AI: The elements of visual art recommendation

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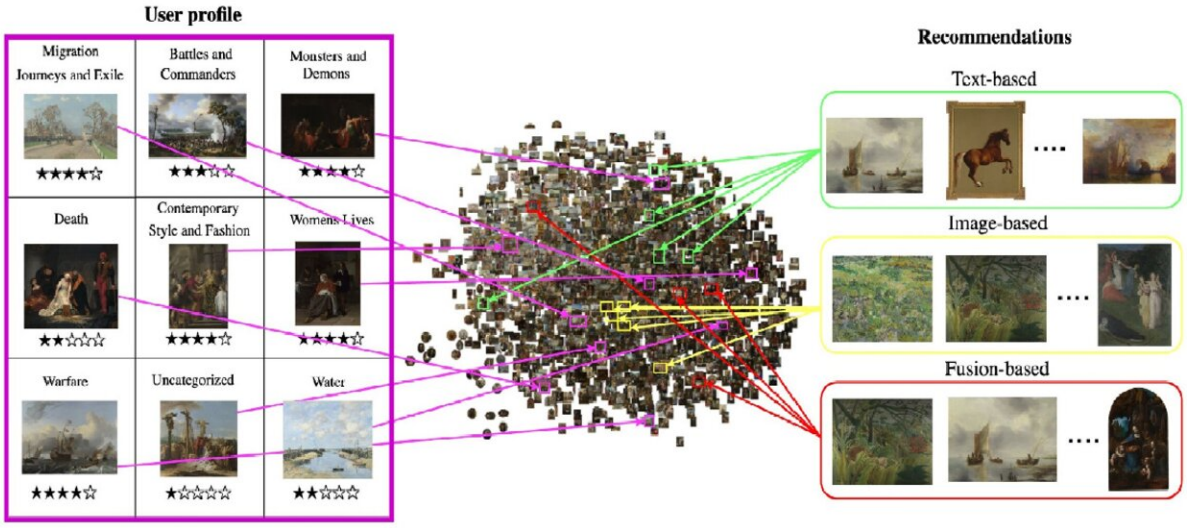

The Elements of Visual Art Recommendation: Learning Latent Semantic Representations of Paintings. Credit: *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems* (2023). DOI: 10.1145/3544548.3581477

The beauty of art lies in its ability to evoke emotions and spark imagination, but understanding the message behind a piece can be challenging. Computer scientists from the University of Luxembourg have studied the potential of advanced artificial intelligence (AI) and cutting-edge deep learning techniques in the domain of cultural heritage.

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Their findings are to be presented at the International Conference of Human-Computer Interaction (CHI'23) on April 26, 2023 in Hamburg. Their research aims to solve the challenge of recommending artwork in environments such as museums, art galleries, and exhibitions, where subjective content, intricate concepts, and emotional reflections come into play.

The research, led by Dr. Bereket Yilma and Prof. Luis Leiva from the Faculty of Science, Technology and Medicine of the University of Luxembourg, uses state-of-the-art AI to design visual art recommender systems to deliver highly personalized content that caters to the user's unique interests and preferences. The algorithms, leveraging the combined power of textual and visual data of the artworks, are able to effectively capture the underlying meanings and themes in visual art through the fusion of visual and textual data.

"Our work has a significant impact on the world of art and the way we interact with visual content," explains Dr. Yilma.

"For instance, imagine that you're viewing a painting of a beautiful landscape, and you start feeling a sense of calm. Our AI system can understand these kinds of complex concepts that are 'hidden' in the painting and is able to recommend other pieces of art that evoke similar feelings, allowing for a more personalized and memorable experience. By leveraging advanced AI techniques, we propose a novel approach to understanding complex concepts embedded within visual arts that are not visible to the naked eye."

The techniques developed in this work can also be leveraged to empower various digital assistants to offer personalized recommendations considering each user's unique preferences and anticipating dynamic reflections that can be triggered as users interact with visual content such as photos, videos, illustrations and infographics.

The first step of a more engaging personalized experience

On the one hand, this new approach using AI and deep learning will enable people to discover and engage with new and exciting visual art content that they might not have discovered otherwise. On the other hand, it will allow personalization services to promote the accuracy, serendipity, novelty, and diversity of recommended content when appropriate.

"This research, supported by the Horizon Europe program, promises to have a transformative impact not only on cultural heritage but the findings could also pave the way for the development of new technologies and methods for personalized visual content recommendation in various other domains, including, for example, e-commerce, social media, and entertainment platforms among others, cementing the research's place at the forefront of modern technological innovation," comments Prof. Leiva.

More information: Bereket A. Yilma et al, The Elements of Visual Art Recommendation, *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems* (2023). DOI: 10.1145/3544548.3581477