

2nd International Conference on

### Human Interaction and Emerging Technologies: Future Applications

# Final Program

Centre Hospitalier Universitaire Vaudois (CHUV) Lausanne, Switzerland





## **IHIET-AI 2022 Final Program**

The 7th International Conference on Human Interaction & Emerging Technologies will be held April 21-23, 2022 as a Virtual Conference.

The IHIET-AI 2022 Technical Sessions will be held on Friday, April 22, 2022 and Saturday, April 23, 2022.

Plenary Session and Keynote Address: 13:30-15:00 (EST) Thursday, April 21, 2022.

Keynote Address: 13:30-15:00 (EST), Thursday, April 21, 2022

i Virtual conference program schedule is listed in Eastern Standard Time (EST) - New York Timezone FULL CONFERENCE SCHEDULE				
Thursday, April 21, 2022		Friday, April 22, 2022	Saturda 2022	y, April 23,
10:00-13:00 (EST)  Tutorial Program  13:30-15:00 (EST)  Plenary Sessionhttp://ihiet-ai.org/keynote.html  18:30-22:00 (EST)  Conference Receptionhttp://ihiet-ai.org/keynote.html		9:00-10:30 (EST) Technical Sessions 11:00-12:30 (EST) Technical Sessions 13:30-15:00 (EST) Technical Sessions 10:30-15:30 (EST) Poster Sessions	9:00-10:30 (EST) Technical Sessions 11:00-12:30 (EST) Technical Sessions 13:30-15:00 (EST) Technical Sessions 10:30-15:30 (EST) Poster Sessions	
PLENARY SESSION Thursday, April 21			Track ALL	Room
13:30-15:00 (EST)	Plenary Session and	Keynote Address		Geneve
DAY 1		e program schedule is listed in me (EST) - New York Timezone	Track	Room
SESSION 1	Human-centered Des	sian I	IHIET 1	Geneve
Friday, April 22	Session Chair(s): Ja Mallol-Ragolta, Gern A Novel Method of Su	n Holub, Czech Republic and Adria		
9:00 - 10:30 (EST)	Case Studies Jan Holub, Magnu Kowalczuk, Czech Re	ıs Schäfer, Jan Reimes, Yann		

Adria Mallol, Iraklis Varlamis, Maria Pateraki, Manolis Lourakis, Georgios Athanassiou, Michail Maniadakis, Konstantinos Papoutsakis, Thodoris Papadopoulos, Anastasia Semertzidou, Nicholas Cummins, Bj Schuller, Ion Karolos, Christos Pikridas, Petros Patias, Spyros Vantolas, Leonidas Kallipolitis, Frank Werner, Antonio Ascolese, Vito Nitti, Germany

Corpus-Based English Education and Translation of Ancient Chinese Terminology

Jiali Du, Christina Alexandris, Pingfang Yu, China How to Design Assembly Instructions

Sven Hinrichsen, Dominic Bläsing, Germany What situations trigger intense emotions in automobiles? Kyungjoo Cha, Joseph Giacomin, Lee Skrypchuk,

Youngok Choi, Bryce Dyer, United Kingdom

Human-Centred Principles for the Design of Shape-

Changing Tangible User Interfaces

Khawla Aljammaz, Chris Baber, United Kingdom Learning Design of Intelligent TV Interactive Interface for Aging Population Based on Kano Model

Tong Wu, Lu Yao Wang, China

Communication and Digitization for Sustainable Events Eleonora Trivellin, Italy

DAY 1		Track	Room
SESSION 2	Artificial Intelligence, Computing and Intelligent Design	IHIET 2	Lausanne
Friday, April 22	Session Chair(s): Aslihan Tecebayrak, New Zealand and Patrick Donnelly, USA An Abstract Model for Compassionate Game Al: Designing		
9:00 - 10:30 (EST)	a Companion for a Compassionate Game Aslihan Tece Bayrak, New Zealand Mood Dynamic Playlist: Interpolating a musical path between emotions using a KNN algorithm Shaurya Gaur, Patrick Donnelly, United States Intellectual Capital and Measurement Methods: Some Specific Contributions from the Literature Oscar Ramada, Portugal The Impact of Virtual Reality on Gaming Experience: A Perspective from Half-Life on Steam Fangyu Yu, Ba Hung Nguyen, Duy Tai Dinh, Xueyou Wu, Yang Yu, Tsutomu Fujinami, Japan Machine learning agent to recommend the best modality for takeover during conditionally automated driving Emmanuel De Salis, Quentin Meteier, Marine Capallera, Colin Pelletier, Leonardo Angelini, Omar Abou Khaled, Elena Mugellini, Marino Widmer, Stefano Carrino, Switzerland Medical Diagnosis Classification Using WEKA José Machado, Nicolas Lori, Ana Coimbra, Filipe Miranda, António Abelha, Portugal Literador: a comprehensive tutoring system for Spanish writing Fernando Gutierrez, Christian Soto, Bernardo Riffo, Maria Fernanda Rodriguez, Ana Vine, Daniel Mora, Carolina Calbullanca, Paola Teppa, Isabel Cisternas,		

Cristian De La Fuente, Diego Palma, Antonio Gutiérrez, Chile

DAY 1		Track	Room
SESSION 3	Intelligence, Technology and Analytics I	IHIET 3	Zurich
Friday, April 22	Session Chair(s): Eusébio Conceição, Portugal and Meher Khan, USA  Design of Three-Dimensional Pine Tree Geometry and the Radiation Heat Exchanges in Fire Environments		
9:00 - 10:30 (EST)	Radiation Heat Exchanges in Fire Environments Eusébio Conceição, João Gomes, Maria Manuela Lúcio, Rafael Raposo, Xavier Viegas, Mª Teresa Viegas, Portugal Optimizing User-Specific Gait Cycle Metrics with LAAF Smart Insoles to Manage Chronic Pain Meher Khan, Rumshaa Yunus, Ali Shafiq Malik, Zain Hussain, Faasel Khan, United States COMM-G: A Communication Glove for Smart Communication Vaishali Vaswani, Akriti Kumar Singh, Anshuman Shastri, Namrata Arora Charpe, India Design of a Ventilation System Using a Vertical Confluent Multi-jets System Eusébio Conceição, Vasco Correia, Maria Inês Conceição, Maria Manuela Lúcio, João Gomes, Hazim Awbi, Portugal		
	10:30 - 11:00 • Sessions Break		

DAY 1	
SESSION 4	Human-computer Interaction I
Friday, April 22	Session Chair(s): Sebastian Wilhelm, Germany and Ahad Alotaibi, United Kingdom Voice Controlled Devices: Awareness, Usage, and
11:00 - 12:30 (EST)	Reservations of Young Adults Dietmar Jakob, Sebastian Wilhelm, Germany Mixed Initiative Sensemaking With Unreliable Automation Ahad Alotaibi, Chris Baber, United Kingdom Guidelines for Social XR Implementation of Social Cues Alexander Toet, Maikel Ter Riet, Tina Mioch, Tom F Hueting, Jan B.F. Van Erp, Omar Niamut, Netherlands Developing an Al-based Coaching Chatbot: A Study on Disclosure as Effectiveness Factor in Human-Machine- Coaching Vanessa Mai, Caterina Neef, Anja Richert, Germany The Design and Evaluation of an Eyes-Free Touchscreen Interface Munyaporn Pooripanyakun, Andrew Wodehouse, Jorn Mehnen, United Kingdom Psychophysical Analysis of Studying in Isolation: Learning in Pandemic Era Namrata Arora Charpe, Anshuman Shastri, India Visual Image Authentication Michael Fiske, United States

Track

Room

**IHIET 5** Geneve

DAY 1		Track	Room
SESSION 5	Human-Technology and Future of Work I	IHIET 6	Lausanne
Friday, April 22	Session Chair(s): Isabella Hall, USA and Kavitha Palaniappan, Singapore		
11:00 - 12:30 (EST)	Trends in Remote Learning-based Google Shopping in the United States due to COVID-19 Isabella Hall, Nirmalya Thakur, Chia Y Han, United		
	States Integrating Solutions through Conversational AloT in the Facilities Management Industry Kavitha Palaniappan, Ken Herron, Singapore An Approach to Investigate Public Opinion, Views, and Perspectives Towards Exoskeleton Technology Nirmalya Thakur, Cat Luong, Chia Y Han, United States Factors Influencing Citizens' Adoption of Smart Government Services: The Case of Saudi Arabia Khalda Ali, Maram Alzaidi, Mrim Alnfiai, Saudi Arabia		

DAY 1		Track	Room
SESSION 6	Emerging Technologies and Business Applications I	IHIET 7	Zurich
Saturday, April 23	Session Chair(s): Peter Chunyu Yau, Singapore and Waldemar Bober, Poland Machine Learning Usage in FMCG How Social Listening,		
11:00 - 12:30 (EST)	Big Data, and Al Apply in the Business Decision Process Peter Chunyu Yau, Singapore Experimental geodesic dome with a sandwich panels structure Waldemar Bober, Poland Al Decision Making to Allocate Government Funds Linda Bower, United States Evolution of Chatbots for public services: how to get to the		

Stephan Raimer, Peter Weiss, Germany
Investigating the Emergence of Online Learning in Different
Countries using the 5 W's and 1 H Approach
Nirmalya Thakur, Isabella Hall, Chia Y Han, United
States
Deconstructing informational pathway(s) for design of
haptic communicative garments
Nils Persson, Sweden

#### 12:30 - 13:30 • Sessions Break

DAY 1		Track	Room
SESSION 7	Applications in Medicine and Healthcare I	IHIET 8	Geneve
Friday, April 22	Session Chair(s): Johannes Breuer, Germany and Martin Zagar, Croatia Interactive graphics for multidimensional pain assessment –		
13:30 -15:00 (EST)	a human-centered design and evaluation study with patients suffering from chronic pain Johannes Breuer, Jan Willmann, Andreas Mühlenberend, Winfried Meissner, Christin Arnold, Philipp Baumbach, Germany		
	Novel motion detection algorithm of 3D medical data for diagnosis purposes  Martin Žagar, Alan Mutka, Hung Tai, Croatia Healthcare Data Management Using Blockchain: MyHealthMyData (MHMD) and PharmaLedger Galia Kondova, Amala Arockia, Switzerland Machine Learning Detects Pairwise Associations between SOI and BIS/BAS Subscales, making Correlation Analyses Obsolete		

Hermann Prossinger, Jakub Binter, Kamila Machova, Daniel Riha, Silvia Boschetti, Czech Republic The application of machine learning and deep learning to Ophthalmology: A bibliometric study (2000-2021)

Han Wang, Zefeng Li, China

Multimodal visual, auditory, thermal, and tactile feedback during Brain-Machine Interface use by a spinal cord injury patient

Carla Paisv, Pedro Gaspar, Tânia Poleri, Demétrio Matos, Maria Azevedo, Miguel Gago, André Perrotta, Miguel Vieira, Portugal

Inclusive tourism as an innovative social service for people with disabilities: recommendations for implementation

Oksana Kravchenko, Inna Zherebko, Hennadii Rzhevskyi, Viktoriya Stanishevskaya, Olha Kozak, Ukraine

DAY 1		Track	Room
SESSION 8	Management, Training and Business Applications I	IHIET 9	Lausanne
Friday, April 22	Session Chair(s): Arthur Werle, Germany and Kazuo Hatakeyama, Brazil An approach for steering advancement in motorcycle riding		
13:30 -15:00 (EST)	simulation Arthur Werle, Frank Diermeyer, Germany Implementation of the online eSocial platform for human resources tasks: A case study in small company for wholesale metal products Kazuo Hatakeyama, Brazil Internationalisation of Finnish Firms and Use of Digital Solutions Afnan Zafar, Marja Ahola, Finland		

Correctional and Developmental Work for Children With Down's Syndrome and Children with Autism by Means of Color and Music Therapy

Larisa Psheminska, Ukraine

Ways of Improving Management System for a Tourism Industry Development

Alina Yakymchuk, Oleksandr Halachenko, Inna Irtyshcheva, Mariana Popyk, Viktoriya Bondarenko, Liliya Kondratska, Kostiantyn Pavlov, Olena Pavlova, Tymur Evgenovych, Yanina Barybina, Iryna Hryhoruk, Nazariy Popadynets, Ukraine

Municipal Policy to Halt the Use of Rural Land For Shrimp Production: Example of Samborondón Canton

Fernando Alberto García Alarcón, Lizbeth Toapanta Orbea, Ecuador

DAY 1		Track	Room
SESSION 9	Applications and Future Trends I	IHIET 10	Zurich
Friday, April 22	Session Chair(s): Aidan Mcgowan, UK and Pamela Finckenberg-Broman, Australia Teaching Programming during COVID lockdowns – a		
13:30 -15:00 (EST)	positive lesson     Aidan McGowan, Paul Sage, Janak Adhikari, Darryl Stewart, Philip Hanna, United Kingdom Weaponized Artificial Intelligence (AI) and the Laws of Armed Conflict (LOAC) - the RAILE Project     Morgan M. Broman, Pamela Finckenberg-Broman, Australia The regulation of artificial intelligence in the context of the European Commission's priorities		

Maria Manuela Silva, Maria Ferreira, Dora Alves,
Portugal
Learning Sustainability through Digital/Social Media (DSM)
and its Impact on Students in Qatar
Mariem Fekih Zguir, Maryam Alhail, Muammer Koc,
Qatar
Urban Spatial Narration Research Based on Hybrid Space
Peian Yao, Stefano Follesa, China
Services performance with the process standardization for
tire rotation, alignment and balancing
Ana Àlvarez Sànchez, Alexis Suàrez Del Villar
Labastida, Jonathan Santiago Guevara Flores, Eric
Martínez Tocoronte, Ecuador

#### 15:00 - 15:30 • Sessions Break

DAY 2		Track	Room
SESSION 10	Human-centered Design II	IHIET 1	Geneve
Saturday, April 23	Session Chair(s): Yufei Li, Singapore and Paulo Tonin, Brazil Digital Fusion Points for shared technological knowledge:		
9:00 - 10:30 (EST)	Maintenance as a Balancing Action Martina Biagi, Eleonora Trivellin, Italy Design issues in setting up of a highly synchronous human- in-the-loop system Yufei Li, Sun Woh Lye, Terry Teo, Shi Yin Alden Tan, Singapore Sensory-perceptual attributes in the creation of the store's image: how they act on user behavior and improve physical retail experience		

Paulo Eduardo Tonin, Celio Teodorico Dos Santos, Gabriela Mager, Elton Moura Nickel, Brazil Arduino-based system to identify sedentary behavior working in home office Gabriela G. Reyes-Zárate, Jan Pablo Castillo Sánchez, Pablo Iván Solares Romero, Ricardo González Cerón, Narvick Nieto Gutiérrez, Mexico Strategies for improving packaging experience design of children's vitamin D3 drops Liu Fuyong, Xun Gao, Yong Li, Wanying Cheng, China Packaging Design Strategy of Female Medical Injector **Under Emotional Demand** Xun Gao, Liu Fuyong, Yong Li, Wanying Cheng, China A Landmark Detection and Iris Prediction Dataset for Gaze Tracking Research Brett Thaman, Nicholas Caporusso, Trung Cao, United States Lesson Learned of Tablet Course for Semi-literate **Immigrants** Marja Ahola, Anita Hartikainen, Finland

DAY 2		Track	Room
SESSION 11	Artificial Intelligence, Computing and Intelligent Design	IHIET 2	Lausanne
Saturday, April 23	Session Chair(s): Jussi Okkonen, Finland and Petr Svoboda, Czech Republic		
9:00 - 10:30 (EST)	Cognitive dissonance affecting information ergonomics in Al supported situational awareness context  Jussi Okkonen, Matti Jalava, Heikki Masikka, Jaakko		
	Hakulinen, Markku Turunen, Finland Artificial intelligence as a supplement in the teaching process Petr Svoboda, Czech Republic		

Hand Gesture Recognition For Sign Language
Syeda Miral Kazmi, Norway

Multi-Agent Strategies for Diverse Teams
D. Michael Franklin, United States

Stability of artificial intelligence controlled systems
Vaclav Jirovsky, Vaclav Jirovsky Jn, Czech Republic

The framing problem for visual representation modules in neuro-symbolism for artificial intelligence
Dingzhou Fei, China

Forecasting Europe nuclear electric power using artificial neural networks
Marwan Ashour, Zainab Hadi, Iraq

DAY 2		Track	Room
SESSION 12	Human-computer Interaction II	IHIET 5	Zurich
Saturday, April 23	Session Chair(s): Dietmar Jakob, Germany and Alexander Gerashchenko, Russia Imparting Media Literacy to the Elderly Evaluating the		
9:00 - 10:30 (EST)	Efficiency and Sustainability of a two-part Training Concept Dietmar Jakob, Sebastian Wilhelm, Germany Human-computer Interaction in Connection with Conducting Online Classes: The Case of a Technological University in Russia during the COVID-19 Pandemic Alexander Gerashchenko, Tatiana Shaposhnikova, Russia Digital Skills and Competences in Contemporary Society Valentina Milenkova, Boris Manov, Bulgaria Interface design to address the constraints of situational visual impairments: the context of a nautical application Diogo Carvalho, Jorge Ferraz, João Miguel Dias, Portugal Software requirements for inclusive employment: accessibility, usability and user experience contributions		

Virgínia Chalegre, Ana Margarida Almeida, Portugal The emotional responses obtained from the interaction of a person with a mass-distributed virtual product derive from simple human behaviors.

Jorge Gil Tejeda, Lorena Olmos Pineda, Mexico Evaluation of Indicative Symbol Coding for Fighter Cockpit HUD Based on Different Environmental Background Xiangyang Zhang, Wenyu Wu, Ziwei He, Yingjing Li, China

#### 10:30 - 11:00 • Sessions Break

DAY 2		Track	Room
SESSION 14	Applications in Medicine and Healthcare II	IHIET 8	Geneve
Saturday, April 23	Session Chair(s): Miguel Pais Vieira, Portugal and Irina Kurnikova, Russia  Monetary reward effects in tactile discrimination and neurophysiological activity during use of a tactile stimulation		
11:00 - 12:30 (EST)	sleeve Carla Paisv, Demétrio Matos, André Perrotta, Miguel Vieira, Portugal Frequency indicators of heart rate variability in assessing the effectiveness of antihypertensive therapy in patients with metabolic disoders Irina Kurnikova, Shirin Gulova, Tatiana Nikishova, Nikolay Kislyy, Sofia Buturlina, Oksana Demina, Russia On the Product Service System Design of Diabetes Management for Patients Zhiwei Mo, China Investigating the impact of COVID-19 on Online Learning- based Web Behavior		

Nirmalya Thakur, Saumick Pradhan, Chia Y Han,
United States
Patient's Rights & Innovative Teaching Strategy (PRITS)
Dominique Correia, Songuel Yavavli, Delphine
Bonnard, Dominique Jaccard, Pierre-benjamin Monaco,
Félicia Bielser,
Switzerland
Integrating Big Data for measuring liver volume using
algorithms by removing noise and MRI modality
Khalda Ali, Amir Mohamed, Saudi Arabia
Development of a non-contact method for the examination
of emotional stability
Oksana Isaeva, Yuri Boronenko, Marina Boronenko,

DAY 2		Track	Room
SESSION 15	Management, Training and Business Applications II	IHIET 9	Lausanne
Saturday, April 23	Session Chair(s): Ilona Boichevska, Ukraine and Nataliia Levchenko, Ukraine Necessity of distance learning implementation during the		
11:00 - 12:30 (EST)	pandemic: modern reality of Ukrainian universities  Ilona Boichevska, Liudmyla Veremiuk, Inna Nesterenko,		
11.00 - 12.00 (201)	Anna Ivanchuk, Inna Liubchenko, Lesia Polishchuk, Ukraine		
	Youth Center Management: Training the Trainers for The		
	"Effective Management of Youth Centers" Program Levchenko Nataliia, Nataliia Koliada, Yuliya Klymenko,		
	Olha Matros, Inna Gonchar, Ukraine		
	Information Management for The Projection of Productive		
	Capacities Articulated to Export Scenarios  Lloyd Herbert Lloyd Herbert, Olga Salazar, Homero		
	Murzi, Sandra Durán Omaña, Juan Luis Arias, Colombia		

Vladimir Zelensky, Russia

DAY 2		Track	Room
SESSION 17	Human-centered Design III	IHIET 1	Zurich
Saturday, April 23	Session Chair(s): Stephan Raimer, Marleen Vanhauer, Germany Liden't understand your corresponding as a key aspect of		
11:00 - 12:30 (EST)	I don't understand you – error-handling as a key aspect of conversational design for chatbots Stephan Raimer, Marleen Vanhauer, Germany Ultrasound Feedback for Mid-Air Gesture Interaction in Vibrating Environment Oleg Spakov, Ahmed Farooq, Hanna Venesvirta, Arto Hippula, Veikko Surakka, Roope Raisamo, Finland Design of smart products for the elderly based on affordance Mi Tian, Jie Zhang, Yuchao Cai, Xiaori Dong, China Advancing Spatial Ability in the Design of Discrete and Aggregated 3D Green Roof Modules Deborah Middleton, Saudi Arabia		
	12:30 - 13:30 • Sessions Break		

#### **Poster Demonstration Sessions:**

#### **DAY 1 - DAY 2**

DATI-DATZ	
SESSION A	Poster Demonstration Session
	Friday - Saturday, April 22-23, 2022 [10:30 - 15:30 EST]
	Measuring Quality of Mediated Social Communication
A-1	Navya N. Sharan, Alexander Toet, Tina Mioch, Omar
	Niamut, Jan B.F. Van Erp, Netherlands

A-2	Developing a Virtual User's Autonomous Social Behaviors for Advanced Human Behavior Simulation in Atypical Architectural Design Yun Gil Lee, South Korea
A-3	A harmonized, user-centered, multi-lingual referential for ICT devices and services Emmanuel Darmois, Martin Böcker, Omar Qawasmeh, France
A-4	Comparison of Activation Function for Offline Handwritten Kanji Document Detection Using Convolutional Neural Network Adole Anthony, Edirisinghe Eran, Baihua Li, Chris Bearchell, United Kingdom
A-5	Circadian Rhythm Tracking using Core Body Temperature Estimates from Wearable Sensor Data Martin Rerabek, Giovanni Schiboni, Ruben Oliveras, Philipp Eib, Fabien Rochat, Lukas Durrer, Anja Probst, Markus Schmidt, Krzysztof Kryszczuk, Switzerland

#### **DAY 1 - DAY 2**

SESSION B Poster Demonstration Session Friday - Saturday, April 22-23, 2022 [10:30 - 15:30 ES	
B-1	MyRehab@Home: A mobile application using biofeedback and gamification to improve patient autonomy in rehabilitation programs after knee arthroplasty  Jennifer Wegrzyk, Claude Pichonnaz, Hayman Lotfy,
B-2	David Javet, Switzerland Framework for AI based UX: rethinking design process Greeshma Sharma, Jyoti Kumar, India

B-3	What can awareness sensitive bicycle helmets contribute to push forward bicycle logistics?  Johannes Schering, Harish Moturu, Jorge Marx Gómez, Germany
B-4	Enthusiast versus Antagonist: Exploring the perceptions of data experts on the visualisation of uncertainty Joel Pinney, Fiona Carroll, Esyin Chew, United Kingdom
B-5	The Influence of Globalization on a Country's Cultural Values: Has Globalization Influenced Power Distance among Countries?  Yousif Abdelrahim, Marim Alenezi, Canada