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Editorial: Artificial intelligence: the new frontier in digital humanities

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Editorial on the Research Topic

[Artificial intelligence: the new frontier in digital humanities](#)

The integration of Artificial Intelligence (AI) into the humanities represents a transformative shift, offering new tools to understand, preserve, and share cultural and historical heritage. While this innovation opens unprecedented avenues for exploration, it also raises questions about the balance between computational efficiency and human-centered interpretation. The current debate, in fact, examines how to keep a balance between automated analysis and the contextual depth characteristic of human understanding, while also addressing the ethical implications of using AI in the study and representation of culture. This Research Topic delves into these themes. Each contribution brings forward innovative methodologies, building an interdisciplinary bridge between AI and the humanities. In doing so, it lays the foundations for AI applications that both respect and enrich the complexity and diversity of cultural heritage. The Research Topic begins with an exploration of human-computer interaction, where [Zellou and Holliday](#) examine speech adaptations in voice-activated AI dialogues. This research reveals the subtle ways users adjust their communication with AI, enhancing our understanding of social dynamics in human-computer interaction. Their work resonates with [Chun's](#) research on MultiSentimentArcs, a multimodal sentiment analysis framework that applies AI to emotional narratives in media. Together, these studies highlight AI's role in capturing social and emotional nuances, offering insights into how technology can interact empathetically with users. [Elkins](#) work on translation evaluation builds on this theme, examining how AI can help retain the emotional and stylistic depth of literary texts across languages. By employing advanced language models, [Elkins](#) demonstrates how AI preserves the fidelity of cross-cultural texts, contributing to the broader discourse on AI in cultural preservation. This exploration of cross-cultural fidelity finds a parallel in [Stacchio et al.'s](#) work, where a framework for neural rendering is proposed to ensure ethical handling of digital cultural assets. Their research emphasizes transparency and ethical responsibility, aligning AI practices with established guidelines in cultural heritage preservation ([Stacchio et al.](#)). The theme of ethical AI applications continues in [Mehra et al.'s](#) study on the final verbal expressions of death row inmates, which

applies computational psycholinguistics to analyze themes of spirituality, forgiveness, and emotional consistency. By capturing profound aspects of human psychology, this study illustrates AI's potential to enhance our understanding of sensitive, high-stakes contexts, supporting fields like criminology and psychology in ethically resonant ways (Mehra et al.). The work of Santini complements these themes through its focus on knowledge extraction from Italian TEI-encoded texts. This study leverages language models to create knowledge graphs that preserve and contextualize historical texts, contributing to digital humanities by enhancing the accessibility and coherence of cultural content. The methodology emphasizes both structured and machine-readable data, bridging gaps between technology and the humanistic study of texts (Santini). Morotti et al. add to the discourse on AI's role in cultural preservation with their innovative DIP-ST method for artwork restoration. This study combines Deep Image Prior with Style Transfer to reconstruct damaged artwork areas, maintaining stylistic fidelity without requiring large datasets. Their approach highlights AI's potential in contexts where data scarcity and artistic coherence are crucial, underscoring the need for tools that adapt to humanities research with minimal intrusion (Morotti et al.). Collectively, these contributions underscore AI's transformative potential across the humanities, from human-computer interaction to cultural preservation. This Research Topic advocates for a balanced approach to AI in humanities, one that integrates technical advancement with ethical consideration and interpretive respect. As AI continues to shape the way we interact with, preserve, and interpret cultural heritage, this research provides the

foundation for an AI-enhanced future that honors its richness, embraces its complexity, and ensures its accessibility.

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