

RISE

Catalysing Global Research Excellence



ARTIFICIAL
INTELLIGENCE (AI):
Embracing the Future

eISSN 2805-5683



9 772805 568009

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ABOUT THE MAGAZINE

RISE Magazine is published by Office of the Deputy Vice-Chancellor (Research and Innovation) with aims to highlight a research and innovation on multidisciplinary expert of fields in UiTM. It serves as a platform for researcher to showcase their high quality and impactful findings, activities and innovative solution through publication. Contribution of these ideas come from academicians, researchers, graduates and universities professionals who will enhance the visibility of research and stride to elevate Universiti Teknologi MARA to global standards. This is an effort to promote research as a culture that is accepted by all expertise.

ABOUT UiTM

Universiti Teknologi MARA (UiTM) is a public university based primarily in Shah Alam, Malaysia. It has grown into the largest institution of higher education in Malaysia as measured by physical infrastructure, faculty and staff, and student enrollment. UiTM is the largest public university in Malaysia with numerous campuses throughout all 13 states in Malaysia. There is a mixture of research, coursework and programmes offered to the students. The Office of the Deputy Vice-Chancellor (Research and Innovation) also known as PTNCPI (*Pejabat Timbalan Naib Canselor (Penyelidikan dan Inovasi)*) serves as a *Pusat Tanggungjawab* (PTJ) for navigating the research and innovation agenda of the university to achieve UiTM's goals. The PTNCPI office strives to mobilize faculty and campuses, fostering collaboration among researchers, with the aim of transforming the University into a Globally Renowned University by 2025



ARTIFICIAL INTELLIGENCE (AI) in The Art and Design Industry

Introduction to AI

Artificial intelligence (AI) refers to the capability of machines to perform tasks that traditionally require human intelligence, such as problem-solving, decision-making, and perception. AI is rapidly transforming various industries, including healthcare, finance, transportation, and retail. It encompasses different types, such as rule-based AI using if-then statements for decision-making, machine learning which employs algorithms to analyze and learn from data, and deep learning utilizing artificial neural networks to learn from extensive datasets. AI holds the potential to enhance productivity, accuracy, and effectiveness across sectors. For instance, in healthcare, AI algorithms can analyze medical images for early disease detection. In finance, AI can analyze financial data to identify trends and inform investment decisions. It can optimize traffic flow and safety in transportation and personalize marketing messages in retail.

However, the rise of AI also presents challenges, including job displacement and ethical concerns. The increasing capabilities of machines in performing human tasks could lead to widespread job loss. This may result in high unemployment rates and social unrest. Additionally, ethical concerns arise due to AI's potential impact on privacy, bias, and accountability. AI algorithms analyzing large datasets might perpetuate existing biases, leading to discriminatory outcomes. Addressing these challenges requires the development of policies and regulations to ensure responsible AI development and application. This involves investing in education, training programs to prepare the workforce, establishing ethical frameworks for AI use, and fostering collaboration between industry, academia, and government.

AI in the Art & Design Industry

Artificial intelligence is gaining prominence in the art and design industry, enabling the creation of innovative and unprecedented works. AI-generated artworks employ generative art, which analyzes extensive datasets of existing art to generate new pieces. Moreover, AI analysis of artworks can provide insights into artists' techniques. AI algorithms can assist in managing art collections, facilitating organization and categorization in museums and galleries. In the design sector, AI algorithms can generate designs for various products, from clothing to furniture, by analyzing user preferences and creating virtual prototypes for testing.

For example, "Edmond de Belamy," created by the Parisian collective Obvious, exemplifies AI-generated art. It utilized a generative adversarial network (GAN), a type of deep learning algorithm consisting of a generator and a discriminator, to construct the portrait. The generator produces images, while the discriminator determines authenticity. Artist Mario Klingemann uses neural networks to create abstract art through style transfer, which applies the style of one image to another, resulting in unique combinations.

Furthermore, AI can analyze existing art, as demonstrated by researchers at Rutgers University who developed an AI algorithm to analyze brushstrokes and identify artists with up to 80% accuracy. This technique aids in authentication and forgery detection. AI also enhances art collection management, simplifying organization based on visual similarities. In the design industry, AI algorithms create designs tailored to user preferences and market trends. H&M employs AI to design clothing, while Steelcase utilizes AI to customize chairs based on user data collected through embedded sensors.



Next to "Edmond de Belamy, from La Famille de Belamy," is Pierre Fautrel, co-founder of the French business team Obvious, which creates art using artificial intelligence. Timothy A. Clary/Getty Images

Ownership raises ethical questions regarding AI-generated art and design. Defining the rights holder—creator of the AI, data set, or commissioned work—requires clarity. To address these concerns, comprehensive guidelines are essential. They should cover creativity recognition, accountability standards, bias prevention through diverse training data, and ownership clarification. Collaboration between stakeholders is crucial for ethical AI integration.

Conclusion

AI's transformative potential across industries is evident in its ability to boost productivity and efficiency. Yet, ethical considerations demand attention, involving creativity, accountability, bias, and ownership issues. By establishing guidelines and fostering collaboration, society can harness AI's benefits while upholding ethical standards. As AI continues to advance, artists, designers, and society must navigate its implications responsibly.

AI's Ethical Concerns

The integration of AI in art and design prompts ethical considerations. Creativity is a central concern—debates arise over whether AI-generated art can genuinely be deemed creative. Some argue that AI's programmed nature restricts its creativity, while others highlight its unpredictability and originality. Accountability is another challenge; determining responsibility for AI-generated output, particularly when multiple AI systems contribute, becomes complex. Bias is an ethical issue, as AI systems can perpetuate biases present in training data, leading to representation and diversity concerns.



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