

"Artificial Intelligence and Identity Challenges in Contemporary Ceramic Design"

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Abstract

Defining artistic identity is a new challenge facing the potter designer in the world of artificial intelligence and continuous technological development, as he is required to consolidate the features of his artistic identity through digital tools, analyzing his creativity and turning it into data and algorithms that carry his own character and determine the extent of his reliance on technology in the production of his artwork.

Searchproblem:

- What identity challenges does a contemporary porcelain designer face when using AI applications?
- What is the impact of the use of artificial intelligence on the aesthetics of contemporary ceramic design?
- What are the best practices for rooting artistic identity and protecting ceramic heritage when using artificial intelligence?

ResearchObjectives:

- Learn about the impact of the use of artificial intelligence on the aesthetics of contemporary ceramic design.
- Identify the most important practices for rooting identity and protecting ceramic heritage when using artificial intelligence

Keywords:

Ceramics - artificial intelligence - artistic identity

مشكلة البحث :

- ما هي تحديات الهوية التي يواجهها المصمم الخزف عند استخدام تطبيقات الذكاء الاصطناعي؟
- ما هي أفضل الممارسات لتأصيل الهوية وحماية التراث الخزفي عند استخدام الذكاء الاصطناعي؟

أهداف البحث:

- التعرف على تأثير استخدام الذكاء الاصطناعي على جماليات التصميم الخزفي المعاصر .
- التعرف على أهم الممارسات لتأصيل الهوية وحماية التراث الخزفي عند استخدام الذكاء الاصطناعي.

الذكاء الاصطناعي وجماليات التصميم الخزفي المعاصر:

يمكن أن يلعب الذكاء الاصطناعي دوراً مهماً في عملية التصميم والإنتاج. على سبيل المثال، يمكن للبرامج المستندة إلى الذكاء الاصطناعي أن تساعد الفنانين على تصور وتخطيط تصميمات جديدة، والتنبيه باللمس والنسب المثلى لقطع السيراميك. يمكن أيضاً استخدام تقنيات الذكاء الاصطناعي في عملية التشكيل والزخرفة، مما يمكن الفنانين من إنتاج قطع أكثر تعقيداً وتفصيلاً:

- دور الذكاء الاصطناعي في تصميم العمل الخزفي.
- استخدام الذكاء الاصطناعي في عمليات إنتاج الخزف .
- التأثير على جماليات تصميم الخزف المعاصر.
- هناك العديد من الممارسات الأساسية التي يمكن اتباعها لحماية التراث الخزفي عند استخدام الذكاء الاصطناعي:
- الشراكة بين الحرفيين التقليديين وخبراء الذكاء الاصطناعي .
- وضع إطار تنظيمي لحماية التراث الثقافي .
- الحفاظ على التنوع المحلي والرموز الثقافية .
- الحفاظ على المهارات اليدوية والإبداع .
- الشفافية والمساءلة .
- تعاون متعدد التخصصات .
- البيئة والاستدامة.

النتائج :

1. سيبقى الطابع اليدوي والفردية للخزف عنصراً أساسياً في تحديد الهوية الفنية للأعمال .
2. يمكن أن يساعد الذكاء الاصطناعي في تحليل وتقييم التصميمات المختلفة من حيث الشكل، والنسب، والألوان، واللمس .
3. يؤدي استخدام الذكاء الاصطناعي إلى ظهور طرق تصميم جديدة مستوحاة من قدرات البرامج التحليلية والتركيبية.

التوصيات :

1. إشراك الحرفيين التقليديين في عملية تطوير نظم الذكاء الاصطناعي لضمان إدراج المعارف والمهارات التقليدية .
2. وضع سياسات وقوانين واضحة لحماية الملكية الفكرية والسمات الثقافية للخزف التقليدي .
3. تطوير أنظمة ذكاء اصطناعي قادرة على التعرف على الميزات المحلية الفريدة ودمجها في التصميم المعاصر .
4. تشجيع استخدام الذكاء الاصطناعي كأداة مساعدة للحرفيين بدلاً من الاعتماد الكامل عليه.

الكلمات المفتاحية:

الخزف - الذكاء الاصطناعي - الهوية الفنية

Introduction:

Identity means distinction and uniqueness from others, the identity of the thing means its privacy and distinction with a few qualities, he says: Abu Nasr Al-Farabi in the «comments» that the

identity of the thing in his eyes, unity, personalization, privacy, and unique existence has each one. Saying "it is him" is a reference to his identity, his privacy and his unique existence does not fall into a common identity, that is, he has features and characteristics that distinguish him from others, age, color, temperament, and mental abilities are different from one person to another. This uniqueness of identity also includes the identification of the other, whose existence is a prerequisite for my existence, as Sartre says, "My sense of individuality requires my feeling of the other, as existence for the sake of the other is a stage of self-development, and the path of inner existence passes through the other." Others define it as the code through which the individual can define himself in his relationship with the social group to which he belongs, through which others recognize him as belonging to that group, and identity is an entity that becomes and develops, and not a ready and final given, it develops either in the direction of contraction, or in the direction of spread, and it is enriched by the experiences of its people, their suffering, victories and aspirations, as well as by its negative and positive contact with other identities Identity can be seen in its dynamic form as a set of collective decisions adopted by a society, at a specific time, to express the intrinsic (ideological), social, aesthetic, economic and technological values, which together constitute an integrated picture of the culture of that society. Artistic identity is a set of features and characteristics that are unique to the personality of the artist or characterized by a group or society at different historical stages and make it distinct from other artistic identities, and these characteristics are represented in the symbols, drawings and methods of plastic performance of the various arts, which are formed through the cultural heritage of the personality of the artist or the local community. There are those who define artistic identity and its connection to the civilization of a nation as: the fixed, essential and common number of general features and characteristics that make the work of art a unique character. There is a perception that sees artistic identity as something that has been completed, ended and achieved in the past, in a certain period of time, or a certain model, and that the present is only an attempt to realize and achieve this example, and it also has another perception that sees it as something that is constantly acquired and modified, and never a fixed essence, that is, the artistic identity is transformable and developable, and identity can be seen in that image as a set of collective decisions adopted by a society, at a specific time to express the core values (ideological) Social, aesthetic, economic and technological through artistic production in various fields (plastic arts, music and performing arts), which collectively constitute an integrated picture of the culture of this society. Defining artistic identity is a new challenge

facing local communities and potter artists, in the world of artificial intelligence and continuous technological development, as they are required to root the features of their artistic identity through digital tools, analyzing their creativity and turning it into data and algorithms that carry their own character and determine the extent of their reliance on technology in the production of their artworks.

Search problem:

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Research Objectives:

- Learn about the impact of the use of artificial intelligence on the aesthetics of contemporary ceramic design.
- Identify the most important practices for rooting identity and protecting ceramic heritage when using artificial intelligence.

The role of artificial intelligence in artistic creativity:

From the point of view of some art enthusiasts, artificial intelligence can threaten the individuality of the artist and the originality of the artwork. Using artificial intelligence tools such as artistic generation software may reduce an artist's personal footprint and uniqueness. Others argue that AI can be a useful tool for artists to increase their creativity and experiment with new methods. Artistic generation programs, for example, can help artists discover new ideas and methods that they cannot access on their own. Ultimately, the role of AI in art is related to how the artist uses and interacts with it. It takes artists to think deeply about how to integrate new technologies with their own artistic identity. Artificial intelligence has given rise to new forms of digital art by enabling artists to create and process images, sounds, and other media in new ways. It blurs the boundaries between what is real and what is virtual. Pattern transfer algorithms can convert an image or video into a specific artist or painting style, while deep learning techniques can be used

to generate music, poetry, or even entire narratives. These new forms of digital art have influenced the way we perceive art and the ways it is valued in many ways. The use of AI as a method of digital art challenges our traditional understanding of art, expands the boundaries of what can be considered art, and democratizes access to the production and reception of art.

Artificial Intelligence and the Aesthetics of Contemporary Ceramic Design:

AI can play an important role in the design and production process. For example, AI-based software can help artists visualize and plan new designs, predicting the texture and optimal proportions of ceramic pieces. AI techniques can also be used in the shaping and decoration process, enabling artists to produce more complex and elaborate pieces. The handmade and individual character of porcelain will remain a key element in defining the artistic identity of works. It is the natural contrast of results and the effects of human touch that give the ceramic pieces their uniqueness and character.

1-The role of artificial intelligence in the design of ceramic pieces:

- AI can help analyze and evaluate different designs in terms of shape, proportions, colors, and texture, helping the artist make more creative and objective design decisions.
- With three-dimensional imaging and modeling software, AI can simulate and display proposed designs in a realistic way before implementation.
- Automated recognition of patterns and aesthetic elements in historical ceramic works can help guide new designs.

2-The use of artificial intelligence in ceramic production processes:

- Automatic temperature control and burning processes for more consistent and quality results.
- The use of robots in some stages of formation and decorating to improve accuracy and regularity.
- Analyze data on production processes for continuous improvement.

3-Impact on the aesthetics of ceramic design:

- The use of artificial intelligence may lead to the emergence of new design methods inspired by the capabilities of analytical and synthetic software.

- Influencing ceramic surface treatment methods through digital imaging and editing tools.
- The ability to create unique designs based on data analysis and previous models.

In general, there is great potential for the integration of artificial intelligence in the field of ceramics, both at the design and production level, which may be reflected in the aesthetics and innovation of ceramic work. But it is important that human ingenuity remains the primary driver of these technological advancements.

These are just a few examples of contemporary ceramic artists who are experimenting with integrating artificial intelligence into their creative processes. The use of AI allows them to expand the possibilities of the ceramic medium and create innovative works that push the boundaries of traditional ceramic art.

Carole Epp: is a Canadian ceramic artist living and working in Saskatoon, Saskatchewan. She received her master's degree in Ceramics from the Australian National University in 2005 and has maintained a full-time studio practice since.

“For now, they will simply tell their stories as digital images”



<https://www.caroleepp.com/projects-7>

Elena Howard: discusses the creative fusion of ceramics and artificial intelligence.



<https://www.ceramicreview.com/articles/clay-meets-code/>

Hilda Nilsson: ceramicists from Denmark she widely used as a prototyping tool while designing products, 3D printing.



Identifying "handmade" as a trend of the last few years, Hilda hopes more ceramicists will adopt digital tools – @Hilda Nilsson



In her prototyping phase, Hilda tests shapes and textures in the 3D printer before producing the full-scale object – @Hilda Nilsson



<https://designwanted.com/interview-hilda-nilsson/>

There are several ways AI can help develop ceramic design:

1. Computer Assisted Design (CAD):

- Using three-dimensional design software to create sophisticated digital models of ceramic pieces.
- The ability to make modifications and improvements to designs quickly and easily.

2- 3D printing:

- Producing fast printing models with high accuracy to test the proposed designs.
- The possibility of producing complex ceramic pieces using digital printing techniques.

3-Virtual Reality and Augmented Reality:

- Virtual experience of ceramic products before manufacturing.
- Display proposed designs in many realistic functions.

Challenges to consider when integrating AI into contemporary ceramic design:

There are some challenges to consider when integrating AI into contemporary ceramic design so a balanced approach must be adopted that leverages the potential of AI while preserving the artistic and cultural values of ceramics. Appropriate disciplines and regulatory frameworks should be put in place to address ethical and legal challenges.

1. Preserving creative value and artistic identity:

- Traditional porcelain making relies heavily on the skills and manual creativity of craftsmen. There are concerns that over-reliance on artificial intelligence may lead to the loss of these skills and distinctive characteristics of craftsmanship.
- The balance between technological innovation and the preservation of traditions and manual methods that form the core of traditional ceramics is a major challenge. Which affects the self-identity of the potter.
- Over-reliance on artificial intelligence may lead to the emergence of "robotic" ceramic works that lack the personality and individual expression of the artist.
- The role of the designer/artist as a source of creativity and innovation must be maintained, so that technological technologies are only supporting tools and not a substitute for human creativity.

2. Preservation of heritage, authenticity, and cultural diversity:

- Traditional porcelain in different cultures and regions is characterized by a great diversity of shapes, motifs, and design styles. The use of artificial intelligence may lead to the loss of local and unique variations in traditional shapes, motifs, and techniques.
- Traditional porcelain often includes symbols and meanings related to local heritage and customs. There are fears that AI technologies will ignore these symbols and values inherent in the local culture. This makes it difficult for AI systems to cope with this diversity and be able to adapt themselves effectively.
- Technological applications may lead to the emergence of "universal" design styles at the expense of heritage styles.
- It must be ensured that the use of artificial intelligence is a means of promoting and preserving local ceramic heritage and not obliterating it.

3. Ethical and legal aspects and concerns about intellectual property preservation:

- There are concerns that the use of artificial intelligence in design may lead to intellectual property infringements of traditional artists and craftsmen. This issue requires an appropriate regulatory framework for the protection of traditional creativity.
- Intellectual property issues and digital rights for designs resulting from artificial intelligence.
- Responsibility for errors and defects in ceramic products manufactured using artificial intelligence techniques.

4. Costs, technical capabilities, lack of skills and resources:

- In some regions, there may be a lack of technical skills and resources to successfully integrate AI into traditional ceramics. This requires investments in training and infrastructure.
- Developing and implementing AI-based solutions can be costly for some ceramics, especially small artisans.
- Having the expertise and skills to design and operate these technologies can be challenging.

To overcome these challenges, a balanced approach is needed that integrates modern technology while preserving the cultural features and local identity of traditional ceramics. This requires close

collaboration between traditional artisans and AI experts, as well as a regulatory framework for the protection of cultural heritage that requires:

- Collaboration between traditional artisans and AI experts.
- Develop a regulatory framework for the protection of cultural heritage.
- Preserve local diversity and cultural symbols in contemporary porcelain designs.
- Maintaining manual skills and creativity in the ceramic industry.

Best practices for protecting ceramic heritage when using artificial intelligence:

There are several basic practices that can be followed to protect ceramic heritage when using artificial intelligence:

1. Partnership between traditional artisans and AI experts:

- Involve traditional artisans in the process of developing AI systems to ensure that traditional knowledge and skills are included.
- Allow artisans to review and approve AI-produced designs to verify the accuracy of cultural representation.

2. Develop a regulatory framework for the protection of cultural heritage:

- Establish clear policies and laws to protect the intellectual property and cultural features of traditional ceramics.
- Establish a licensing system to reduce the unauthorized commercial exploitation of traditional designs.

3. Preserving local diversity and cultural symbols:

- Develop artificial intelligence systems capable of recognizing unique local features and incorporating them into contemporary designs.
- Encourage AI to include cultural symbols and meanings in designs instead of relying solely on aesthetic aspects.

4. Maintain manual skills and creativity:

- Establish training and education programs for traditional artisans to develop their skills and engage them in working with AI.
- Encourage the use of artificial intelligence as an aid tool for artisans rather than full reliance on it.

○ Continuous education and training are essential to ensure that practitioners can effectively utilize the latest AI-powered tools and technologies.

5. Transparency and Accountability:

- Establish mechanisms for continuous review and evaluation of AI applications in ceramics to ensure the preservation of cultural heritage.
- Involve local communities and stakeholders in decision-making and monitoring processes.

6. Interdisciplinary cooperation:

- Addressing AI challenges in contemporary ceramics design across disciplines, including art, design, computer science, and ethics.
- Promoting interdisciplinary dialogue and knowledge sharing is key to developing inclusive and sustainable solutions.

7. Environment and Sustainability:

- The rapid development of artificial intelligence technologies may affect the environmental sustainability of the ceramic industry.
- There is a need to study and evaluate the effects of these technologies on the environment and find sustainable solutions.
- Promote environmentally friendly practices in the development and application of artificial intelligence

Results:

- The handmade and individual character of porcelain will remain an essential element in defining the artistic identity of works.
- AI can help analyze and evaluate different designs in terms of shape, proportions, colors and texture.
- The use of artificial intelligence is giving rise to new design methods inspired by the capabilities of analytical and synthetic software.

Recommendations:

- Involve traditional artisans in the process of developing AI systems to ensure that traditional knowledge and skills are included.
- Establish clear policies and laws to protect the intellectual property and cultural features of traditional ceramics.
- Develop artificial intelligence systems capable of recognizing unique local features and incorporating them into contemporary designs.
- Encourage the use of artificial intelligence as an aid tool for artisans rather than full reliance on it.

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