



2025 IHSED

International

7th International Conference on

Human Systems Engineering and Design: Future Trends and Applications (IHSED 2025)

September 22-24, 2025

Juraj Dobrila University of Pula

Pula, Croatia

Final Program

WWW.IHSED.ORG

IHSED 2025

Conference Reception

MONDAY, SEP 22 19:00 - 22:00 (CEST)

**RECEPTION LOCATION: RIBARSKA KOLIBA RESORT
VERUDELA 3, 52100, PULA, CROATIA**

(DRESS IS BUSINESS CASUAL, REGISTERED PARTICIPANTS, PHOTO ID REQUIRED)

Conference Organization

Scientific and Technical Session:

Tuesday - Wednesday, September 23-24, 2025 - 9:00 - 13:00 (CEST)

Location: Faculty of Informatics, Juraj Dobrila University of Pula

Location: Ul. Alda Negrija 6, 52100, Pula, Croatia

CONFERENCE ADMINISTRATOR:

ADMIN[AT]IHSED.ORG

Scientific Tracks

ACRONYM	TRACK
IHSED 1	Human-Centered Design
IHSED 2	Innovative Materials for Product Development
IHSED 3	Engineering, Design and Human Diversity
IHSED 4	Safety Engineering and Systems Complexity
IHSED 5	Fashion & Textile Design for Sustainability and Better Life
IHSED 6	Biomechanics, Health Management & Medicine
IHSED 7	Human Computer and System Interactions
IHSED 8	Business Analytics and Technology
IHSED 9	HFE in Construction, Mining and Fabrication
IHSED 10	Education, Distance Learning and Training

Conference at a Glance

Scientific and Technical Session:

Tuesday - Wednesday, September 23-24, 2025 - 9:00 - 14:00 (CEST)

Location: Faculty of Informatics, Juraj Dobrila University of Pula

Address: Ul. Alda Negrija 6, 52100, Pula, Croatia

Tuesday - Wednesday, September 23-24, 2025

#	SESSION TITLE	ROOM	TRACK
Day 1: Tuesday Sep 23 - Session Time: 9:00 - 10:00 CEST			
	Opening Remarks and Plenary Speech	Room 1	All
10:00 - 10:30 • Coffee Break			
Day 1: Tuesday Sep 23 - Session Time: 10:30 - 11:30 CEST			
1	Human Computer Interaction: Artificial Intelligence and User Trust	Room 1	IHSED 2
2	Business Analytics and Technology: AI Applications	Room 2	IHSED 3
3	Education, Distance Learning and Training	Room 3	IHSED 4
11:30 - 12:00 • Coffee Break			
Day 1: Tuesday Sep 23- Session Time: 12:00 -13:00 (CEST)			
4	Systems Design, Safety and Human Diversity	Room 1	IHSED 5
5	Applications in Health Management & Medicine	Room 2	IHSED 6
6	Human-centered Design Applications I	Room 3	IHSED 7
Lunch Break - End of Day 1 Sessions			
Day 2: Wednesday, Sep 24 - Session Time: 9:00 - 10:00 (CEST)			
	Plenary Speech	Room 1	ALL
10:00 - 10:30 • Coffee Break			
Day 2: Wednesday, Sep 24 - Session Time: 10:30 - 11:30 (CEST)			
7	Human Computer and System Interaction I	Room 1	IHSED 5
8	Human-centered Design & AI Applications II	Room 2	IHSED 8
9	Human Computer and System Interaction II	Room 3	IHSED 1
11:30 - 12:00 • Coffee Break			
Day 2: Wednesday, Sep 24 - Session Time: 12:00 - 13:00 (CEST)			
12	Online Session: Human Computer and System Interaction III	Room 1	IHSED 1
Lunch Break - End of Day 2 Sessions			

Scientific Program

Conference Technical Sessions:

Tuesday - Wednesday, September 23-24, 9:00 - 14:00 (CEST)

Location: Faculty of Informatics, Juraj Dobrila University of Pula

Address: Ul. Alda Negrija 6, 52100, Pula, Croatia

DAY 1

Track

Room

All

Room 1

Plenary Session

Opening Remarks and Plenary Speech

**Tuesday
Sep 23**

**Opening Remarks: Prof. Darko Etinger
Dean, Faculty of Informatics, Juraj Dobrila University of Pula**

**Opening
Remarks
9:00 - 9:15
(CEST)**

Plenary Speech Title: "Can R&D spark production value? Lessons from applying research to build the next-gen communication platform"

Speaker: Emanuel Lacić, PhD - Principal Engineer, Infobip

**Plenary
Speech
9:15 - 10:00
(CEST)**

Abstract: Is R&D just academic vanity or is it tomorrow's revenue engine? In this session, we'll walk through the steps of turning research in telecommunication into production features that processes real customer traffic. You'll see how we framed the business need, scoped the right data and created models that don't rely on unlimited budget or infinite GPUs. Come for the story, but stay for the insights on how to bridge the gap between research and products.

Biography: Emanuel is driving AI Research at Infobip with a current focus on Generative AI and analyzing the impact of Large Language Models. He joined Infobip after almost a decade working as the Operations Area Manager and Key Researcher of the FAIR AI team at the Know-Center, one of Europe's leading research centers for trustworthy AI, and Graz University of Technology. He received his PhD in Computer Science from Graz University of Technology and his M.Sc. as well as B.Sc. in Software Engineering and Information Systems from the Faculty of Electrical Engineering and Computing at the University of Zagreb. He is a former Marshall Plan fellow and has been working as a visiting researcher at the Computer Science department of the University of California, Los Angeles (UCLA).

10:00 - 10:30 • Coffee Break

DAY 1		IHSED 2	Room 1
SESSION 1	Human Computer Interaction: Artificial Intelligence and User Trust		
Tuesday Sep 23	Session Chair(s): Michael Tondera, Germany and Müge Göken, Turkey		
10:30 - 11:30 (CEST)	Software-supported decision support for the foresighted planning of digital business models Iris Graessler, Alena Tusek, Germany		
	A Hand-Tracked Rotational Interface for Parameter Input in Mixed Reality CAD Gavin Kerrremans, Jelle Saldien, Lucas Van Dorpe, Belgium		
	Towards the Future of Air Travel: Public Perceptions on eVTOL Aircraft and Service Design Arun Ulahannan, Charlotte Collins, Michael Lombardo, Christina Kang, Stewart Birrell, United Kingdom		
	Reliable Information Retrieval with LLMs: Automated Analysis and Comparison of large PDF Documents Lara Noe, Ruben Nuredini, Sebastian Breier, Germany		
	State Based HMI Prototyping for Designing Adaptive HMIs Alexander Steinmetz, Marcel Saager, Jan Patrick Osterloh, Germany		
DAY 1		IHSED 3	Room 2
SESSION 2	Business Analytics and Technology: AI Applications		
Tuesday Sep 23	Session Chair(s): Darko Etinger, Croatia and Deniz Oezcan, Germany		
10:30 - 11:30 (CEST)	Enhancing Programming Task Performance with LLMs: The Role of Query Formulation and Task-Technology Fit Darko Etinger, Lucija Josipović Deranja, Croatia		
	Graphical AI workflow modelling: Identifying relevant competencies in AI-based automation of business processes Iris Graessler, Deniz Oezcan, Germany		
	Context-aware Product Recommendations Using Weather Data and AI Models Alma Smajić, Mia Rovic, Ivan Lorencin, Croatia		
	Large language models as Retail Cart Assistants: A Prompt-Based Evaluation Ratomir Karlović, Ivan Lorencin, Croatia		
	Quantum Cats: Generative AI 3D-enabled Interactive Experience in Mixed Reality Sam Frish, Vadym Chernyshov, Ihor Romanovych, Nataliia Susulovska, Ukraine		

DAY 1		Track	Room
SESSION 3	Education, Distance Learning and Training	IHSED 4	Room 3
Tuesday Sep 23	Session Chair(s): Aniek Adank, Netherlands and Rune Stensrud, Norway		
10:30 - 11:30 (CEST)	<p>Reflective practice in primary physical education: developing context-specific tools and design considerations to support physical education teachers Aniek Adank, Rosanne Bloemraad, Dave Van Kann, Steven Vos, Netherlands</p> <p>Certifying unmanned systems Rune Stensrud, Ina Berby, Aleksander Simonsen, Olav Rune Nummedal, Mathias Minos-stensrud, Sigmund Valaker, Norway</p> <p>The importance of structure in transformation chaos: A Transformation Framework Iris Graessler, Benedikt Grewe, Marc Fritzen, Germany</p> <p>Taking Perspective: Broadening Acceptance of a Serious Game Framework Ehm Kannegieser, Sergius Dyck, Andreas Lambert, Stefan Wolff, Andy Philipp, Germany</p> <p>Understanding generative AI's role in higher education: a teacher perspective on responsible integration of AI in business education Christa Tigerstedt, Susanna Fabricius, Finland</p>		
	11:30 - 12:00 • Coffee Break		
DAY 1		IHSED 5	Room 1
SESSION 4	Systems Design, Safety and Human Diversity		
Tuesday Sep 23	Session Chair(s): Tim Kuball, Germany and Luca Lanz, Germany		
12:00 - 13:00 (CEST)	<p>Enhancing Community Care Through Digital Coordination: A User-Centered Approach to Expanding the Helferportal Tim Kuball, Thomas Oeben, Luise Look, Georg Jahn, Germany</p> <p>Investigation of research gaps and needs with regard to the use of model-based systems engineering for the development of barrier-free vehicles Luca Lanz, Eva Maria Knoch, Matthias Vollat, Albert Albers, Germany</p> <p>Identifying practices in the safety observation process in Finnish organisations Johanna Pulkkinen, Noora Nenonen, Maria Lindholm, Finland</p>		

Building an assurance case for assessing novel maritime border surveillance system

Laura Salmela, Jaana Keränen, Jari Laarni, Sirra Toivonen, Antti Väättänen, Finland

DAY 1

IHSED 6 Room 2

SESSION 5 Applications in Health Management & Medicine

Tuesday Sep 23 Session Chair(s): Fausto Medola, Brazil and Sandi Baressi Segota, Croatia

12:00 - 13:00 (CEST) Transfer and Lifting Technologies in Long-Term Care Facilities: A Scoping Review of Assistive Solutions for Older Adults Care
Mariana Anjos De Almeida, Milene De Almeida Ribeiro Checoni, Ana Beatriz Ferreira Cardim, Erica Pereira Das Neves, Carla Da Silva Santana Castro, Fausto Medola, Brazil

Data Synthetization and Feature Analysis: A Study in Bladder Cancer Recurrence Data
Sandi Baressi Šegota, Ivan Lorencin, Nikola Anđelić, Vedran Mrzljak, Antun Gršković, Juraj Ahel, Klara Smolić, Dean Markić, Croatia

Toward Intelligent Homecare for Older Adults: Deep Learning-Based Activity and Routine Deviation Detection Using SDHAR-HOME Data
Raja Omman Zafar, Yves Rybarczyk, Sweden

Students' perceptions about the aging effects of using simulators
Karla Beatriz Agostinho, Leonardo Martins Kebbe, Emilin Odilia Rossi De Carvalho Goulart, Rita Cristina Sadako Kuroishi, Vitoria Camilli Pereira Ramos, Maria Eduarda Harumi Eizo, Livia Karla Roque, Geovana Cristine Agostinho, Fausto Medola, Carla Da Silva Santana Castro, Brazil

Daily Stress Detection Using Artificial Neural Network Based on Acoustic and Semantic Information from Speech
Peixian Lu, Xingwei Jiang, Shiguang Deng, China

Technology and environmental design for the safety of people with autism
Emilin Odilia Rossi De Carvalho Goulart, Fausto Medola, Karla Beatriz Agostinho, Rita Cristina Sadako Kuroishi, Carla Da Silva Santana Castro, Brazil

DAY 1

IHSED 7 Room 3

SESSION 6 Human-centered Design Applications I

Tuesday Sep 23 Session Chair(s): Sarah Rudder, United States and Vincent Fer, France

12:00 - 13:00 (CEST) Benefits of integrating resource management into an enterprise architecture
Sarah Rudder, United States

A Predictive Model of Human Trust Evolution Over Time in AI-based Recommendations
Vincent Fer, Daniel Lafond, Gilles Coppin, Olivier Grisvard, France

Visual Complexity and Aesthetic Value in Design: Between Hedonomics, Emotional Experience, and Ergonomic Aesthetics
Maria Moga, Iosif Mihailo, Romania

Mixed reality glasses in remote R&D collaboration
Susanna Aromaa, Antti Väättänen, Finland

Enhancing productivity and well-being: Opportunities with Artificial Intelligence

Gilberto Oliveira Neto, Alan Turatti De Amorim, Rodrigo Rosário, Marcos Silbermann, Vinicius Mello, Bernardo Silva, Spain/Brazil

Lunch Break - End of Day 1 Sessions

DAY 2

All

Room 1

Plenary Session

Plenary Speech: "Stream Reasoning at Scale: CPUs, GPUs, and LLMs in Real-Time Systems"

Wednesday, Sep 24

Session Chair: Ivan Lorencin, Croatia and Darko Etinger, Croatia

Plenary Speech

Plenary Speech Title: "Stream Reasoning at Scale: CPUs, GPUs, and LLMs in Real-Time Systems"

9:00 - 10:00 (CEST)

Speaker: prof. dr. sc. Krešimir Pripužić - Faculty of Electrical Engineering and Computing, University of Zagreb, Croatia (UNIZG-FER)

Abstract: This keynote explores how combining traditional stream processing on CPUs and GPUs with Large Language Models (LLMs) unlocks a new era of adaptive, intelligent, and human-aware analytics. It focuses on how to handle different types of real-time data, such as sensor values, system logs, and human-written text, by using fast data pipelines together with language-based AI models. Through practical examples in industrial monitoring, cybersecurity, and business analytics, the talk illustrates how this hybrid architecture supports explainable and context-aware decision-making while addressing key challenges related to latency, system integration, and data privacy.

Biography: Krešimir Pripužić is a Full Professor and Vice-Dean for Education at the Faculty of Electrical Engineering and Computing, University of Zagreb, Croatia (UNIZG-FER), where he leads the Data Streams Laboratory. He has co-authored 40 scientific journal and conference papers. His main research interests are large-scale distributed systems, algorithms and data structures, big data analytics, data stream processing, and the Internet of Things.

10:00 - 10:30 • Coffee Break

SESSION 7 Human Computer and System Interaction I

Wednesday, Sep 24 Session Chair(s): Alen Jugović, Croatia and Henrik Barth, Sweden

10:30 - 11:30 (CEST) Business Analytics Strategies in Port Economics from a Systems-Theory Perspective: A Bibliometric Analysis and Future Research Directions

Alen Jugović, Miljen Sirotic, Croatia

Empowering Ukraine's Farmers: Regional Strategies and Technological Tools for a Resilient Future

Henrik Barth, Iryna Bystrova, Markijan Dacyshyn, Viktoriya Harbuzova, Per Servais, Sweden

Customer Experience and Social Robots - an experiment in a grocery store

Christa Tigerstedt, Finland

Disaster Situation Understanding and Management by Using Common Ontology and Semantics

Vesa Salminen, Matti Pykkönen, Ari Saarinen, Finland

Layer Model for the Design of Data-driven Business Models – AI Integration and Industrial Data Fusion Across Hierarchical Levels

Holger Kett, Robin Kurth, Sandra Frings, Germany

SESSION 8 Human-centered Design & AI Applications II

Wednesday, Sep 24 Session Chair(s): Kurt Englmeier, Germany and Seyed Damoun Pezeshki, USA

10:30 - 11:30 (CEST) Scaffolding Autonomy: AI-Augmented Self-Paced Learning Environments for Sustainable Learning Outcomes

Kurt Englmeier, Germany

The Adoption of Artificial Intelligence Tools in Education: A Case Study of Primary and Secondary School Teachers in Pula, Croatia

Luka B Brodarič, Snježana Babić, Croatia

Timing Matters - The Role of Timing in Explanation Delivery

Akhila Bairy, Mehrnoush Hajnorouzi, Astrid Rakow, Martin Fränzle, Maik Schwammberger, Germany

Reviving Lost Heritage Through AI: A Hybrid Design Approach in Downtown El Paso

Seyed Damoun Pezeshki, Mahyar Hadighi, United States

Evaluation of Technostress Creators among Healthcare Workers in Saudi Arabia

Marwan Babiker, Eda Merisalu, Zenija Roja, Henrijs Kalkis, Latvia

Dynamic adjustments of Correlated Color Temperature (CCT) in urban waterfront night lighting: effects on subjective aesthetic preferences

Zi Yi Zhang, Jing Li, Yu Zhang, Xiaoxiao Wang, Ying Luo, Chengqi Xue, China

SESSION 9

Human Computer and System Interaction II

**Wednesday,
Sep 24**

Session Chair(s): Jelena Lezdkalne, Latvia and
Curtis Cripe, United States

**10:30 -
11:30
(CEST)**

Tracking Human Factor Recognition in Occupational Accident
Investigations: A 10-Year Review from the Quarrying and
Aggregates Sector
Jelena Lezdkalne, Latvia

From Clinic to Space and Back Again: A Neuroadaptive Systems
Approach to Optimized Human Performance
Curtis Cripe, United States

Usability Issues in BPMN Models Analyzed Using Eye-Tracking
Technology
Josef Pavlicek, Martin Molhanec, Petra Pavlíčková,
Matěj Brnka, Czech Republic

CoBotCraftLab – Approaching Human-Robot Collaboration in
Digital Craft
Daniel Schilberg, Erhard An-he Kinzelbach, Sven Pfeiffer,
Germany

Strategic Transformation towards Advanced Mechanical
Engineering: A Systematic Review and Taxonomy of Trends and
Enabling Factors
Julia Berner, Holger Kett, Germany

Exploring Barriers in Cybersecurity Training: A Socio-Technical
Perspective on Cross-Organizational Portability and Inclusion
Ala Sarah Alaqra, Farzaneh Karegar, Sweden

11:30 - 12:00 • Coffee Break

SESSION 12

Online Session: Human Computer and
System Interaction III

**Wednesday,
Sep 24**

Session Chair(s): Lorraine Hagemann, Germany and
Shatong Yang, China

**12:00 -
13:00
(CEST)**

Securing Interfaces of a Multinational Standard with Technical
Specifications for Data Sharing: Challenges of Authentication and
Authorization
Lorraine Hagemann, Simon Schwarz, Barbara Essendorfer,
Germany

Impact of Pedal Design Parameters on Operational Efficiency and
Usability in Foot Interaction Systems
Yafeng Niu, Yiyang Wang, Hongyang Zhang, Shatong Yang,
China

Calibration of Illuminance in Virtual Engine Light Rendering
Based on Lighting Simulation Values
Chen Cheng, Xiaozhou Zhou, China

TAC-Twin: A Rapid Framework for Personalized Doppelgänger
Avatar Creation Using a Modular Virtual Human Pipeline
Arno Hartholt, Kevin Kim, Edwin Sookiasian, Andrew Leeds,
Ed Fast, United States

Lunch Break - End of Day 2 Sessions

Poster Demonstrations

SESSION Tuesday - Wednesday, Sep 23-24, 9:00 - 13:00 (CEST)

- A-1** The Effect of Rear Lamp Design on Preventing Rear-end Collisions in a Simulated Distracted Driving
Dongyuan Wang, Pingying Zhang, Vamsi Sai Kalasapudi, United States
- A-2** Monitoring the adoption of e-mail security standards in selected healthcare entities in Poland
Ptryk Morawiec, Poland
- A-3** Product Innovation In Sustainable Design: Internal Partition System For Improving Indoor Well-Being
Maria Chiara Capasso, Donatella Radogna, Italy
- A-4** A quantitative assessment approach for user operation performance grounded in cognitive models
Kaili Yin, Zhangshuo Zhang, Ziang Chen, China
- A-5** Early childhood education and technology -an introduction to project BARTEK
Christa Tigerstedt, Finland
- A-6** Optimizing Cognitive Domain Assessments: Proposing a Minimal Set of Neuropsychological Batteries for Comprehensive Monitoring of Cognitive Skills
Yasir Hussain, Amna Ramzan, Aamir Saeed Malik, Czech Republic
- A-7** Automated Procedural Error Detection in Human-Robot Collaborative Assembly Using Vision-Based Template Matching
Isaiah Nassiuma, Mey Goh, Ella-mae Hubbard, United Kingdom





Call for Papers

Please join us for the

9th International Conference on

**Human Intelligent
Systems Integration:
Disruptive and
Innovative Technologies
(IHSI 2026)**

February 11-13, 2026

**Università di Firenze
Florence, Italy**

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