Guest Editorial

Distilled insights from IBERAMIA 2022

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In this special issue of AI Communications, we converge upon a selection of extended manuscripts emanating from the 17th Ibero–American Conference on Artificial Intelligence. Each manuscript reflects the scholarly rigor and quest for applied innovation in our field. The chosen contributions embody incremental advancements in AI and present solutions to some of the most pressing challenges in the domain.

Carrillo, de Wolff, Martí, and Sanchez-Pi's paper presents a novel multi-objective optimization framework for Physics-Informed Neural Networks (PINNs), heralding a refined approach that synergizes data with physical laws to advance predictive models – a vital intersection of AI and physics.

In tackling the dynamism of network data, Enes, Nunes, Murai, and Pappa introduce a temporal embedding method that captures the evolution of networks, offering a solution to the stagnant nature of traditional embeddings and ushering in improved processing for machine learning applications.

Yokoyama, Ferro, and Schulze's research navigates the multi-faceted objectives of machine learning efficiency, making strides towards a more sustainable AI with their genetic algorithm-based hyperparameter optimization – an essential consideration in an era of environmental consciousness.

Addressing data-driven environmental management, Oliveira, Duarte, and Novais apply anomaly detection models to wastewater treatment monitoring, showcasing AI's potential to support and enhance ecological compliance and sustainability.

Rojas-Perez and Martinez-Carranza's work on autonomous drone navigation parallels the human experience of learning and adaptation, translating it into AI to push the boundaries of autonomous vehicular technology and its real-world applicability.

These papers collectively advance our understanding of AI's role in diverse problem-solving contexts, reinforcing the conference's reputation as a crucible for innovation. As these extended versions attest, the research presented at IBERAMIA 2022 transcends the theoretical, offering meaningful, actionable intelligence for the complex world that AI is poised to navigate and transform.