IHSI
International
Intelligent Human Systems Integration Conference
2021
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Virtual

2021
IHSI
International

4th International Conference on

Intelligent Human Systems Integration:

Integrating People and Intelligent Systems

Final Program

February 22-24, 2021
Virtual Conference

WWW.IHSINT.ORG

Opening Plenary Session and Keynote Address

Date: February 22 • 13:30-15:00
Virtual Room: All

Speaker: Prof. Dr.-Ing. Frank Ole Flemisch, Germany
Keynote Title: "Human Systems Integration and Intelligence: Past, Present, Future"

On the first glance, Human Systems Integration, which we try to make more intelligent in our conference, is a relatively new discipline, at least compared to Medicine, Physics or Mathematics. At the second glance, the successful integration of humans, technology and organization into meaningful and powerful systems is almost as old as the species of homo sapiens exists. The first part of the keynote will give a couple of striking examples from the dawn of humankind in the savannas of Africa to the first landing of humans on the moon, which underline that HSI is a long standing art craft, and increasingly science. The second part will look at the presence of HSI: Where do we stand in comparison to "pure" engineering? What are the domains where we are already successful, where are we largely unknown or under-utilized? Where do our colleagues in HSI come from, what domains and systems do they address? The third, most important part will look into the future of HSI: What are the major trends which we have to find solutions for? What are the most important, maybe also most challenging tension fields which we have to address?

About the Speaker: Prof. Dr.-Ing. Frank Ole Flemisch started as an aerospace engineer with a specialization in systems engineering and system dynamics. He spent many years in research on assistant systems and automation of aircraft, cars, trucks, helicopters, industrial sites and weapons systems at University of Armed Forces Munich, NASA Langley and DLR, served as the lead of a national standardization group and a technical expert in ISO TC204. He and his team, together with partners from academia and industry, coined the terms highly automated driving, cooperative automation and cooperative control. Since 2011 he is leading a department of Human System Integration at the Fraunhofer FKIE institute in Wachtberg/Bonn, Germany, is Professor for Human Systems Integration at the RWTH Aachen University - one of two Germany's Engineering Universities of Excellence - and is member of the NATO-STO Human Factors and Medicine Panel. He serves an Associate Editor for journals IEEE Transactions on Human-Machine Systems and he guest edited a special issue on "Shared and cooperative control of safety critical systems" for Cognition, Technology & Work, published in 2019.

Access to the Virtual Conference Scientific and Technical Program will be Available through the IHSI Submission System

Detailed Access for all sessions will be sent to Registered Participants

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

Conference Organization

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Chair: A. Ebert, Germany

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U. Schmid, Germany
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IHSI 8: Applications and Future Trends

Co-Chairs:
D. Russo, Italy
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Conference at a Glance

Tuesday, February 23

#	Title	Room	Track
	Session Time: 8:30 - 10:30		
1	IHSI 1: Automotive Design and Transportation Engineering	Roma	IHSI 1
2	IHSI 2: Humans and Artificial Cognitive Systems I	Milan	IHSI 2
3	IHSI 3: Intelligence, Technology and Analytics I	Palermo	IHSI 3
4	IHSI 4: Computational Modeling and Simulation I	Florence	IHSI 4
5	IHSI 5: Humans and Artificial Systems Complexity I	Verona	IHSI 5
	10:30-11:00 • Sessions Break		
	Session Time: 11:00 - 13:00		
6	IHSI 6: New Technologies and Inclusive Human Systems I	Roma	IHSI 6
7	IHSI 7: Human-Autonomy Teaming I	Milan	IHSI 7
8	IHSI 8: Applications and Future Trends I	Palermo	IHSI 8
9	IHSI 2: Humans and Artificial Cognitive Systems II	Florence	IHSI 2
10	IHSI 2: Artificial Intelligence and Computing II	Verona	IHSI 2
	13:00 - 14:00 • Sessions Break		
	Session Time: 14:00 -16:00		
12	IHSI 5: Humans and Artificial Systems Complexity II	Milan	IHSI 5
13	IHSI 6: New Technologies and Inclusive Human Systems II	Palermo	IHSI 6
14	IHSI 7: Human-Autonomy Teaming II	Florence	IHSI 7
15	IHSI 8: Applications and Future Trends II	Verona	IHSI 8
	16:00 - 17:00 • Sessions Break		

Conference at a Glance

Wednesday, February 24

#	Title	Room	Track
	Session Time: 8:30 - 10:30		
16	IHSI 2: Humans and Artificial Cognitive Systems III	Roma	IHSI 2
17	IHSI 3: Intelligence, Technology and Analytics III	Milan	IHSI 3
18	IHSI 5: Humans and Artificial Systems Complexity III	Palermo	IHSI 5
19	IHSI 6: New Technologies and Inclusive Human Systems III	Florence	IHSI 6
	10:30-11:00 • Sessions Break		
	Session Time: 11:00 - 13:00		
20	IHSI 8:Applications and Future Trends III	Roma	IHSI 8
21	IHSI 2: Humans and Artificial Cognitive Systems IV	Milan	IHSI 2
22	IHSI 8: Applications and Future Trends IV	Palermo	IHSI 8
	13:00 - 14:00 • Sessions Break		
	Session Time: 14:00 -16:00		
24	IHSI 8: Applications and Future Trends V	Roma	IHSI 8
25	IHSI 8: Applications and Future Trends VI	Milan	IHSI 8
26	IHSI 8: Applications and Future Trends VII	Palermo	IHSI 8

Acronym	Track
IHSI 1	Automotive Design and Transportation Engineering
IHSI 2	Humans and Artificial Cognitive Systems
IHSI 3	Intelligence Technology and Analytics
IHSI 4	Computational Modeling and Simulation
IHSI 5	Humans and Artificial Systems Complexity
IHSI 6	Smart Materials and Inclusive Human Systems
IHSI 7	Human-Autonomy Teaming
IHSI 8	Applications and Future Trends

1	**IHSI 1: Automotive Design and Transportation Engineering** Session Chair(s): Marcel Usai and Lorenz Goerne, Germany

8:30 - 10:30 - ROMA	User-centered Design within the Context of Automated Driving in Trucks – GSystem Architecture for Gesture Control of Maneuvers in Automated Driving
	    Marcel Usai, Ronald Meyer, Ralph Baier, Nicolas Daniel Herzberger, Kristian Lebold, Frank Flemisch, Germany
	Service Oriented Software Architecture for Vehicle Diagnostics
	    Lorenz Görne, Hans-Christian Reuss, Germany
	Investigation of Personality Traits and Driving Styles for Individualization of Autonomous Vehicles
	    Yvonne Brück, Dario Niermann, Alexander Trende, Andreas Lüdtke, Germany
	Predicting Takeover Quality in Conditionally Automated Vehicles using Machine Learning and Genetic Algorithms
	    Emmanuel de Salis, Quentin Meteier, Marine Capallera, Leonardo Angelini, Andreas Sonderegger, Omar Abou Khaled, Elena Mugellini, Marino Widmer, Stefano Carrino, Switzerland
	Increasing Agility: A Tangible XR for Rapid Prototype Development and Usability Assessment
	    Ronald Meyer, Frank Flemisch, Germany
	Automated but Not Alone": How the Possible Forms of Future Human Activity Are Analyzed in the Advent of Automated Vehicles?
	    Daniel Silva, Liliana Cunha, Portugal

2	**IHSI 2: Humans and Artificial Cognitive Systems I** Session Chair(s): Xiaohan Wang, China and Chiara Lucifora, Italy

8:30 - 10:30 - MILAN	NeuroDesignScience: An fNIRS-based System Designed to Help Pilots Sustain Attention During Transmeridian Flights
	    Amanda Liu, Binbin Li, Xiaohan Wang, Songyang Zhang, Yancong Zhu, Wei Liu, United States
	Cyber-Therapy: The use of Artificial Intelligence in Psychological Practice
	    Chiara Lucifora, Leonardo Angelini, Quentin Meteier, Carmelo Mario Vicario, Omar Abou Khaled, Elena Mugellini, Giorgio Mario Grasso, Italy
	The fear of learning statistics in Latin America: computational solutions
	    Carlos Ramos Galarza, Omar Cóndor Herrera, Valentina Ramos, Mónica Bolaños, Pamela Acosta Rodas, Janio Jadan-Guerrero, Hugo Arias-Flores, Ecuador
	An Analytical Framework for Evaluating Complex Human-Machine Tactical Military Decision-making
	    Bonnie Johnson, Julian Jones, Russell Kress, Adam Rahman, William Newmeyer, United States
	PEST Approach to Managing the Bulgarian Media Ecosystem
	    Lilia Raycheva, Bulgaria
	Implementation of Augmented Reality into Student Practical Skills Training
	    Dana Dobrovská, David Van ek, Czech Republic

3	**IHSI 3: Intelligence, Technology and Analytics I** Session Chair(s): Maryna Averkyna, Estonia and Florian Brillowski, Germany

8:30 - 10:30 - PALERMO	Method of Similarity Implementation for the Decision-Making Process in Small Towns Transportation Management
	    Maryna Averkyna, Peeter Lorents, Estonia
	Know-How Transfer and Production Support Systems to Cultivate the Internet of Production within the Textile Industry
	    Florian Brillowski, Hannah Dammers, Hannah Koch, Kai Müller, Leon Reinsch, Christoph Greb, Germany
	Health and Activity Monitoring Using Smart Devices to Support the Self-Management of Health Behavior
	    Janet Wesson, George Mujuru, Lester Cowley, South Africa
	Data-Driven Fault Classification using Support Vector Machines
	    Deepthi Jallepalli, Fatemeh Davoudi Kakhki, United States
	Cybersafety in the digital educational environment: external and internal risks
	    Oleksandr Burov, Yuliya Krylova-Grek, Evgeniy Lavrov, Olena Orliyk, Svitlana Lytvynova, Olga Pinchuk, Olga Matvienko, Nataliia Koshechko, Ukraine
	Preliminary Analysis on the Recruitment Process for Domestic Violent Extremist Groups
	    Brendan Reilly, April Edwards, United States

4	**IHSI 4: Computational Modeling and Simulation I** Session Chair(s): Anthony Palladino, USA and Manuel Sanchez Chero, Peru

8:30 - 10:30 - FLORENCE

AI-augmented Human Performance Evaluation for Automated Training Decision Support
> Anthony Palladino, Margaret Duff, Alexander Bock, Tracy Parsons, Rody Arantes, Bernard Chartier, Carl Weir, Kendra Moore, United States

Program in Visual Basic Language: A Simplified Procedure for Thermal Treatment Evaluation of Packaged Foods
> William Rolando Miranda Zamora, Manuel Jesus Sanchez Chero, Marcos Timaná-Alvarez, Veronica Seminario-Morales, César Niño-Carmona, Nelly Leyva, Leandro Alonso Vallejos More, Lucio Ticona-Carrizales, Abraham Ygnacio, Peru

Monitoring implementation for Spiking Neural Networks architecture on Zynq-7000 All Programmable SoCs
> Mireya Zapata, Bernardo Vallejo-Mancero, Byron Remache-Vinueza, Jordi Madrenas, Ecuador

Increasing competitiveness of economic regions: prospects for innovative development
> Nazariy Popadynets, Ieh Yakymchuk, Alina Yakymchuk, Rostyslav Bilyk, Inna Irtyshcheva, Iryna Hryhoruk, Kateryna Blishchuk, Yevheniya Boiko, Nataliya Hryshyna, Yuriy Yakymchuk, Ihor Sirenko, Serhiy Serhiychuk, Ukraine

Artificial Neural Networks in Art - Face Colorization and 3D Visualization
> Lai Man Tin, Hong Kong SAR China

The Trojan Horse experiment: fourth phase in the research with City Information Modeling (CIM) and design ethics
> José Beirão, Gonçalo Falcão, Portugal

Analysis and modeling of factor determinants of Ukraine's hotel and tourist sphere
> Nazariy Popadynets, Iryna Hryhoruk, Mariana Popyk, Olha Bilanyuk, Oleksandr Halachenko, Inna Irtyshcheva, Natalia Batkovets, Nataliia Lysiak, Yevheniya Boiko, Nataliya Hryshyna, Mariana Bil, Tetiana Nezveshchuk-Kohut, Ukraine

5	**IHSI 5: Humans and Artificial Systems Complexity I** Session Chair(s): S M Mizanoor Rahman, USA and Keiki Takadama, Japan

8:30 - 10:30 - VERONA

Multimodal Interactions between a Virtual Human and a Social Robot
> S M Mizanoor Rahman, United States

Ambient Assisted Living: Benefits of the technology development
> Hugo Arias-Flores, Janio Jadan-Guerrero, Omar Cóndor Herrera, Carlos Ramos-Galarza, Ecuador

Towards Agent Design for Forming a Consensus Remotely Through an Analysis of Declaration of Intent in Barnga Game
> Yoshimiki Maekawa, Tomohiro Yamaguchi, Keiki Takadama, Japan

Aspect fusion as design paradigm for legal information retrieval
> Kurt Englmeier, Pedro Contreras, Germany

Economic diagnostics and management of eco-innovations: conceptual model of taxonomic analysis
> Alina Yakymchuk, Andriy Valyukh, Inna Irtyshcheva, Valentyna Yakubiv, Nazariy Popadynets, Iryna Hryhoruk, Kostiantyn Pavlov, Olena Pavlova, Yuliia Maksymiv, Yevheniya Boiko, Nataliya Hryshyna, Olena Ishchenko, Ukraine

10:30 - 11:00 • Sessions Break

6	**IHSI 6: New Technologies and Inclusive Human Systems I** Session Chair(s): Ahmed Farooq, Finland and Mona Mohamed, USA

11:00 - 13:00 - ROMA

Creating Embedded Haptic Waveguides in a 3D-Printed Surface to Improve Haptic Mediation for Surface-based Interaction
> Ahmed Farooq, Hong Tan, Roope Raisamo, Finland

Preliminary Investigations on Subcutaneous Implantable Microchip Health and Security Risks
> Mona Mohamed, Beenish Chaudhry, United States

An Interdisciplinary and Participatory Research for Co-creating a Relaxed Performance in one theater environment in Montreal
> Zakia Hammouni, Walter Wittich, Eva Kehayia, Ingrid Verduyckt, Natalina Martiniello, Émilie Hervieux, Tiiu Poldma, Canada

Development of a methodology for the learning-teaching process through virtual and augmented reality
> Stalyn Ávila-Herrera, Cesar Guevara, Ecuador

Electric circuit simulator applying augmented reality and gamification
> Cesar Guevara, Vinicio Burgos, Lorena Espinosa, Ecuador

7	**IHSI 7: Human-Autonomy Teaming I** Session Chair(s): Jurriaan van Diggelen, Netherlands and Paul Dommel, Germany

11:00 - 13:00 - MILAN

Delegation in Human-agent Teaming: Progress, Challenges and Prospects
> Jurriaan van Diggelen, Jonathan Barnhoorn, Ruben Post, Joris Sijs, Nanda van der Stap, Jasper van der Waa, Netherlands

Comparison of a Logistic and Support Vector Machine Model to Detect Discomfort in Automated Driving
> Paul Dommel, Alois Pichler, Matthias Beggiato, Germany

Human-Centered Design in an Automated World
> Claire Blackett, Norway

Evaluation of Swarm Supervision Complexity
> Sebastian Lindner, Axel Schulte, Germany

Sensor Fusion-Based Supervised Learning Approach to Collaborative Manipulation with Variable Autonomy
> S M Mizanoor Rahman, United States

8	**IHSI 8: Applications and Future Trends I** Session Chair(s): Afnan Zafar, Finland and Merylin Monaro, Italy

11:00 - 13:00 - PALERMO

The openness of open innovation in the product development process
> Afnan Zafar, Sweden

Mouse Tracking IAT in Customer Research: An Investigation of Users' Implicit Attitudes towards Social Networks
> Merylin Monaro, Paolo Negri, Francesca Zecchinato, Luciano Gamberini, Giuseppe Sartori, Italy

Uncanny Valley in 3D Emoji: Investigating User Perceptions of Realistic Representations
> Juhee Chung, Soojin Jun, South Korea

Blended Design strategies to plan again the new territorial networking and its interconnections
> Irene Fiesoli, Italy

A Study on the Attitude and Practice of Chinese Teachers and Students towards VR Teaching for Foreign Language Learning
> Weihua Du, Zhongli Hu, China

Lean Manufacturing for Production Management and Strategic Planning to Increase Productivity in SMEs Engaged in Manufacturing Chemicals
> Carlos Raymundo-Ibañez, Hernan Zegarra-Mendez, Víctor Nuñez, Peru

9	**IHSI 2: Humans and Artificial Cognitive Systems II** Session Chair(s): Patrick Rupprecht, Austria and Sonia Grigor, Romania

11:00 - 13:00 - FLORENCE

Taxonomy for Individualized and Adaptive Human-Centered Workplace Design in Industrial Site Assembly
Patrick Rupprecht, Sebastian Schlund, Austria

Integrating Voice based Interaction with Massive Data Process Description and Execution
Constantin Nandra, Sonia Grigor, Dorian Gorgan, Romania

Reading multiple EEG frequency-band networks in developmental dyslexia
Tihomir Taskov, Juliana Dushanova, Bulgaria

Social activity of student youth: experience of Pavlo Tychyna Uman State Pedagogical University
Oksana Kravchenko, Natalia Koliada, Viktoria Isachenko, Inna Honchar, Ukraine

Gamification teaching for an active learning
Omar Cóndor Herrera, Pamela Acosta Rodas, Carlos Ramos Galarza, Ecuador

10	**IHSI 2: Artificial Intelligence and Computing II** Session Chair(s): Anastasia Kalugina, Switzerland and Iryna Hryhoruk, Ukraine

11:00 - 13:00 - VERONA

Semi-quantitative model for risk assessment in University laboratories
Anastasia Kalugina, Thierry Meyer, Switzerland

Human centred Design in a new hospital in Canada: The lived experience of healthcare professionals
Zakia Hammouni, Tiiu Poldma, Canada

Evaluation of domestic market development in Ukraine
Nazariy Popadynets, Inna Irtyshcheva, Lyudmila Shymanovska-Dianych, Olesia Diugowanets, Iryna Hryhoruk, Iryna Kramarenko, Tetiana Husakovska, Yevheniya Boiko, Nataliya Hryshyna, Olena Ishchenko, Nataliya Tubaltseva, Dariya Archybisova, Ukraine

Challenges in Smart Healthcare for physical rehabilitation
Jorge-Luis Pérez-Medina, Karina Jimenes-Vargas, Patricia Acosta-Vargas, Mario Gonzalez, Wilmer Esparza, Ecuador

Using a video camera to obtain quantitative measurements for distance flexibility training
Oksana Isaeva, Anna Konurina, Yura Boronenko, Vladimir Zelensky, Yelena Gudoshnik, Russia

Occupational Health and Safety Management in The Industry 4.0 Era
Mohamed Naceur Ben Aziza, Adel Badri, Foued Chihi, Canada

13:00 - 14:00 • Sessions Break

12	**IHSI 5: Humans and Artificial Systems Complexity II** Session Chair(s): Francesca de Rosa, Italy and Marja Ahola, Finland

14:00 -16:00 - MILAN

The Knowledge Acquisition Analytical Game framework for cognitive systems design
Francesca De Rosa, Anne-Laure Jousselme, Alessandro De Gloria, Italy

Human-Artificial Systems Collaboration in Service Innovation and Social Inclusion
Afnan Zafar, Marja Ahola, Sweden

User Cognitive Abilities-Human Computer Interaction Tasks Model
Jinshou Shi, Wenzhe Tang, Ning Li, Yingwei Zhou, Tuoyang Zhou, Ziang Chen, Kaili Yin, China

Interactive Human-Computer Theoretical Model of Editorial Design with Augmented Reality
Carlos Borja, Cesar Guevara, Ecuador

13	**IHSI 6: New Technologies and Inclusive Human Systems II** Session Chair(s): Stefania Camplone, Italy and Patricia Acosta-Vargas, Ecuador

14:00 -16:00 - PALERMO

Health emergency and digital shopping experience: a new era of retail design
> Stefania Camplone, Emidio Antonio Villani, Italy

Combined Method for Accessibility Evaluation in Tele-rehabilitation Platforms for Low Vision Users
> Patricia Acosta-Vargas, Jorge-Luis Pérez-Medina, Gloria Acosta-Vargas, Belén Salvador-Acosta, Wilmer Esparza, Karina Jimenes-Vargas, Mario Gonzalez, Ecuador

Gamification for Teaching - Learning Mathematics in Students of Basic Education
> Cesar Guevara, Roilys Jorge Suarez Abrahante, Jean Paul Molina Villarroel, Ecuador

Co-Design of Inclusive Assistive Technology for Movement Disorders
> Reem Almehmadi, Alanoud Alsharidah, Leen Almutlaq, Bakur Madani, Ruba Alfadhel, Shiroq Almegren, Areej Al-Wabil, Saudi Arabia

Co-Creation of Pediatric Physical Therapy Environments: The Humanistic Co-Design Process
> Hadeel Alomrani, Abduallah Alsinan, Rneem Almansoury, Rana Aljabr, Saudi Arabia

14	**IHSI 7: Human-Autonomy Teaming II** Session Chair(s): Frank Flemisch, Germany and Axel Schulte, Germany

14:00 -16:00 - FLORENCE

Towards a Balanced Analysis for a more intelligent Human Systems Integration
> Frank Flemisch, Michael Preutenborbeck, Marcel Baltzer, Joscha Wasser, Ronald Meyer, Nicolas Daniel Herzberger, Marten Bloch, Marcel Usai, Daniel Lopez, Germany

Anticipating Human Decision for an Optimal Teaming between Manned and Unmanned Systems
> Jane Jean Kiam, Marius Dudek, Axel Schulte, Germany

Psychophysics-Based Cognitive Reinforcement Learning to Optimize Human-Robot Interaction in Power-Assisted Object Manipulation
> S M Mizanoor Rahman, United States

Paper-based electronics for brain-machine interface home supercomputer
> Nicolas Lori, Miguel Pais-Vieira, Manuel Curado, José Machado, Portugal

Multi-Agent Collaboration in an Adversarial Turret Reconnaissance Task
> Rolando Fernandez, Anjon Basak, Bryson Howell, Christopher Hsu, Erin Zaroukian Zaroukian, Jake Perret, James Humann, Michael Dorothy, Piyush Sharma, Scott Nivison, Zachary Bell, Derrik Asher, United States

15	**IHSI 8: Applications and Future Trends II** Session Chair(s): Cesar Guevara, Ecuador and Young Ae Kim, USA

14:00 -16:00 - VERONA

Gestalt Prototyping Framework - Evaluation Tool
> Daniel Ripalda, Cesar Guevara, Alejandra Garrido, Ecuador

Social Media Happiness expression through the Virtual Reality: Cultural Differences on Instagram
> Young Kim, Qiuwen Li, United States

Flexible Manufacturing Systems: A Methods Engineering and Operations Management Approach
> Claudia Yohana Arias Portela, María-Cristina Herrera-García, Mexico

Supporting Collective Intelligence of Human-Machine Teams in Decision-Making Scenarios
> Alexander Smirnov, Andrew Ponomarev, Russia

Lean Manufacturing Production Management Model under a Change Management Approach to Enhance Production Efficiency of Textile and Clothing SMEs
> Carlos Raymundo-Ibañez, Reddy Heredia-Mercado, Shaly Flores-Piñas, Pedro Chavez, Peru

Calculation of the level of service in the gondola in supermarkets
> Carlos Raymundo-Ibañez, Juan Ñaupari, Anghela Urbina, Grimaldo Quispe, Peru

16:00 - 17:00 • Sessions Break

16 · ROMA · 8:30 - 10:30

IHSI 2: Humans and Artificial Cognitive Systems III
Session Chair(s): Oleksandr Burov, Ukraine and Carlos Ramos-Galarza, Ecuador

Mental Rotation Ability and Preferences in Vocational Education
Oleksandr Burov, Evgeniy Lavrov, Olga Lavrova, Olena Hlazunova, Oleksii Tkachenko, Svitlana Shevchenko, Svitlana Ahadzhanova, Karen Ahadzhanov-Honsales, Oleksandr Viunenko, Ukraine

Technological resources for neuropsychological rehabilitation
Carlos Ramos Galarza, Paula Silva Barragán, Omar Cóndor Herrera, Mónica Bolaños, Valentina Ramos, Jorge Cruz Cárdenas, Ecuador

A Modeling Method to Evaluate the Finger-click Interactive Task in the Virtual Environment
Jiarui Li, Xiaozhou Zhou, Lesong Jia, Weiye Xiao, Yu Jin, Chengqi Xue, China

Technological Innovations for Executive Functions Stimulation
María Judith López, Carlos Ramos Galarza, Ecuador

Influence of Size and Depth Perception on Ray-casting Interaction in Virtual Reality
Xiaolei Lv, Chengqi Xue, Weiye Xiao, China

17 · MILAN · 8:30 - 10:30

IHSI 3: Intelligence, Technology and Analytics III
Session Chair(s): Rui Magalhães Belfort, Brazil and Eija Kaasinen, Finland

Combining Objective Key Results, Net Promoter Score and Social Return of Investment to Measure Design Impact
Rui Belfort, Farley Millano, Fabio Campos, Brazil

User experience goals for cognitive systems in smart business buildings
Eija Kaasinen, Susanna Aromaa, Maarit Halttunen, Susanne Jacobson, Inka Lappalainen, Marja Liinasuo, Maaria Nuutinen, Reetta Turtiainen, Finland

Performance Evaluation of the Nvidia Jetson Nano Through a Real-time Machine Learning Application
Sebastián Valladares, Mayerly Toscano, Rodrigo Tufiño, Paulina Morillo, Diego Vallejo-Huanga, Ecuador

Public-Private Partnerships (PPPs) in Energy: Co-Citation Analysis using Network and Cluster Visualization
Giovanna Andrea Pinilla De La Cruz, Rodrigo Rabetino Sabugo, Jussi Kantola, Finland

The impact of connected and autonomous trucks on freeway traffic flow
Yue Qiao, Hu Yongju, China

Low-Cost Cyber-Physical Production Systems Based on IEC 61499 for Analog Process
Marcelo Garcia, Spain

18 · PALERMO · 8:30 - 10:30

IHSI 5: Humans and Artificial Systems Complexity III
Session Chair(s): Thierry Nsabimana, Italy and Fabio Campos, Brazil

Learning Vector Quantization and Radial Basis Function Performance Comparison Based on Intrusion Detection System
Joël T. Hounsou, Pamela Bélise Ciza Niyomukiza, Thierry Nsabimana, Ghislain Vlavonou, Fulvio Frati, Ernesto Damiani, Benin

User Experience in Virtual Environments: Relationship Between Cybersickness Issues and the Optical Aspects of the Image by Contrast Levels
Fabio Campos, Marcia Campos, Tulio Luiz Rodrigues Da Silva, Marnix Van Gisbergen, Brazil

Human Error Related to the Design of Fire Protection Control System in Civil Aircraft Cockpit
Kun Han, Hongyu Zhu, China

Benefit of developing assistive technology for writing
Galo Molina-Vargas, Hugo Arias-Flores, Janio Jadan-Guerrero, Ecuador

19	**IHSI 6: New Technologies and Inclusive Human Systems III** Session Chair(s): Noemí Suárez, Ecuador and Edison Javier Guaña Moya, Ecuador

8:30 - 10:30 - FLORENCE

Digital Transformation of Education: Technology strengthens creative methodological productions in mas-ter's programs in education
Noemí Suárez-Monzón, Janio Jadan-Guerrero, Maritza Librada Cáceres Mesa, Verónica Andrade Andrade, Ecuador

Method for Assessing Accessibility in Videoconference Systems
Patricia Acosta-Vargas, Javier Guaña-Moya, Gloria Acosta-Vargas, William Villegas-Ch1, Luis Salvador, Ecuador

Teaching E-learning for Students with Visual Impairments
Theresa Lobo, Portugal

Co-Creation of Pediatric Physical Therapy Environments: The Humanistic Co-Design Process
Hadeel Alomrani, Abduallah Alsinan, Rneem Almansoury, Rana Aljabr, Saudi Arabia

Analysis of the activation volume and the pressure resistance for handling kinetic of processing food
William Rolando Miranda Zamora, Nelly Leyva, Manuel Jesus Sanchez Chero, Marcos Timaná-Alvarez, Leandro Vallejos More, Priscila Estelita Luján Vera, Marlon Martín Mogollón Taboada, Peru

10:30 - 11:00 • Sessions Break

20	**IHSI 8: Applications and Future Trends III** Session Chair(s): Janio Jadan-Guerrero, Ecuador and Zhiyuan Ye, China

11:00 -13:00 - ROMA

Using Drones for Tourism: Exploring exciting places of Ecuador
Santiago Uribe-Montesdeoca, Janio Jadan-Guerrero, Hugo Arias-Flores, Carlos Ramos-Galarza, Ecuador

Visual perception based on Gestalt theory
Zhiyuan Ye, Chengqi Xue, Yun Lin, China

Construction Method of User Mental Model in Interaction Design
Bingqing Yang, Haiyan Wang, Junkai Shao, China

Design of Travel Auxiliary Products and APP for People with Mobility Impairments
Wen Shao, Jiong Fu, Yingjue Dai, China

Design of VR games safety criteria's based on ergonomics and behavior Simulation in family
Wei Lu, Xiacheng Song, Hanjie Cao, Binhong Zhai, China

Ergonomic Method for Redesigning Workstations to Reduce Musculoskeletal Disorders Among Workers in Textile SMEs
Carlos Raymundo-Ibañez, Brenda Miranda-Rodriguez, Luis Saenz-Julcamoro, Edgardo Carvallo-Munar, Claudia Leon-Chavarri, Peru

Design of a semi-automatic machine for processing ecological and antibacterial bricks to save concrete based on polyethylene and copper terephthalate residues in Huancayo
Carlos Raymundo-Ibañez, Antony Ibarra, Grimaldo Quispe, Peru

21	**IHSI 2: Humans and Artificial Cognitive Systems IV** Session Chair(s): Carlos Ramos-Galarza

11:00 -13:00 - MILAN

Technological resources to stimulate multiple intelligences: verbal-linguistic and logical-mathematical
Mónica Bolaños, Micaela Silva Barragán, Pamela Acosta Rodas, Omar Cóndor Herrera, Jorge Cruz Cárdenas, Carlos Ramos Galarza, Ecuador

Proposal of an educational technological game for children's education
Omar Cóndor Herrera, Carlos Ramos Galarza, Ecuador

Frequency Weighting of Student Categories in Quadrants for Remote Higher Education Under COVID 19 Pandemic Era
Ernesto Hernández Martínez, Zury Mabell Sócola Juarez, Tania Jakeline Choque Rivera, Abraham Guillermo Ygnacio Santa Cruz, Walter Hernández Martinez, Peru

22	**IHSI 8: Applications and Future Trends IV** Session Chair(s): Joscha Wasser, Germany and Yongkang Chen, China

11:00 -13:00 - PALERMO

Gaze based interaction for object classification in recon-naissance missions using highly automated platforms.
> Joscha Wasser, Marten Bloch, Konrad Bielecki, Daria Vorst, Daniel Lopez, Marcel Baltzer, Frank Flemisch, Germany

Comparative Analysis of Emotional design based on Web of Science and CNKI
> Yongkang Chen, Yuhao Jiang, Xingting Wu, Renke He, China

Design of a ventilation system for the Uchucchacua-Buenaventura Oyón-Lima mine
> Carlos Raymundo-Ibañez, Luis Espinoza, Grimaldo Quispe, Peru

Maintenance Management Model for Cost Reduction by Applying TPM Through a DMAIC Approach in SMEs in Service Sector
> Carlos Raymundo-Ibañez, Hugo Bazan-Torres, Fernando Maradiegue-Tuesta, Peru

Smart Retail and Phygital Customer Journey in The Kids and Toys Stores
> Benedetta Terenzi, Arianna Vignati, Italy

13:00 - 14:00 • Sessions Break

24	**IHSI 8: Applications and Future Trends V** Session Chair(s): Layan Alabdullatef, Saudi Arabia and Nicoletta Adamo, USA

14:00 - 16:00 - ROMA

Co-Design of Gesture-based Arabic Sign Language (ArSL) Recognition
> Abeer Alnafjan, Layan Al-Abdullatef, Mayar Al-Ghamdi, Nada Al-Khalaf, Wejdan Al-Zahrani, Saudi Arabia

Multimodal Affective Pedagogical Agents for Different Types of Learners
> Nicoletta Adamo, Bedrich Benes, Richard Mayer, Xingyu Lei, Zhiquan Wang, Zachary Meyer, Alyssa Lawson, United States

Designed for Designer: An Online Co-design Workshop
> Di Zhu, Anni Li, Nan Wang, Jiazhen Wu, Wei Liu, China

Application of the algorithm for the recognition of pedestrian disturbance patterns by Lucas-Kanade method in real time
> Carlos Raymundo-Ibañez, Abelardo Limaymanta, Carlos Cantalicio, Grimaldo Quispe, Peru

Design of equipment for a forage and agricultural waste processor to improve livestock feed
> Carlos Raymundo-Ibañez, Abelardo Limaymanta, Carlos Cantalicio, Grimaldo Quispe, Peru

Design and construction of a prototype for measuring the thermal conductivity of insulating materials, plastics and metals according to ASTM C177 with staged heating
> Carlos Raymundo-Ibañez, Alex Meza, Grimaldo Quispe, Peru

Computer Vision Based Rehabilitation Assistant System
> Nudpakun Leechaikul, Siam Charoenseang, Thailand

25	**IHSI 8: Applications and Future Trends VI** Session Chair(s): Mireya Zapata, Ecuador and Jie Zhou, China

14:00 - 16:00 - MILAN

Implementation of lean manufacturing tools to improve the flow of productivity in a craft shoe workshop
> Nicol Manrique, Stephanie Nuñez, Grimaldo Quispe, Carlos Raymundo-Ibañez, Peruique, Stephanie Nuñez, Grimaldo Quispe, Peru

Concept of Poverty Alleviation Design under the Cultural Viewpoint of East Asia and Its Development Evolvement and Practice
> Jie Zhou, China

CAD/CAE tools and additive manufacturing to reduce the impacts of critical equipment shutdown on production planning
> Byron Remache-Vinueza, Kevin Davila, Mireya Zapata, Ecuador

Comparison of Accessibility Tools for the Evaluation of E-Commerce Websites
> Freddy Paz, Freddy Paz, Arturo Moquillaza, Luis Collantes, Juan Arenas, Daniela Villanueva, Peru

Mining students' topics of interest and innermost feelings through confession pages
> Hoang Huu Son, Thi Ngoc Lan Dong, Ngo Thanh Hoang, Minh Tam Dao, Phan Thi Phuc, Tran Thi Huong, Vietnam

Digital model for monitoring SME architecture design projects
> Gianpierre Zapata, Peru

26	**IHSI 8: Applications and Future Trends VII** Session Chair(s): Xiang Wu, China and Yunqing Xu, China

14:00 - 16:00 - PALERMO

Active methodologies for teaching Physics through Virtual Learning Environments
> Juan Carlos Polo-Mantuano, Mireya Zapata, Ecuador

Inheritance and Innovation of Bamboo Weaving Technology in Zhejiang Province Based on Cultural Gene Extraction and Transformation
> Yixiang Wu, China

Automation design for the dispersion of pigments and homogenization of water-based paint
> Mireya Zapata, Blanca Topon-Visarrea, Estefano Arias-Ponce, Ecuador

Intelligent Painting Education Mode based on Individualized Learning under the Internet Vision
> Yunqing Xu, Yi Ji, Peng Tan Tan, Qiaoling Zhong, Ming Ma, China

Analyzing Selfie Opportunities and Trends in a Chinese Context
> Ruilin Wang, Dawei Wang, Ziwei Zhang, Di Zhu, Wei Liu, China

Influence of environmental information on users' purchase intentions for electric two-wheelers
> Fei-Hui Huang, Taiwan

Interactive Poster Demonstrations

Posters will be displayed Tuesday, February 23, 2021 till Wednesday, February 24, 2021. Poster demonstration sessions will be at the times shown below.

A1. **Characteristics of lower limb position perception in response to environmental information in individuals with low-vision**
Tadashi Uno, Japan

A2. **Co-Creative Social Media Features on Video Platforms, and their Impact on Customer Relationships**
Akane Matsumae, Yumeng Zhang, Japan

A3. **An Evaluation of Tools for Identifying Vulnerabilities in Open Source Dependencies for NodeJS Applications**
Kevin Holmes, Amir Schur, United States

A4. **Autonomous robot for plastic waste classification**
Janusz Bobulski, Mariusz Kubanek, Poland

A5. **Using the Social Autopsy Tool to Understand Why Neonates Die In the Builsa North District, Ghana**
Aurelia Abapali, Ghana

B1. **Hackathon-Edu: A global competitiveness perspective**
Gabriela Tapia, Rodolfo Martinez, Fabiola Tapia, Mexico

B2. **Developing an Application for Walking in Nature: Post COVID-19 Tourism**
Yuko Hiramatsu, Jinshan Luo, Madoka Hasegawa, Akira Sasaki, Atsushi Ito, Japan

B3. **An approach to determine short- and long-term work ability in SmartWork system**
Otilia Kocsis, George Papoulias, Nikos Fakotakis, Konstantinos Moustakas, Greece

B4. **Bio-plastic, the challenge of a perpetual material**
Stefania Camplone, Italy

B5. **Analysis of employee unsafe behavior based on cellular automata model**
Wang Yan-Mei, Yunqi Dong, Xue-Bo Chen, China

B6. **Modernization and Optimization of Drug Discovery using AI Algorithms**
Aleksandr Baghramyan, Armenia

C1. **Comparison the ultrasonic distance sensor with the lidar in different conditions**
Lukasz Karbowiak, Mariusz Kubanek, Janusz Bobulski, Poland

C2. **Competitiveness and innovation on the frontier of knowledge: 25th Anniversary Postgraduate in Administration TecNM Tijuana**
Rodolfo Martinez Gutierrez, Carmen Esther Carey Raygoza, Carlos Hurtado Sánchez, Mexico

C3. **Innovation in Value Chain in the Medical Tourism Industry in Tijuana, Baja California**
Alma Laura Bonilla, Rodolfo Martinez, Mexico

D1. **Cognitive Ergonomics Applied to the Analysis of Work on Offshore Platforms**
Selma Saraiva Da Costa Moreira, Brazil

D2. **Challenges for an Observatory of the SDG Agenda 2030 Goals from NODESS in Tijuana, Baja California**
Rodolfo Martinez, Maria Marcela Solis Quinteros, Mexico

D3. **Competitiveness and innovation on the frontier of knowledge: 25th anniversary Postgraduate in Administration TecNM Tijuana**
Rodolfo Martinez, Carmen Esther Carey Raygoza, Carlos Hurtado Sánchez, Mexico

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