



2020 IHSED International

3rd International Conference on Human Systems Engineering and Design: Future Trends and Applications

Juraj Dobrila University of Pula, Croatia



September 22-24, 2020

WWW.IHSED.ORG

DETAILED TECHNICAL PROGRAM

Tuesday, September 22, 2020

13:00 - 15:00 EDT - Plenary Session

Keynote Address:

Title: New technologies, new horizons of possibilities

Speaker: Dr. Sven Maričić, UNIPU, Croatia

Title: Winning in a digital economy

Speaker: Matija Ražem, Infobip - VP Business Development

Wednesday, September 23, 2020

① Virtual conference program schedule is listed in Eastern Daylight Time (EDT) - New York Timezone

SESSION Wednesday, September 23, 2020 • 10:00 - 12:00 EDT

TRACK

IHSED 1: Human-centered Design I

1

Session 1
Wednesday
September 23
10:00 - 12:00 EDT

HCD
IHSED 1: Human-
Centered Design

Session Chair(s): Alberto Vergnano, Italy and Igor Skoric, Croatia

Long distance relationships: use of technology advances in communication, idealization and satisfaction
Pamela Acosta Rodas, Hugo Arias, Carlos Ramos Galarza, Ecuador

Modular car seat for monitoring the pressure distribution on regions of pan and backrest
Alberto Vergnano, Andrea Piras, Francesco Leali, Italy

Design of a Human Machine Interface for Programming and Testing Adjustable Frequency Drives for Constant Pressure Pumping Applications
Byron Remache, Mireya Zapata Rodríguez, Jefferson Castro-Ramírez, Ecuador

Task-Technology Fit and Continuance of Use of Web-based Programming Tool: A Pilot Study
Igor Skoric, Tihomir Orehovački, Marina Ivasic-Kos, Croatia

Analysis, Evaluation, and Upgrading of a Data Analytics Methodology through a Qualitative Evaluation Technique and a User-Centered Design Process

Boris Alfonso Astudillo Espinoza, Katherine Cajilema, Marco Santorum, José Aguilar, Ecuador

Impacts of Virtual Communication during Social Isolation of COVID'19
Lilia Raycheva, Neli Velinova, Nadezhda Miteva, Mariyan Tomov, Bulgaria

IHSED 3: Systems Design and Human Diversity I

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Session 2
Wednesday
September 23
10:00 - 12:00 EDT

SHHD
IHSED 2: Innovative
Materials for Product
Development

Session Chair(s): Carlos Ramos-Galarza, Ecuador and Ana Ferreira, Portugal

Technology in favor of disability: prevalence study in Ecuador
Hugo Arias, Pamela Acosta Rodas, Janio Jadán Guerrero, Carlos Ramos Galarza, Ecuador

Future Trends in Education for a More Sustainable Human Systems Design: The CREATION Project
Ana Ferreira, Stefania Savva, Nicos Souleles, Portugal

Community management model of water resources. Case study: Urban planning of the Vinces canton, Ecuador
Arturo Cadena, Felipe Espinoza, Gabriela Vega, Jesús Hechavarría, Ecuador

Ecological waste planning. Case study: Comprehensive waste management plan at the Simón Bolívar air base,
Guayaquil, Ecuador
Santiago Tisalema, Jesús Hechavarría, Gabriela Vega, Marcial Calero, Ecuador

Characterising Futuring Strategies for Biodiverse Speculative Design and Systems Design
Ana Ferreira, Craig Jeffcott, Portugal

IHSED 4: Safety Engineering and Systems Complexity I

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Session 3
Wednesday
September 23
10:00 - 12:00 EDT

SESC
IHSED 3: Systems Design
and Human Diversity

Session Chair(s): Manikam Pillay, Australia and Sari Tappura, Finland

Investigating the Measurement of Resilience Engineering for Improving Organisational Safety
Manikam Pillay, Udara Ranawalage, Emmanuel Boateng, Ishanka Weerasekara, Australia

An operational model for developing process operator students' safety competence in on-the-job learning
Susanna Mattila, Noora Nenonen, Sari Tappura, Sanna Nenonen, Finland

Measuring the Outcomes of Safety Training
Sari Tappura, Aki Jääskeläinen, Finland

Characterizing High-Speed Serial Transceivers for a Multi-Processor Parallel Architecture
Mireya Zapata Rodríguez, Bernardo Vallejo-Mancero, Blanca Liliana Topón, Ecuador

12:00 EDT - 13:00 • Sessions Break

SESSION Wednesday, September 23, 2020 • 13:00 - 15:00 EDT

IHSED 7: Human Cyber Physical Systems Interactions I

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Session 4
Wednesday
September 23
13:00 - 15:00 EDT

TRACK
HCPSI
IHSED 6: Biomechanics,
Health Disease and
Rehabilitation

Session Chair(s): Frode Sandnes, Norway and Fausto Medola, Brazil

Rehabilitation of Children affected by Attention Deficit
Carlos Ramos Galarza, Pamela Acosta Rodas, Janio Jadán Guerrero, Mónica Bolaños Pasquel, Fabiola Saez Delgado, Ecuador

The Effect of Manual Wheelchair Design on Mobility: A Study with Non-Users and Experienced Wheelchair Users
Sara Barili, Frode Sandnes, Luis Carlos Paschoarelli, Galdenoro Botura Junior, Fausto Medola, Brazil

Selecting the Right Tool for the Task: A Hard-Soft Cake Eating Experiment with a Spoon and Fork
Sondre Bjarkum, Maximilian Stiegler Chadoyan, Fausto Medola, Frode Sandnes, Norway

IHSED 1: Human-centered Design II

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Session 5
Wednesday
September 23
13:00 - 15:00 EDT

HCD
IHSED 7: Human Cyber
Physical Systems
Interactions

Session Chair(s): Darko Etinger, Croatia and Fabiola Cortes Chaves, Mexico

Modelling the Adoption of the Version Control System: An Empirical Study
Tihomir Orehovački, Darko Etinger, Snježana Babić, Croatia

Case study: birthing bed design process for new mothers, considering all the users involved at delivery phase. With Mexico being the main scenario.

Guillermina Suarez, Alejandra Robles, Montserrat Avelar, Carlos Raymundo Garnier Ortiz, Fabiola Cortes-Chavez, Mexico

Expulsion stretcher for births in indigenous communities

Mariana Diaz Pinal , Julieta Ramirez Reynoso, Mariana Ascencio, Grecia Alejandra Chavira Hernández , Fabiola Cortes-Chavez, Carlos Raymundo Garnier Ortiz, Mexico

Birthing bed with ergonomic design of adjustable sections by touch technology that facilitates its understanding and use.

Teresita Batiz Flores, Andrea Perez, María Fernanda Martínez López, Fabiola Cortes-Chavez, Carlos Raymundo Garnier Ortiz, Mexico

Using serious games and motion tracking for physical rehabilitation

Santiago Solorzano Lescano, Patricio-David Espinosa Alvarez, Karina-Beatriz Jimenes-Vargas, Jorge-Luis Pérez-Medina, Ecuador

IHSED 4: Safety Engineering and Systems Complexity II

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Session 6
Wednesday
September 23
13:00 - 15:00 EDT

SESC
IHSED 8: Business,
Design and Technology

Session Chair(s): Fernando Moura, Portugal and Lee Ostrom, USA

Ergonomics of firefighting protective clothing: a short review on fit and sizing issues

Anna Sophia Moraes, Miguel Carvalho, Rachel Boldt, Fernando Batista Nunes Ferreira, Fernando Duarte, Susan Ashdown, Linsey Griffin, Portugal

Remote Inspection

Lee OSTROM, Cheryl Wilhelmsen, United States

Investigating the Measurement of High Reliability Organisations for Health Care Safety

Manikam Pillay, Andrew Enya, Emmanuel Boateng, Australia

Investigating Resilience Engineering Through Safe Work Method Statements in Residential Construction

Manikam Pillay, Michael Tuck, Australia

15:00 EDT - 16:00 • Sessions Break •

Thursday, September 24, 2020

① **Virtual conference program schedule is listed in Eastern Daylight Time (EDT) - New York Timezone**

SESSION Thursday, September 24, 2020 • 10:00 - 12:00 EDT

IHSED 7: Human Cyber Physical Systems Interactions II

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Session 7
Thursday
September 24
10:00 - 12:00 EDT

TRACK
HCPSI
IHSED 4: Safety
Engineering and Systems
Complexity

Session Chair(s): Hermann Kaindl, Austria and Sherry Palamara, USA

A Comparison of Three Potato Peeler Designs

Åshild Drejer, Truls Enstad, Erik R. M. Fog, Thor Oskar F. Viken, Fausto Medola, Frode Sandnes, Norway

Optimizing the Human Psyche in a Pandemic

Sherry Palamara, United States

A Probabilistic Model of Taking-over Control from Semi-autonomous Vehicles

Hermann Kaindl, Gunther Paul, Austria

Exploring relationship between user satisfaction and impacts of digital competence certification system in schools

Igor Balaban, Aleksandra Sobodic, Croatia

IHSED 1: Human-centered Design III

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Session 8
Thursday
September 24
10:00 - 12:00 EDT

HCD
IHSED 6: Biomechanics,
Health Disease and
Rehabilitation

"Session Chair(s): Fabiola Cortes, Mexico and Yahong Li, China

New birthing bed design that improves user experience during delivery phase, including ergonomic factors.

Natalia Villalpando Chávez, Cristina Vázquez Hernández, María Andrea Escoto Aceves, Fabiola Cortes-Chavez, Carlos Raymundo Garnier Ortiz, Mexico

"Homenu": An interactive projection cooking assistant

Yahong Li, Shuyuan Zhang, Zhanxun Dong, China

Automatic Summarization Method for First-person-view Video based on Gaze Object Gaze

Keita Hamaoka, Yasuyuki Kono, Japan

Evidence on the use of Gait Analysis - A review

Afonso Laranjo, Susana Costa, Fernando Duarte, Miguel Carvalho, Pedro Arezes, Portugal

Design narrative and City Information Modeling

Gonçalo Falcão, José Nuno Beirão, Portugal

Humanoid robotics: guidelines for usability testing

Francesco Burlando, Annapaola Vacanti, Niccolò Casiddu, Claudia Porfirione, Italy

12:00 EDT - 13:00 • Sessions Break •

SESSION Thursday, September 24, 2020 • 13:00 -15:00 EDT

TRACK

IHSED 1: Human-centered Design IV

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Session 9
Thursday
September 24
13:00 - 15:00 EDT

HCD
IHSED 1: Human-
Centered Design

Session Chair(s): Kurt Englmeier, Germany and Daniel Ripalda Moya, Ecuador

User-Centered Detection of Fake News and Misinformation - Design and Prototypical Implementation in the System Contexter
Kurt Englmeier, Germany

Relationship between Gestalt and usability Heuristics in mobile device interfaces

Daniel Ripalda, CESAR GUEVARA, Alejandra Garrido, Ecuador

A revisit of objective measurement and subjective measurement: basic concept and application

Mengya Cai, Zhu Gao, Wenjun Zhang, China

Empowerment in the Learning of Wine Technology based on Emotional Motivation Using the Moodle Platform

Ernesto Hernández Martínez, Estrellita Mayra Calle Berrú, Miguel Hernández Martínez, Ralph Stein Rivera
Botonares, Zury Mabel Socola Juárez, Peru

Designing synthetic emotions of a robotic system

Annapaola Vacanti, Francesco Burlando, Niccolò Casiddu, Claudia Porfirione, Italy

IHSED 1: Human-centered Design V

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Session 10
Thursday
September 24
13:00 - 15:00 EDT

HCD
IHSED 1: Human-
Centered Design

Session Chair(s): Carlos Ramos-Galarza, Ecuador and Carlos Ramos-Galarza, Ecuador

Virtual Learning Objects' of Math Educative Process

Omar Córdor-Herrera, Janio Jadán Guerrero, Carlos Ramos Galarza, Ecuador

Relationship between Technological Resources and Meaningful Learning in Secondary Students

Johanna Bonilla-Guachamín, Janio Jadán Guerrero, David Rojas-Londoño, Carlos Ramos Galarza, Ecuador

Virtual Assistants and Their Implementation In The Teaching Process Learning

Omar Córdor-Herrera, Janio Jadán Guerrero, Carlos Ramos Galarza, Ecuador

Technical Challenges to Adopting Large Scale Additive Manufacturing for the Production of Yacht Hulls

Eric Peterson, United States

Cork as a Relevant Material in Fashion: A Study of Socio-cultural Trends and a Semiotic Reading of the Cork-a-Tex
Yam

Theresa Lobo, Williafonso Cantu, Nelson Pinheiro Gomes, Portugal

Exploratory Approach to Performance of Smart Components of Intelligent [Smart] Buildings

Lekan Amusan, Moses Emeter, Rapheal Lekan, Nigeria

ACRONYM TRACK

- HCD** IHSED 1: Human-Centered Design
IMPD IHSED 2: Innovative Materials for Product Development
SHHD IHSED 3: Systems Design and Human Diversity
SESC IHSED 4: Safety Engineering and Systems Complexity
SDSM IHSED 5: Sports Design and Sports Medicine
BHDR IHSED 6: Biomechanics, Health Disease and Rehabilitation
HCPSI IHSED 7: Human Cyber Physical Systems Interactions
BDT IHSED 8: Business, Design and Technology

Poster Sessions

Posters will be displayed Wednesday, September 23, 2020 and Thursday, September 24, 2020. Posters must be removed by the end of each day/session they are scheduled to be demonstrated. Poster demonstration sessions will be at the times shown below.

	Wednesday, September 23, 2020 Poster Demonstration: 10:30 - 14:30 m: Virtual		Thursday, September 24, 2020 Poster Demonstration: 10:30 - 14:30 m: Virtual
A-1	Human-machine interactions for on the fly free text input processing Sergius Dyck, Almuth Hoffmann, Germany	B-1	Human-machine interactions for on the fly free text input processing Sergius Dyck, Almuth Hoffmann, Germany
A-2	Exploring Annotations and Hand Tracking in Augmented Reality for Remote Collaboration Tiago Madeira, Bernardo Marques, João Alves, Paulo Dias, Beatriz Sousa Santos, Portugal	B-2	Exploring Annotations and Hand Tracking in Augmented Reality for Remote Collaboration Tiago Madeira, Bernardo Marques, João Alves, Paulo Dias, Beatriz Sousa Santos, Portugal
A-3	Psychological Interpretation of Human Social Behaviors in the Atypical Architectural Shape Young Lim Lee, Yun Gil Lee, South Korea	B-3	Psychological Interpretation of Human Social Behaviors in the Atypical Architectural Shape Young Lim Lee, Yun Gil Lee, South Korea
A-4	Motion Capture and Virtual Reality Application in the Interactive Exhibition of Chinese Traditional Furniture Yu Dehua, China	B-4	Motion Capture and Virtual Reality Application in the Interactive Exhibition of Chinese Traditional Furniture Yu Dehua, China
A-5	Mixed Reality Application with MR Glasses in the Interaction Exhibition of Mortise and Tenon Structure of Chinese Traditional Furniture Yu Dehua, China	B-5	Mixed Reality Application with MR Glasses in the Interaction Exhibition of Mortise and Tenon Structure of Chinese Traditional Furniture Yu Dehua, China
A-6	Managing Strategic Participation through Design Principles: A Model for Value Co-creation in Service-based Organizations Rocío Salvatierra, Chile	B-6	Managing Strategic Participation through Design Principles: A Model for Value Co-creation in Service-based Organizations Rocío Salvatierra, Chile
A-7	Using Augmented Reality and Step by Step Verification in Industrial Quality Control João Alves, Bernardo Marques, Paulo Dias, Beatriz Sousa Santos, Portugal	B-7	Using Augmented Reality and Step by Step Verification in Industrial Quality Control João Alves, Bernardo Marques, Paulo Dias, Beatriz Sousa Santos, Portugal

A-8	Process Design for Evoking Emotional Response Focusing on Empathy Akane Matsumae, Mitsuki Miyahara, Japan	B-8	Process Design for Evoking Emotional Response Focusing on Empathy Akane Matsumae, Mitsuki Miyahara, Japan
A-9	Strategic Priorities for Socio-Economic Development of Ukraine in Comparison with the Republic of Poland Olena Pavlova, Kostiantyn Pavlov, Oksana Novosad, Inna Irtysheva, Nazariy Popadynets, Iryna Hryhoruk, Nataliia Gelich, Alla Suriak, Oksana Makara, Olha Zhuk, Yevheniya Boiko, Iryna Kramarenko, Ukraine	B-9	Strategic Priorities for Socio-Economic Development of Ukraine in Comparison with the Republic of Poland Olena Pavlova, Kostiantyn Pavlov, Oksana Novosad, Inna Irtysheva, Nazariy Popadynets, Iryna Hryhoruk, Nataliia Gelich, Alla Suriak, Oksana Makara, Olha Zhuk, Yevheniya Boiko, Iryna Kramarenko, Ukraine
A-10	Towards Intelligent Pick and Place Assembly of Individualized Products Using Reinforcement Learning Caterina Neef, Dario Luiipers, Jan Bollenbacher , Christian Gebel, Anja Richert, Germany	B-10	Towards Intelligent Pick and Place Assembly of Individualized Products Using Reinforcement Learning Caterina Neef, Dario Luiipers, Jan Bollenbacher , Christian Gebel, Anja Richert, Germany