Finland and Minna Rantala, Finland

- 9:00 -** Designing a Maturity Model for Analyzing Safety Culture
10:30 (EDT) Sari Tappura, Aki Jääskeläinen, Julius Pirhonen, Finland
- Assessing the Success of Risk Assessment and Factors Affecting Its Success
 Minna Rantala, Maria Lindholm, Sari Tappura, Finland
- Workload Factors in Special Needs Education
 Johanna Pulkkinen, Virpi Sillanpää, Finland
- Characterizing soft modes' traveling in urban areas through indicators and simulated scenarios
 Soraia Felicio, Joana Hora, Marta Maria Campos Ferreira, Camila Dangelo, Paulo Costa, Diogo Abrantes, Jorge Silva, Miguel Coimbra, Maria Teresa Galvão Dias, Portugal
- Comparison of Blockly vs Arduino IDE for programming education using M5Stack Core2 ESP32 IoT Development Kit
 Mario Miranda, José Varela-Aldás, Ecuador
- Application of an Evidence based Approach to Enhance Patient Safety through Behavioural Control and Human Error
 Santanu Banerjee, Manikam Pillay, Australia

Safewards and behaviour control on the reduction of conflict and containment in Psychiatric units
Linda Mai, Australia

10:30 - 11:00 • Sessions Break

DAY 1

Track Room
IHSED 7 1

SESSION 4 Human Cyber Physical Systems Interactions I

Fri, Sep 24 Session Chair(s): Hiroyuki Nishimoto, Japan and Cynthia Panca, Peru

11:00 - 12:30 (EDT) Use of virtual social networks and social skills in university students from northern Peru.
Cynthia Milagros Apaza Panca, Polan Franbalt Ferro Gonzales, José Oscar Huanca Frías, Lucio Ticona Carrizales, María Gregoria Sánchez Prieto, Pedro Jesús Maquera Luque, Silverio Apaza Apaza, Peru
ARunning: A Discussion on the Role of Augmented Reality-assisted Application in Amateur Runner Athletes
Jiayi Zhu, Xi Zheng, Xin He, Yu Yun, China
Effective deep learning through bidirectional reading on masked language model
Hiroyuki Nishimoto, Japan
Framework for the Evaluation of Machine Learning Algorithms based on Fuzzy AHP and VIKOR
Maikel Yelandi Leyva Vazquez, Francisco Javier Poma Torres, Galo Enrique Valverde Landivar, Miguel Quiroz Martinez, Ecuador
The Impact of ICT on The Virtual Education of Students of The Salesian Polytechnical University as A Challenge Due to The Pandemic
Miguel Angel Quiroz Martinez, Cynthia Paola Torres Morales, Santiago Teodoro Castro Arias, Maikel Yelandi Leyva Vazquez, Christopher Gustavo Roby Cevallos, Ecuador

DAY 1

Track Room
IHSED 5 2

SESSION 5 Digital Design and Applications

Fri, Sep 24 Session Chair(s): Tihomir Dovramadjiev, Bulgaria and Cesar Guevara, Ecuador

11:00 - 12:30 (EDT) Digital Visualization of Biological Processes to Depict Human Physics
Tihomir Dovramadjiev, Diana Pavlova, Rusko Filchev, Rozalina Dimova, Bulgaria
Application of Decision Tree to Banking Classification Model
Cesar Guevara, Juan Freire, Ecuador

Video game design to promote environmental conservation

Miguel Cobos, Carlos Borja, Ecuador

Application of Artificial Intelligence Technology in Clothing Human Body Database

Weilin Zu, Li Pan, Tong Yao, Yiran Gu, Hong Sun, Junru Wang, Jun Wang, China

DAY 1

Track Room

SESSION 6 Biomechanics, Health Management and Rehabilitation I

IHSED 6 3

Fri, Sep 24 Session Chair(s): Ines Obradovic, Croatia and Tatiana Nikishova, Russia

11:00 - Ontology-based Approaches to Medical Data Integration

12:30 (EDT) Ines Obradovic, Mario Milicevic, Boris Vrdoljak, Krunoslav Zubrinic, Croatia

Automated ergonomic assessment with smart work clothes – An experimental validation approach

Markus Peters, Sascha Wischniewski, Germany

Temperature control in robotic bone drilling process

George Boiadjev, Tony Boiadjev, Kamen Delchev, Ivan Chavdarov, Rumen Kastelov, Bulgaria

The Trend of Insulin and Leptin in the Technology of Anti-relapse Treatment of Obesity

Maria Grishkina, Tatiana Nikishova, Svetlana Aleksandrova, Irina Kurnikova, Shirin Gulova, Natalia Zabrodina, Russia

Novel trends for the use of X-ray computed tomography for the etiological diagnosis of iodine metabolism disorders

Irina Kurnikova, Ramchandra Sargar, Igor Tomashevsky, Tatiana Meleshkevich, Natalia Zabrodina, Russia

Design of a low-cost digital spirometer for remote monitoring of COPD and COVID patients

Heyul Chavez, Julio Ronceros, Sergio Salas, Gianpierre Zapata, Carlos Raymundo, Jose Alvarez, Miguel Lara, Anthony De-la-Cruz, Wilmer Silva, Carlos Herrera, Nestor Mamani, Jorge Inche, Peru

Product Development For Biomaterials and Technologies for Sustainability

Heyul Chavez, Javier Ninahuaman, W. Cochachi Poma, Grimaldo Quispe, Luis Rivera, Francisco Dominguez, Peru

12:30 - 13:30 • Sessions Break

DAY 1

Track Room

SESSION 7 Human Cyber Physical Systems Interactions II

IHSED 7 1

Fri, Sep 24 Session Chair(s): Samira Maleki, Germany and Emil Dumic, Croatia**13:30 -** An AI-based Assistance System for Determining the Risk of Disease and for Preventive Measures**15:00 (EDT)** Samira Maleki, Nasser Jazdi-Motlagh, Germany

Transdisciplinary Approach in Social Robots: A Repertory Grid Analysis on Perception and Anticipated User Experience

Sena Semizoğlu, Ekrem Cem Alppay, Turkey

Digitization of Pre-Election Messages During The 2021 Parliamentary Campaign In Bulgaria

Neli Velinova, Mariyan Tomov, Lilia Raycheva, Lora Metanova, Bulgaria

Fast image inpainting for DIBR view synthesis using distance transform and Gaussian filtering

Emil Dumić, Anamaria Bjelopera, Tina Pogač, Croatia

Cultural difference of simplified facial expressions

Meina Tawaki, Ichi Kanaya, Keiko Yamamoto, Japan

Detection of unusual situations with the use of surveillance cameras and deep learning algorithms

Mariusz Kubanek, Janusz Bobulski, Lukasz Karbowski, Poland

DAY 1

Track Room

SESSION 8 Business Analytics, Design and Technology I

IHSED 8 2

Fri, Sep 24 Session Chair(s): Juan Penafiel, Peru and Ernesto Altamirano, Peru**13:30 -** Model based on Lean Service to optimize the level of service in a Peruvian MYPE importer and marketer of medical equipment**15:00 (EDT)** Juan Penafiel, Allison Urbina-Tapia, Vanessa Acevedo-Quiroz, Gino Viacava, Peru

Total Productive Maintenance Model applying SMED and FMEA to increase the overall efficiency of equipment (OEE) in the food sector

Ernesto Altamirano, Karen Caballero-Rojas, Oscar Palacios-Aguilar, Peru

Model based on SLP and work study to increase productivity in a bakery SME in Peru

Percy Castro, Diana Cadillo-Hidalgo, Yassef Yacub-Sotelo, Edgar Ramos, Peru

Inventory planning and management model to increase the level of service in a telecommunications product distribution company

Rosa Salas, Diego Esquivel-Alvarez, Cesar Postigo-Sanchez, Edgar Ramos, Peru

Lean model implemented in a textile MYPE for order fulfillment: Case of Peru
 Rosa Salas, Claudia Gallardo-Flores, Percy Ramos-Baños, Edgar Ramos, Peru
 Design of a new plant to optimize the production capacity of a MYPE, based on the principles of Systematic
 Layout Planning, 5s and Project Management
 Juan Penafiel, Estefani Mau-Dongo, Erick Merino-Zavaleta, Gino Viacava, Peru
 Corporate Governance Model for Customs Agency in accordance with Federal Customs Law Article
 167-D in Mexico
 Rodolfo Martinez Gutierrez, Jorge Vicente Villa Garcia, Mexico

DAY 1

SESSION 9 Business Analytics, Design and Technology II

Fri, Sep 24 Session Chair(s): Lee Ostrom, USA and Yi Chi Fu, Taiwan

Track	Room
IHSED 8	3

13:30 - Graduate Student Safety Culture

15:00 (EDT) Lee Ostrom, United States

Using prototype heuristics in reverse innovation engineering as an effective process for design-based learning
 Chao Yang Yang, Yi Chi Fu, Taiwan

Gamification in Early Education Gamification in the Teaching-Learning Process for Initial Education Children
 Mireya Zapata Rodríguez, Silvia Cajamarca, Ecuador

Work experience of the psychological diagnosis and training technologies center "Insight"
 Oksana Kravchenko, Natallia Koliada, Olena Polishchuk, Ukraine

Predictive method of influencing factors on air flow instability using black propagation artificial to optimize
 mining ventilation monitoring and control
 Carlos Raymundo, Juan Ramos-Barrial, Erick Leon-Plasencia, Yaneth Vasquez-Olivera, Luis Arauzo-
 Gallardo, Peru

Virtual Education in Autonomous Decentralized Governments: a case study of Honorable Provincial
 Government of Tungurahua.
 Galo Robayo, Janio Jadán Guerrero, Ecuador

Open-source collaboration to assess the text complexity, helping to read and write in schools
 Diego Palma, Christian Soto, Chile

Influence of work incentives on the normative commitment of financial personnel of municipal savings banks
Elva Castaneda, Jeferson Ccorisapra, Joaquin Machaca, Grimaldo Quispe, Heyul Chavez, Peru

15:00 - 15:30 • Sessions Break

DAY 1

**SESSION
10**

Human-centered Design II

Track Room

IHSED 1 1

Fri, Sep 24 Session Chair(s): Khazar Dargahi Nobari, Germany and Yavor Dankov, Bulgaria

15:30 - 17:00 (EDT) Emotion induction strategies in driving simulator for validated experiments
Khazar Dargahi Nobari, Caitlin Velasquez, Torsten Bertram, Germany

Gaming and Learning Analytics for Educational Video Games
Yavor Dankov, Boyan Bontchev, Albena Antonova, Bulgaria

mHealthINX – The mental Health experience concept
Miroslav Sili, Martin Bachler, Elisabeth Broneder, Réne Luigies, Niklas-Aron Hungerländer, Austria

Effect of Balance and Symmetry on web aesthetic: Computational modeling and experimental investigation
Yuqi Wang, China

Covid-19's New Normal as an opportunity to Speculative and Critical Design practice: Problematize and stimulate social debate.
Joana Lessa, Portugal

Water museums' response to COVID-19: the importance of digital media
Joana Lessa, Portugal

DAY 1

**SESSION
11**

Systems Design and Human Diversity II

Track Room

IHSED 3 2

Fri, Sep 24 Session Chair(s): Carlos Roberto Ramos, Ecuador

15:30 - 17:00 (EDT) Technological innovations for the treatment of addictions
María Judith López Cárdenas, Jaime Moscoso Salazar, Carlos Ramos Galarza, Ecuador

Semi-automatic Kneader for the Prevention of Occupational Diseases of Masapan Craftsmen
Mireya Zapata Rodríguez, Andres Navarrete, Ana Alvarez, Ecuador

Trends in specialization for health infrastructures: design of a hospital for the elderly in in the parish of Calderón, Quito

Daniela Zumarraga, Frank Bernal, Cristian Darquea, Mauricio Unda, Ecuador

Behavior patterns detection in the interaction with flat screen technology work-systems

Lorena Olmos Pineda, Jorge Gil Tejada, Mexico

Design of 3D Printer Based on Kansei Engineering

Wei Cheng, Pinjie Lv, Yunfei Chen, China

Promoting Awareness of Water Resource Issues using Indigenous Knowledge System

Dumani Kunjuzwa, South Africa

Modeling and Explanation of Driver Steering Style: An Experiment under Large-Curvature Road Condition

Puheng Shao, Zhenwu Fang, Jinxiang Wang, Zhongsheng Lin, Yin Guodong, China

DAY 1

**SESSION
12**

Health Design and Applications

Track Room

IHSED 5 3

Fri, Sep 24 Session Chair(s): Heyul Chavez, Peru and Ernesto Altamirano, Peru

**15:30 -
17:00 (EDT)**

Design of an exoskeleton to prevent and to take care of the spinal column of injuries of low back pain

Heyul Chavez, Jean Luna-Ramirez, Guersom Quispealaya-Lazo, Madai Taype-Mateo, Grimaldo Quispe, Luis Rivera, Francisco Dominguez, Peru

Home automation control system design with switches that prevents physical contact

Heyul Chavez, Wilfredo Ramirez, Grimaldo Quispe, Omar Alvarez, Luis Rivera, Peru

Design and modeling of a maca leaf cutter and classifier machine for the Junin region

Heyul Chavez, Marvin Curiñaupa-Alvarez, Grimaldo Quispe, Luis Rivera, Francisco Dominguez, Peru

Physical Activity of Brazilian Adults with Visual Impairment: A Descriptive Study

Aline Santos, Ana Ferrari, Fausto Medola, Anselmo Frizzera, Frode Sandnes, Brazil

DAY 2

**SESSION
13**

Safety Engineering and Systems Complexity II

Track Room

IHSED 4 1

Sat, Sep 25 Session Chair(s): Mladen Šverko, Darko Etinger, Croatia

- 9:00 -** Smart grid security challenges and approach at substation level automation
10:30 (EDT) Mladen Šverko, Darko Etinger, Nikola Tanković, Croatia
- OHS Management Skill Development and Continuing Learning
 Sari Tappura, Finland
- An optical pressure measurement system for control inceptors to evaluate pilots' workload
 Andrea Zaroni, Pierre Garbo, Giuseppe Quaranta, Italy
- Postural hygiene in the workplace for making masapan crafts
 Ana Alvarez, Mireya Zapata Rodríguez, Raquel Ango, Ecuador
- Strengths and Development Needs in Temporary Agency Work: Temporary Work Agency Managers' Perspective
 Susanna Mattila, Kati Ylikahri, Leena Rekola, Niko Cajander, Riitta Kärkkäinen, Sari Tappura, Finland
- Effectiveness of Permit to Work Systems Narrative
 Heather Amm, Australia
- A Systematic Literature Review on How to Enhance Safety Rules through Human Error and Behavioural Control Strategies
 Kristina Misevska, Australia

DAY 2

SESSION 14

Human Cyber Physical Systems Interactions II

Sat, Sep 25 Session Chair(s): Jie Gu Gu, China and Carlos Ramos-Galarza, Ecuador

- 9:00 -** Design strategy for data news visualization structure sequence based on user cognition
10:30 (EDT) Jie Gu, Yanfei Zhu, Chengqi Xue, China
- Applying Minecraft Education to pedagogical teaching process
 Omar Córdor-Herrera, Pamela Acosta Rodas, Jorge Cruz, Carlos Ramos Galarza, Ecuador
- The Influence of Off-Screen Visualization on user's cognition and memory in decision-making process
 Deng Fangyu, China
- Anticipated User Experience Evaluation of Game Controller Designs
 Serefraz Akyaman, Ekrem Cem Alppay, Turkey

Track	Room
IHSED 7	2

The View Switching Cost Analysis by the Visuo-auditory Dual-task Paradigm
Dongxin Fuchen, Ningyue Peng, Haiyan Wang, Yafeng Niu, Chengqi Xue, China

DAY 2

**SESSION
15**

Business Analytics, Design and Technology II

Track Room

IHSED 8 3

Sat, Sep 25 Session Chair(s): Daglas Koraca, Croatia and Maximilian Cedzich, Ingo Dietz Von Bayer, Germany

9:00 - 10:30 (EDT) How ICT affects business processes
Daglas Koraca, Croatia

Narratives the social environment applying gamification

Cesar Guevara, Carmen Graciela Encarnación Vargas, Ecuador

Proposal of hardware and software infrastructure for analysis, processing and decision making in medical entities through the use of Big Data

Miguel Quiroz Martinez, Christopher Gustavo Roby Cevallos, Daniel Humberto Plua Moran, Maikel Yelandi Leyva Vazquez, Ecuador

Big Data Predictive Analytics in Educational Database Systems

Miguel Quiroz Martinez, Gabriele Enmanuel Torres Secaira, Santiago Teodoro Castro Arias, Maikel Yelandi Leyva Vazquez, Ecuador

Method to assess students summaries in an intelligent tutor systems using coherence and content analysis in a reading comprehension task

Diego Palma, Christian Soto, Chile

Implementation of Lean Manufacturing in the company dedicated to the production of grains

Elva Castaneda, Thays Arotoma, Grimaldo Quispe, Heyul Chavez, Peru

Multimedia tool for the treatment of dyslexia and dyscalculia

Daniel Ripalda, Mario Piedra, Miguel Cobos, Ecuador

10:30 - 11:00 • Sessions Break

DAY 2

**SESSION
16**

Human-centered Design III

Track Room

IHSED 1 1

Sat, Sep 25 Session Chair(s): Michael Tondera, Germany and Müge Göken, Turkey

- 11:00 -** Considering the need for new aspects in route planners
12:30 (EDT) Diogo Abrantes, Marta Maria Campos Ferreira, Paulo Costa, Soraia Felicio, Joana Hora, Camila Dangelo, Jorge Silva, Maria Teresa Galvão Dias, Miguel Coimbra, Portugal
- Study on the Perceived Quality of Hand-Operated Mechanical Controls in Passenger Cars Using the Example of Air Vents
Michael Tondera, Matthias Fischer, Julia Kaiser, Thomas Maier, Germany
- Application of Kansei Engineering Techniques to the Redesign of a Turkish Coffee Machine
Müge Göken, Ekrem Cem Alppay, Turkey
- Procedures and methods for a more effective practical research in Information Design
Cristina Pires dos Santos, Maria João Pereira Neto, Marco Neves, Portugal
- The influence of the brightness and purity of the background color of the icon on the matching color aesthetic
Kexin Lu, China

DAY 2

**SESSION
17**

Human Cyber Physical Systems Interactions III

Track Room

IHSED 7 2

Sat, Sep 25 Session Chair(s): Yue Su, China and Ting Chen, China

- 11:00 -** Determining the Relevance of Quality Dimensions Concerning Video Conferencing Applications Used in
12:30 (EDT) Educational Ecosystem
Tihomir Orehovački, Snježana Babić, Darko Etinger, Croatia
- Intuitive Body Operations Suppressing VR Sickness
Naoto Utusmi, Munehiro Takimoto, Yasushi Kambayashi, Japan
- Aesthetic Influences of Different Functional Elements Layout on Shopping Website Interfaces
Yue Su, China
- Interactive Gesture of Exhibition Hall Mobile Follow Service Robot
Chen ting, Tang wencheng, China

Physical and Mental Workload Assessment in Human-Robot Collaboration Workplaces - a Review
Guilherme Deola Borges, André Cardoso, Hatice Gonçalves, Ana Colim, Paula Carneiro, Pedro Arezes,
Portugal

DAY 2

**SESSION
18**

Business Analytics, Design and Technology IV

Track Room

IHSED 8 3

Sat, Sep 25 Session Chair(s): Mireya Zapata, Ecuador and Cesar Guevara, Ecuador

11:00 - Musculoskeletal Injuries which Masapan Craftsmen are Exposed

12:30 (EDT) Alexis Suárez del Villar Labastida, Mireya Zapata Rodríguez, Ana Alvarez, Ecuador

Virtual learning environment applying digital narratives methodology
Cesar Guevara, Juan Paredes, Ecuador

Improvement of the English III Training Project, Through Training Action Research from Socioformation
Cesar Guevara, Lorena Espinosa, Roilys Suarez, Ecuador

The Socio-Cultural and Economic Aspects of Tourism in Ukraine

Alina Yakymchuk, Oleksandr Halachenko, Inna Irtysheva, Maksym Maksymchuk, Kateryna Blishchuk,
Olena Bilinska, Orystlava Sydorhuk, Yevheniya Boiko, Iryna Hryhoruk, Nazariy Popadynets, Ukraine

12:30 - 13:30 • Sessions Break

DAY 2

**SESSION
19**

Human-centered Design IV

Track Room

IHSED 1 1

Sat, Sep 25 Session Chair(s): Roxana Barbu, Canada and Tatjana Beuker, Netherlands

13:30 - User experience: beyond decoration and usability

15:00 (EDT) Roxana Barbu, Canada

Team Design Patterns for participatory development of First Response Human-Agent Teaming
Tatjana Beuker, Tina Mioch, Mark A. Neerincx, Netherlands

The exhibition catalogue as an editorial design object
Elisabete Rolo, Marta Nunes, Portugal

Effect of illuminance uniformity on paper-based reading performance

Run-Jiao Lu, Min-Chih Hsieh, Rui Dong, China

Color Laws and User Preferences in Product Color Matching of Morandi Colors

Nan Zhai, Xiaojun Liu, Miaomiao Zhou, China

The optimal design of mobile communication equipment based on hand analysis of the elderly

Yushi Jiang, China

Design driven by sensory perceptive variability

Asma Naz, Bangladesh

DAY 2

**SESSION
20**

Human Cyber Physical Systems Interactions V

Track Room

IHSED 7 2

Sat, Sep 25 Session Chair(s): Lorena Olmos Pineda, Mexico and Monica Daniela Gómez Rios, Ecuador

13:30 - Sentiment Analysis in Contrast to Official Data During the COVID-19 Pandemic in Ecuador

15:00 (EDT) Diego Vallejo-Huanga, Alisson Mendoza, Nicolás Carrasco, Ecuador

Augmented Reality and digital marketing. Impact on advertising campaigns and promotion

Monica Daniela Gómez Rios, Daniel Humberto Caicedo Estacio, Miguel Quiroz Martinez, Maikel Yelandi Leyva Vazquez, Ecuador

Tracking Knowledge evolution, hotspots and future directions of breast cancer detection using deep learning: a bibliometrics review

Monica Daniela Gómez Rios, Nestor Raul Martillo Martinez, Miguel Quiroz Martinez, Maikel Yelandi Leyva Vazquez, Ecuador

The activation of the focal attention sub-system as a product of a hierarchical process during the interaction with virtual products

Lorena Olmos Pineda, Jorge Gil Tejeda, Mexico

Data container for autonomous cars

Janusz Bobulski, Mariusz Kubanek, Joanna Kulawik, Sabina Szymoniak, Poland

DAY 2

Track Room

**SESSION
21 Human-centered Design V**

IHSED 7 3

Sat, Sep 25 Session Chair(s): Ana Sofia Colim, Portugal and Shuichi Fukuda, Japan

- 13:30 -** The transformation of manual workstations with collabo-rative robotics: the workers' perceptions
15:00 (EDT) Ana Colim, Rita Morgado, Nuno Sousa, Carlos Faria, João Cunha, João Oliveira, Luís Rocha, Portugal
- Coordinate Movement to Win the Game against the Changing Real World
Shuichi Fukuda, Japan
- Mangrove Parks as Alternative Urbanscapes in Desert Environments; Abu Dhabi as a Case Study
Mohamed Elhakeem, Mohamed El Amrousi, Evan Paleologos, United Arab Emirates
- Aesthetic Differences in the Arrangement of Smartphone Cameras
Xiaomian wang, Yanfei Zhu, Chengqi Xue, China
- Improvement and Research of Image Symmetry Quantization Algorithm
Renjie Dai, Xiaojun Liu, China

Poster Demonstration Sessions:

10:00-17:00 (EDT)

Poster Demonstration Sessions

SESSION A Poster Demonstration Session

Fri - Saturday, September 24 - 25 [10:30 - 17:00] (EDT)

- A-1** Opportunities for Integrating UX design activities into systems engineering : A Process Prototype and Case Study
Alisan Atvur, Denmark
- A-2** How an Incorrect Decision Caused by Peer Pressure and Personality Affects Regret
Akane Matsumae, Sei Hadano, Japan
- A-3** Integrating System-independent Learning Content with the Benefits of Digital Game Based Learning
Daniel Atorf, Sergius Dyck, Ehm Kannegieser, Germany
- A-4** MR and Senor Application in the folding Experience Exhibition of Chinese Traditional Furniture
Yu Dehua, China

SESSION B Poster Demonstration Session

Fri - Saturday, September 24 - 25 [10:30 - 17:00] (EDT)

- B-1** Mixed Reality Application and Interaction of Chinese Traditional Furniture in the digital scene construction from Chinese ancient paintings
Yu Dehua, China
- B-2** Digital substation model for testing an automated control system
Dmitry Zolin, Elena Ryzhkova, Russia
- B-3** Task load under different backloading scenarios
Xi Wang, China