

Preface to the Iberoamerican Human-Computer Interaction Conference 2025 Special Issue.

The present issue of CLEI Electronic Journal (Volume 29, Issue 1, February 2026) is devoted to extended and revised papers of selected works presented at the XI Ibero-American Human-Computer Interaction Conference, took place in Zacatecas, Mexico, from May 07 to 09, 2025. The Autonomous University of Zacatecas "Francisco García Salinas", Mexico, was responsible for organizing the event under the central theme "**Human-Technology Interaction in the Age of Artificial Intelligence**". Researchers in the field of Human-Computer Interaction from Latin America and the Iberian Peninsula gathered both in person and remotely. This edition featured five workshops in addition to the main track:

- 7th Workshop on Infotainment Systems and Intelligent Systems
- 5rd Workshop on Interaction in Digital Games and Gamification
- 4nd Workshop on Industry 4.0 and HCI
- 4nd Workshop on Collaborative Work and Collaborative Learning
- 3st Workshop on Cognition and Interaction
- 2nd Accessibility and Inclusion Workshop
- 1st Journal Dissemination Track
- 1st UX Summer School for Students (UX-EVE)

We were delighted to receive an invitation from the CLEI Journal to expand a selection of the best papers accepted and presented at the event. Thus, we present a special issue featuring papers from different areas of Human-Computer Interaction, involving researchers from different countries. Seven extended papers that underwent a rigorous evaluation and approval process are included, covering topics such as Artificial intelligence, human-computer interaction, usability and accessibility, software architectures, conversational interfaces, assistive and empathetic technologies, digital transformation, Industry 4.0, Internet of Things, data-driven evaluation, user-centered design, educational technologies, and health and well-being systems.

The paper "*Systematic Mapping for the Characterization of Non-Functional Requirements and Architectures for Artificial Intelligence*" presents a comprehensive systematic mapping that identifies the most recurrent non-functional requirements and architectural styles adopted in AI-based systems, highlighting trends such as security, scalability, precision, and the predominance of microservices-oriented architectures.

The paper *"Empathy-Driven Assistive Technologies for Older Adults: A Narrative Review and Practical Implementation Framework"* explores how empathetic technologies grounded in Human-Computer Interaction principles can enhance autonomy, emotional well-being, and social inclusion of older adults, combining a narrative review with practical frameworks to support real-world deployment.

The paper *"Prediction of System Usability through Neural Networks Applied to Conversational User Interfaces"* investigates the use of deep neural networks to predict perceived usability in conversational interfaces, demonstrating how AI-based predictive models can support user-centered design decisions for text- and voice-based interactions.

The paper *"Towards Industry 4.0: A Guide to Digital Transformation for Food Sector SMEs in Brazil"* analyzes the challenges faced by small and medium-sized enterprises in adopting Industry 4.0 technologies and proposes a practical set of recommendations to support digital transformation and technological maturity in the Brazilian food sector.

The paper *"A Proof of Concept for an IoT-Based Architecture to Monitor Hamstring Muscle Activity"* presents an IoT-based wearable architecture for real-time monitoring of muscle activity and fatigue, demonstrating the feasibility of integrating physiological data acquisition and analysis to support injury prevention strategies in sports contexts.

The paper *"Towards a Collaborative Framework for the Implementation of Digital Transformation Processes in Higher Education Institutions: A Comparative Analyses"* proposes a conceptual collaborative framework for digital transformation in higher education, synthesizing digital maturity, data governance, technology adoption, and inter-institutional collaboration with a focus on Latin American contexts.

Finally, the paper *"Application of Variance Analysis to Measure the Impact of STEM Methodology Components in an Educational Intervention"* applies statistical variance analysis to assess the effectiveness of STEM educational interventions, evidencing the critical role of preparation, teaching quality, and social interaction in enhancing learning outcomes.

After presenting the theme of each paper, we would like to thank César Collazos for his enthusiasm, ability to execute, and for bringing people together for a common purpose: the Ibero-American Human-Computer Interaction Conferences and the HCI-Collab network. We also extend our gratitude to the editor of this journal for giving us the opportunity to publish this Special Session with selected papers from the IX Ibero-American Human-Computer Interaction Conference. Likewise, to the authors for their

efforts in expanding their papers and meeting the journal's requirements in a short period of time. Finally, we want to express a special thank you to the reviewers who accepted the challenge of carrying out their work in a short time frame but with great quality.

Valéria Farinazzo Martins

Everton Knihs

CLEIej Invited Editors for Jornadas Iberoamericanas de Interação Humano-Computador
2025 Special Issue