








## ETHICAL CONCERNS IN AI-GENERATED SCULPTURAL ART

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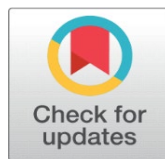
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## ABSTRACT

The accelerated development of AI-created sculptural works has set new standards of creativity, authors, and expression of material, but it also delivers some serious ethical issues, questionable by conventional artistic and cultural paradigms. As the roles of generative models, mesh networks in 3D and computational fabrication tools continue to be integrated into the sculptural ideation and production processes, questions of authenticity of the sculptural intent, the validity of the hybrid human machine authorship arises as well as the risk of losing the craft-based knowledge systems. The transparency of AI algorithms also causes ethical concerns that the algorithm might include some sort of hidden bias that form the formal aesthetics, cultural themes, or symbolic forms in a manner that unintentionally misrepresents or steals heritage traditions. Additionally, culturally significant, or proprietary art, is frequently presented as a part of a training dataset, and understandings of the intellectual property rights, permission, and ethical obligations of the creators and institutions using such systems may be disputed. The second ethical factor is that the AI-generated sculptures can be commodified and scaled at a mass level, thereby causing disruptions in the socio-economic ecosystems of sculptors, teachers, designers, and local craft communities. At the same time, the standardization of the algorithmic optimization poses a danger of homogenization of art diversity, thus reducing pluralism of expression of sculptures between cultures. Additional environmental aspects such as the energy requirements of training models as well as the material disposal of rapid prototyping makes the issue of AI-driven sculptural practices even more consequential. This abstract shows the necessity to create transparent, accountable, and culturally respectful AI models that would be able to protect human creativity, the integrity of the arts, and fair co-existence between technological innovation and ancient sculptural arts.

**Keywords:** AI-Generated Sculpture, Ethical Authorship, Cultural Sustainability, Algorithmic Bias, Creative Autonomy, Intellectual Property in Art

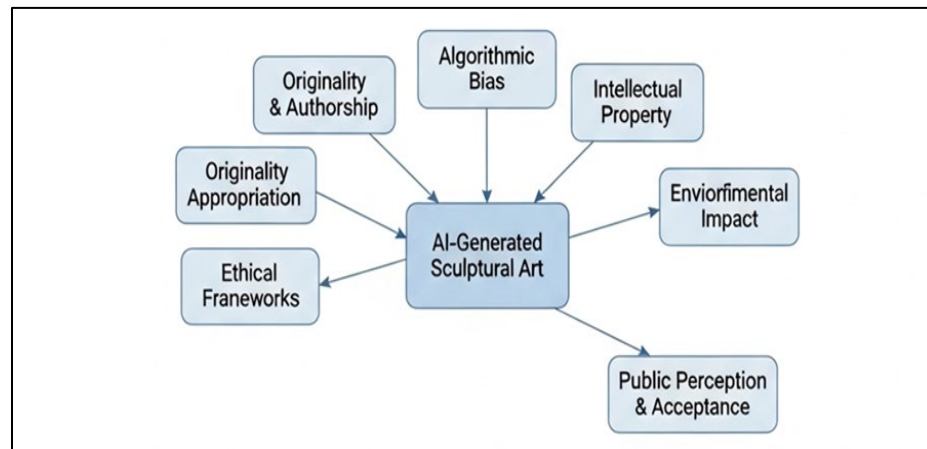


## 1. INTRODUCTION

The advent of artificial intelligence into the sculpture work is a significant change in the conceptualization, implementation, and appreciation of creative processes in modern art. Historically sculpture has been engaged through a tactile experience, material intuition, and through a form of craftsmanship, in which artistic identity is indisputably embedded in gestures, choices, and culture of the person who made it. Nevertheless, AI-based creativity brings with it computational thinking, generative algorithms and generative fabrication as collaborative partners in the sculptural production, evenly sharing the creative agency between computer and human. This revolution has allowed artists to experiment with new forms, loads of non-linear geometries and mixed aesthetics, which could not be achieved comfortably through manual processes alone in the past [Al-kfairy et al. \(2024\)](#), [Allen et al. \(2024\)](#). At the same time, it leads to a major challenge of the assumptions which are well ingrained in terms of originality, authorship, the cultural authenticity of the artistic expression.

The development of generative models, 3D mesh networks, physics engines of simulation and advanced tools of digital fabrication is notable technological advancement within the sphere of sculpture. All systems that allow AI to generate complex systems, patterns, and anatomies of sculptures by itself or semi-autonomously are GANs, diffusion models, neural implicit surfaces, and architecture of mesh generators [Zhou et al. \(2024\)](#). Together with additive manufacturing, robotic carving or a workflow founded on CNC, these models will make computational imagination physical at the speed and accuracy never observed before. Although these technologies provide an artist with an immense amount of creative power, they also come with a cloudy cloud of algorithmic opportunities, biases in the dataset, and cultural complications that can hardly be identified or controlled [Foka and Griffin \(2024\)](#), [Michel-Villarreal et al. \(2023\)](#). Consequently, the overlap between AI and sculpture is not the democratic frontier and the field, but rather the ethical landscape that has to be analyzed critically.

**Figure 1**



**Figure 1** Ethical Dimensions Influencing AI-Generated Sculptural Art

Such developments pre-empt a pressing research issue that would revolve around ethical, cultural and authorship issues. Culturally sensitive motives may be unwittingly copied into AI-generated sculptural forms, the heritage-based symbolism may be warped, or identity-based visual languages may be portrayed inaccurately because of the biased or unfiltered training information [Zhang and Kamel Boulos \(2023\)](#). The piracy of aesthetic decision making to machines not only undermines established ideas of creative responsibility but also asks the question as to who has the responsibility, both in terms of meaning, impact or controversy that an AI generated work entails [Avlonitou et al. \(2025\)](#). In addition, the growing commercialization and scaling AI-created sculptures endanger not only professional artisans but also change the local economy and contributes to homogenization of various artistic traditions. The [Figure 1](#) underlines key ethical aspects such as authorship, algorithmic bias, intellectual property, environmental issues, and public acceptance demonstrating how every element plays off each other to create the duties, issues, and social influence of AI generated sculptural practices.

In this research, the objections will be conducted systematically in an attempt to resolve these ethical issues, which are authorship ambiguity, problems of cultural representation, algorithm biases, data ethics, and their larger impact on the wider society. This study is important as it may contribute to the creation of clear, culturally conscious, and morally accountable AI systems that would not oppose technological advancement to artistic and creative value and artistic tradition preservation [Siri \(2024\)](#). The theoretical analysis, case studies of AI-generated sculptures, and assessment of the current ethical models are in the scope of the paper, and the weakness is associated with the dynamics of AI technologies and the unavailability of universally established regulatory standards. The paper has been organized to give some background, theoretical concepts, analysis, and informed suggestions on how AI-sculptural practices can be done ethically [Mossavar-Rahmani and Zohuri \(2024\)](#).

## 2. LITERATURE REVIEW

Advances of AI in 3D art and computational aesthetics have radically transformed the creative processes of artists and allowed them to imagine and reproduce sculptural objects outside of the limits of the manual tradition. Classical computational art was concerned with the creation of algorithmic patterns and with geometric models but more recent developments in deep learning, specifically generative adversarial networks (GANs) and diffusion models, neural implicit representations, and mesh-generating networks have opened up new possibilities of visual and spatial experimentation [Zhang and Kamel Boulos \(2023\)](#). These systems empower their autonomous creation of the high-resolution forms, the material textures and structural symmetries, which gave rise to the paradigm where AI is not only a companion of a creative audience but an active partner. Meanwhile, model decisions are not easily readable and define authorship, which is made difficult by their opaqueness [Avlonitou et al. \(2025\)](#), [Siri \(2024\)](#).

Another important branch of scholarship is human-machine co-creativity. Posthumanism and distributed agency theories propose that creativity arises through interaction between the human intuition, computational probability and environmental constraints, but not through the isolated authorship [Mossavar-Rahmani and Zohuri \(2024\)](#). The artificial intelligence systems that allow artistic interpretation can provoke traditional hierarchies by allowing feedback loops where artists can work to improve the generated outputs of a model and the model can evolve based on training data and user responses. The discussions in this area have been on whether the AI could actually possess creative intentionality or it is only simulating human creativity through the statistical recombination of patterns gleaned through datasets [Qin et al. \(2023\)](#). Also, scholars note that co-creativity brings conflict into accountability: in case an art piece provokes a lay-off, it becomes ethically challenging to identify who should be accountable in case it is either human machismo or algorithm machines [Singh et al. \(2023\)](#).

The issue of cultural representation and authenticity has become a dominant concern of digital art traditions, especially when AI is mediated with indigenous, traditional, or identity visual languages. Culturally sensitive works of art, symbols or sculpture may also be found in training datasets, which can be reproduced, hybridised without any contextual understanding or without attribution [Li et al. \(2023\)](#). This brings up issues of digital appropriation, symbolic distortion and diminution of artistic tradition. In sculptural processes where motifs and materiality are ritual, historical or community-relevant, AI-based reinterpretations threaten to eradicate culture, and strip sculptural processes of the socio-cultural implications inherent in these works. Without curation systems of datasets or consent measures that are governed by cultural practices, scholars contend, AI-created sculptures will unwillingly perpetuate bias, stereotyping, of misrepresentation. Computational design and creative AI aim at these issues through ethical systems that are focused on transparency, equity, accountability, and focus on cultural rights. The suggestions offered in the field of creative AI studies include responsible sourcing of data, interpretability of model outputs, and ethical implementation in the fabrication and commercialization of such models [Saihood et al. \(2023\)](#). Oppositely, value-sensitive design and participatory ethics frameworks have created a movement in the design community to ensure that artisans, cultural custodians, and communities affected by AI-assisted artistic tools are involved in the development of these tools [Kiourexidou and Stamou \(2025\)](#). Nevertheless, such frameworks have not been fully implemented because technology is changing fast and there are no universally accepted standards.

Although an increasing scholarly attention has been received, there are a lot of gaps in research about sculptural ethics. The current literature tends to approach AI ethics in a general way, and not to consider the material, cultural, and symbolic particularity of a sculpture as an art object. Little research looks critically on the influence of algorithm distortion on three-dimensional cultural motifs or generative systems restructuring artisanship, economic ecosystem, or heritage conservation [Suchacka et al. \(2021\)](#). Also, little focus has been directed in the long-term effects of mass-

created AI sculptures on cultural identity, aesthetic practices plurality, and generational transfer of craft knowledge. It is this disparity that highlights the necessity of an extensive ethical framework of specifically AI-generated sculptural art.

**Table 1**

<b>Table 1 Summary of Literature Review on Ethical Concerns in AI-Generated Sculptural Art</b>						
<b>Research Focus</b>	<b>Key Concepts</b>	<b>Technological Components</b>	<b>Ethical Issues Identified</b>	<b>Cultural Concerns</b>	<b>Scholarly Insights</b>	<b>Implications for Sculpture</b>
Evolution of AI in 3D Art	Computational aesthetics, generative outputs	GANs, Diffusion, Neural Implicit Models	Opacity of algorithms	None explicitly	AI expands creative possibilities	Enables new morphologies beyond manual craft
3D Mesh & Form Generation	Procedural geometry, autonomous modeling	Mesh-generating networks, 3D reconstruction	Lack of creative accountability	Style dilution risks	High model efficiency noted	Produces complex forms at scale
AI as Creative Collaborator	Co-creation, iterative refinement	Human-AI feedback systems	Ambiguous authorship	Influence on cultural style	Creativity becomes distributed	Changes role of sculptor in design workflow
Posthumanist Creativity Theories	Hybrid agency, shared authorship	Adaptive learning models	Responsibility disputes	Weak contextual grounding	AI mimics but does not intend	Challenges traditional creative identity
Dataset Influence on Aesthetics	Pattern extraction, symbolic learning	Large image/3D datasets	Dataset bias transmission	Cultural misrepresentation	Need for curated datasets	Shapes AI's aesthetic decisions
Cultural Authenticity	Heritage-based motifs, symbolic accuracy	Style transfer, motif regeneration	Appropriation risk	Loss of cultural meaning	Ethical curation emphasized	AI may distort sacred or traditional forms
Digital Appropriation Concerns	Hybridization of indigenous art	Model training on cultural archives	Intellectual property issues	Unauthorised motif use	Contextual metadata required	AI outputs may violate cultural norms
Ethical AI Frameworks	Transparency, fairness, explainability	XAI tools, traceability methods	Algorithmic opacity	Misinterpretation of motifs	Community participation urged	Supports ethical creative pipelines
AI in Art Ecosystems	Automation, commercialization	Robotic fabrication, CNC carving	Displacement of artisans	Threat to craft livelihoods	Need balanced innovation	Reshapes socio-economic art structures
Gaps in Sculptural Ethics	Lack of 3D-specific ethical studies	Limited sculptural datasets	Absence of regulation	Heritage erosion risk	Research gap acknowledged	Requires sculpture-focused ethical model

### 3. THEORETICAL FRAMEWORK

#### 3.1. AUTHORSHIP THEORIES: POSTHUMANISM, HYBRIDITY, AND AGENCY

Modern theories of authorship may be applied to creative production of AI-generated sculptural art, especially by using the prism of posthumanism, hybridity, and distributed agency. Posthumanist theory is the theory that questions the standard humanist concept of creativity by suggesting that artistic authorship is a result of entanglement of humans, technologies, materials, and environments. This has an intuitive implication on the sculptural practice such that the artist has ceased to be the unique source of form, but instead, creativity emerges as a result of a relationship between human intention, algorithmic calculation, and machine abilities. This is expanded by hybridity theory that focuses on the union of human imagination and machine-based generativity to create hybrid artifacts that combine cognitive design processes with computational morphogenesis. The AI systems, be it generative models, mesh networks or fabrication algorithms have a positive contribution to both the conceptual and formal elements of the sculpture and therefore take on some sort of agency in its quasi-agency. This decentrated agency issues problematize classical distinctions between creator and tool and bring forth question of responsibility, credit authorship and interpretive authority. Even in AI-generated

sculpture, how proportion is used, the texture, symbolism, and structural development can be made using complex computing processes that are not directly influenced by the artist. Writing is so decentralized, negotiated and contingent an authorship, however, a multi-agent creative ecology. All of these theoretical frameworks demonstrate that AI-aided sculpture can not be perceived in terms of one-on-one models of ownership; instead, it demands a broader definition of creative agency in which humans and machines both contribute to defining meaning and shape and aesthetic identity.

### 3.2. AI ETHICS PRINCIPLES: TRANSPARENCY, FAIRNESS AND ACCOUNTABILITY

The ethics of AI can be used to offer a general framework of addressing the ethical and functional issues that come up when AI takes part in sculptural creativity. Transparency deals with explainability of government processes of generative processes, source of datasets and also algorithmic choices so that creators and audiences can comprehend how the form or the symbolism of a sculpture was created. Equity demands the alleviation of the biases present in training sets, which do not allow the reproduction of culturally biased motifs, stereotypes, or obtain biased shapes of representation. This is necessary in the case of sculptures where the structures tend to be of historical, ritual or community-based meaning. Accountability focuses on the definition of who should be held accountable to the mistakes, misleadingness, or malpractices when such exists in making a mistake, misrepresentation, or ethical issues of the artist, the dataset curator, the model creator, or the organization implementing AI systems. These principles can preserve integrity, safety of cultural diversity, and trust in AI created artistic practices together.

### 3.3. CULTURAL AND AESTHETIC PHILOSOPHIES APPLICANT TO SCULPTURE

Figure 2

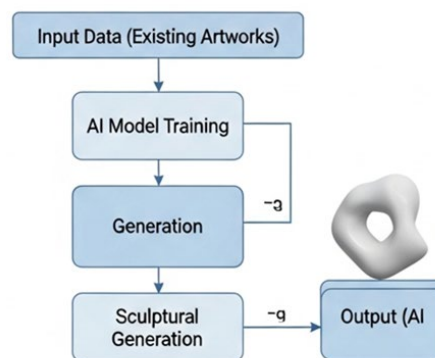


Figure 2 Architectural Workflow of AI-Driven Sculptural Generation

Cultural and aesthetical philosophies provide the critical perspective of how meanings, symbols, and artistic value are created as part of sculptural traditions. Sculpture has traditionally been a space in communal identity, ritual importance, memory and material artisanship. Philosophies of aesthetics Since the classical conceptions of form and beauty as well as the more recent conceptions in terms of phenomenology, semiotics and material agency stress the idea that the meaning of sculpture is not just form but also embodied experience, cultural context and oriented on symbols. As shown in Figure 2 illustrating this architecture, existing sculptures can be used as training data to AI prototypes and used to create new shape combinations of sculptures automatically. The workflow reveals the shift towards dataset-driven learning to actual results, indicating that AI gains more and more prominence in innovative decision-making and sculptural art creation.

When AI intervenes in sculptural creation, these cultural dimensions become increasingly complex. AI-generated motifs may lack the lived context that imbues traditional sculpture with authenticity, resulting in symbolic misalignment or cultural dilution. In addition, aesthetic theories emphasize intentionality and framing of a narrative and elements of artisanal technique that is partially removed or altered when machines are involved in form-generation. The ethical responsibilities of representing sacred, indigenous, or identity-specific motives are also emphasized in cultural philosophy, but must have the contextual knowledge which AI systems can not necessarily have. Therefore, when



cultural and aesthetic philosophy is applied to AI-created sculpture, it will be demonstrated that the aesthetic value cannot be determined only through visual or structural complexity; it should also consider cultural sensitivity, contextual fidelity, and the maintenance of meaning within the tradition of practice. Such an approach offers an ethical justification of AI-based creative operations at a deeper level.

### **3.4. INTELLECTUAL PROPERTY MODELS FOR MACHINE-GENERATED ARTIFACTS**

There is a renewed rethink over the use of intellectual property (IP) models of machine-generated artifacts as AI systems become more involved in the creation process. Conventional IP models focus on human authorship, originality and testable creative intent standards that AI-generated sculptures frequently tend to make difficult. The current approaches generally consider AI a tool, and the ownership is assigned to the human operator but in situations where the generative algorithms generate new forms on their own, the question of authorship turns out to be legally ambiguous. This brings up the aspect of copyright eligibility, influence of data sets, and possible infringement in case of an unintentional duplication of the culturally sensitive or proprietary motifs by AI. There are new suggestions supporting hybrid IP models that distinguish between human-directed and machine-autonomous contributions and others propose new categories of regulations uniquely concerning computational creativity. The proper management of IP should therefore focus on the issue of authorship assignment, rights to the derivative work, compensation system, and proper application of the source materials in a manner that promotes the development of the legal system alongside the technological advancement.

## **4. METHODOLOGY**

### **4.1. QUALITATIVE ANALYSIS**

The research design is based on qualitative research that embraces the use of interviews with experts and survey of artists to gain insight into how practitioners view the issue of ethics in AI-generated sculptural art. Interviews with sculptors, computational artists, curators, cultural theorists and AI technologists both semi-structured, are insightful to understand the transforming nature of authorship, cultural representation and control over the creative. The interviews are aimed at the experiences of participants using AI tools, the perception of artistic agency, and the issue of cultural appropriation or algorithmic bias. In addition to this, surveys among artists are sent to a wider creative community engaged in digital fabrication, generative models and hybrid art practices. These two factors are the combination of professional views and the community-based response, which assists in identifying the common themes, conceptual conflicts, and practical issues within the variety of creative settings.

### **4.2. ARTIFACT STUDY**

An analysis of artifacts is a key part of the methodology, analyzing AI-created sculptures, the training databases that created them, and the workflow involved in creating them. The analyzing sculptural outputs of GANs, diffusion models, mesh networks or hybrid computing pipelines are examined in the context of stylistic characteristics, symbolic shapes, cultural patterns, and morphologies. The datasets that are employed in the training of a model are also studied concerning the use of symbols, culturally sensitive icons, indigenous forms, proprietary artworks, and uncured visual collections. Moreover, the study follows the generative workflow of every artwork, starting with the dataset preparation, to the model inference and the real fabrication and enables a systematic evaluation of the way the computational choices determine aesthetic and cultural results. This object-oriented method points to the effect of the AI systems on form, content, and authenticity in sculpture.

### **4.3. ETHICAL EVALUATION MATRIX FOR ANALYZING CASE EXAMPLES**

The role of AI in sculptural creation makes these aspects of the culture even more complicated. The AI-generated motifs do not have the lived context that contributes the traditional sculpture to the authenticity, thus, displaying symbolic misalignment or cultural dilution. Moreover, aesthetic theories emphasize intentionality and the framing of narratives and elements of artisanal technique that when machines are involved in form-generation are in some way displaced or transferred. Cultural philosophy also highlights the ethical liabilities that come along with the symbolization

of sacred, indigenous, or motives tied to a particular identity and it must be provided within a context that AI system cannot currently inherently hold. Therefore, the platform of cultural and aesthetic philosophy on AI-created sculpture shows that aesthetic values cannot be judged only by visual or structural acuity; they should be supplemented by the cultural sensitivity, fidelity of situation and purification of meaning in the traditional practice. This view adds an additional ethical basis upon which AI-based creative processes can be evaluated.

#### 4.4. INTELLECTUAL PROPERTY MODELS OF MACHINE GENERATED ARTIFACTS

The machine-generated artifact models of intellectual property (IP) are actively revisioned as machine-based creators have more input into creative technologies. Conservative frame regulations are highly personal regarding human authorship, novelty, and provable cases of creative intent which is regularly complicated by AI-made interpretations of sculpture. The current models usually refer to AI as a tool, and the owner is the human operator; but where the generative algorithm is autopRACTICALLY producing new forms, authorship is legally unclear. This raises the question of copyright qualification, influence created by data, and any form of infringement when Artificial Intelligence accidentally reproduces culturally sensitive or proprietary patterns. There are also newer propositions which suggest hybrid IP models, where human directed and machine autonomous work is separated, and some propositions which suggest completely novel types of regulation that are unique in computational creativity. The proper management of IP should therefore treat the problem of assigning authorship, rights to derive works, mechanisms of compensation and also on ethical use of source materials so that the law system does not lag behind technological advancement.

### 5. ANALYSIS AND REPRESENTATION

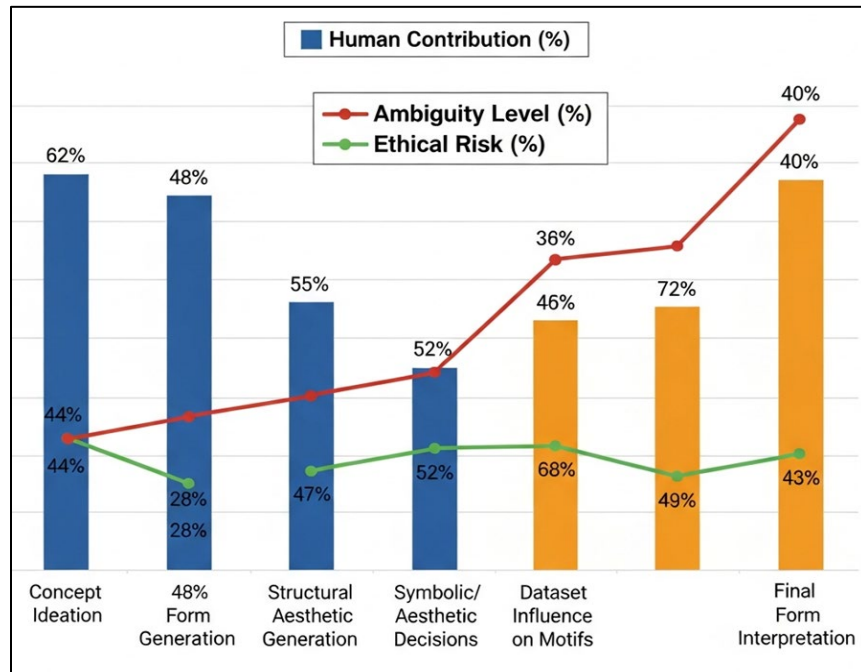
#### 5.1. ANALYSIS OF AUTHORSHIP AMBIGUITY AND CREATIVE RESPONSIBILITY

The outcomes in [Table 2](#) show that there are many dimensions when it comes to the authorship ambiguity in AI-generated sculptural art, and that creative responsibility is gradually becoming decentralized across the human author and the computer system. The human component of concept ideation is leading, 62 to 1, but an extensive 38 percent contribution of AI ideation indicates that generative tools should have a stronger effect on initial creative intent than previously recognized. The generation of structural forms displays an almost equal distribution (52 AI, 48 human) as it indicates the direct connection of mesh networks, diffusion models, and algorithmic morphogenesis to the physical and aesthetical basis of sculpture foundations. The level of ambiguity created by this balance is higher at 57% which means that it is ethically difficult to establish who makes structural decisions.

**Table 2**

Table 2 Authorship Ambiguity and Creative Responsibility Assessment				
Parameter	Human Contribution (%)	AI Contribution (%)	Ambiguity Level (%)	Ethical Risk (%)
Concept Ideation	62	38	44	41
Structural Form Generation	48	52	57	49
Symbolic/Aesthetic Decisions	55	45	52	46
Dataset Influence on Motifs	28	72	68	59
Final Form Interpretation	60	40	47	43

The symbolic, aesthetic, choices continue to shift towards the human, although the 45% AI contribution is indicative of more machine involvement with visual sensitivity, feel, and style. The most ambiguous one is the dataset-based motifs, where AI has a contribution of 72 and the level of ambiguity stands at 68.

**Figure 3****Figure 3** Parameter contribution and Risk in AI Assisted Design

This means that that a host of symbolic forms are instantiated by the underlying data patterns and not through actual intent in art, and the ethical issues are that of unwanted cultural appropriation or symbolic misrepresentation. Shared authorship is also shown in final form interpretation in which a meaning of a completed work of art is derived, since AI-generated structures determine how an artist interprets a piece, and how an audience perceives it. The [Figure 3](#) depicts the decline of human involvement with the increase of AI influence with the appearance of the increased ambiguity and ethical danger, particularly in the context of data-driven motif generation and interpretation of final form. The current tendency focuses on growing uncertainty, the problem of cultural sensitivity, and the necessity of an open authorship and the responsible introduction of AI in sculpture.

## 5.2. REPRESENTATION CONCERNS IN DATASETS, MOTIFS, AND CULTURAL SYMBOLS

The issue of representation of the data occurs when AI models are trained on data that have culturally sensitive motifs, sacred symbols or the traditional sculptural form without being contextualized. Since AIs have no knowledge of cultures, they can reassemble the motifs in different ways, altering the symbolic meaning or dissolve them out of their ritual, historical, or community sources. As an example, the usual elements of the indigenous geometry can be combined with the elements irrelevant to the architecture or the sacred iconographies can be transformed into the ornamental forms, thus undermining the cultural symbols. Moreover, absenteeism of these minority aesthetics in data sets might create homogenized results that favor majority cultural aesthetics to disadvantage more small populations. These misrepresentations are dangerous in terms of ethics since they undermine cultural authenticity, foster stereotyping, and minimize creative art forms based on heritage. To ensure that symbolic misrepresentation does not occur in AI-generated sculptures, it is essential to ensure that the curated datasets, collection is consent-based, and its documentation are properly documented.

## 5.3. BIAS MANIFOLD TRANSMISSION/MISREPRESENTATION IN GENERATED SCULPTURES

[Table 3](#) indicates that the threat of bias and misrepresentation in the sculptural outputs of AI is considerable. The greatest issue is the condition of imbalance of datasets (75 percent bias occurrence), which is a major driving force in the cultural distortion and severity. The level of distortion in the native motifs and under-representation of minority artistic form is also revealing higher levels of distortion, which suggests that AI will often fail to recognize or consider



culturally unique aesthetics. The recombinance of sacred symbols is also another manifestation of how the generative models reproduce sensitive motifs unintentionally or distort them. This over-representation of stylistic dominion increases homogenization decreasing cultural diversity in sculpture.

Table 3

Table 3 Bias and Misrepresentation Analysis of AI-Generated Sculptures				
Parameter	Bias Presence (%)	Misrepresentation Risk (%)	Cultural Distortion (%)	Severity Level (%)
Sacred Symbol Recombination	63	58	61	60
Indigenous Motif Distortion	71	66	68	67
Over-representation of Dominant Styles	54	49	57	53
Underrepresentation of Minority Art Forms	69	64	72	68
Dataset Imbalance Influence	75	70	73	72

The low values in Table 2 show that the strongest source of bias (75 percent) is dataset imbalance and the highest level of bias (71 percent) is motif distortion, which causes high chances of misrepresentation and above 60 percent of cultural distortion in all categories.

Figure 4

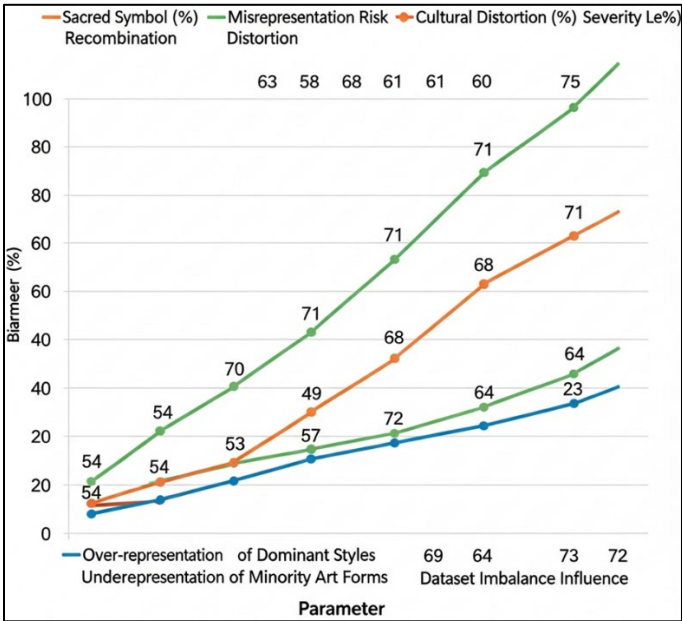


Figure 4 Comparative Bias, Misrepresentation, and Cultural Distortion Trends in AI-Generated Sculptures

Securing increasing bias, risk of misrepresentation, and cultural distortion is evident in parameter throughout the Figure 4, in particular, indigenous motifs and data imbalance. The rising levels of severity show that the AI systems over represent the minority traditions and accentuate the dominant ones, which reflects the necessity to control the datasets with the cultural background and provide ethical protection to the processes of generative sculpture.

5.4. IMPACT ON ARTISANSHIP, IDENTITY, AND CULTURAL HERITAGE

Art in the form of AI-generated sculpture has a profound impact on the artisanship by changing creative power into competent craftspeople into computer calculation. Since generative models generate form through automation, the contribution of artisans to visual identity, structural accuracy and symbolic meaning is reduced. This computerization

threatens to downgrade centuries of handcrafts into subordination, which may end up undermining the manual dexterity and embodied arts upon which most cultural sculptural traditions operate.

In addition to artisanship, there is the issue of product expression with either hybrid or distorted versions of cultural symbols being created by AI systems that cause confusion or dilution of culture. In the case of communities in which sculpture has ritual or historical functions, such distortions can be seen as not just cultural inaccuracies but also infringements of cultural integrity. There is also the additional threat of cultural heritage because AI-driven commercialization will enable the mass production of motifs without the consent of communities undermining the authenticity of the traditional form and its holiness. This adverse effect on oral histories, creation of legacies, and passing of intergenerational knowledge can be achieved by such fast, computerized circulation of culturally embedded symbols. Close ethical supervision, culturally sensitive dataset maintenance as well as active interventions of artisans and culture custodians are needed to uphold cultural identity.

## **6. DISCUSSION**

### **6.1. INTERPRETATION OF ETHICAL TENSIONS IN CONTEMPORARY PRACTICE**

The main crises in AI-generated sculptural practice are connected to the concept of ethical conflicts that appear due to the factors of authorship, cultural representation, and creative responsibility ambiguity. The old notion of intentionality in art is being disrupted as AI systems are becoming more engaged in conceptual ideation efforts, structural formation efforts and symbolic articulation efforts. The obscurity of generative algorithms makes these tensions even more acute because in many cases they do not have an easily traceable nature so it is hard to explain how this or that aesthetic choice was formulated by the artists or audiences. Such non-transparency makes it more difficult to hold to account especially when penetrating sculpture involves culturally sensitive subjects or creating forms which are inadvertently uncomfortable shapes of symbolism. Furthermore, it is usual to have the practices of the contemporary art institutions and collectors to glorify the element of technological novelty that may dominate the ethical considerations relating to cultural appropriation, datasets bias or misrepresentation.

### **6.2. FINDING THE BALANCE BETWEEN INNOVATION AND RETENTION OF SCULPTURAL TRADITION**

It is necessary to have a scenario whereby technologists and artisans work together to make sure that AI complements cultural knowledge and not substitute it. Aesthetic authenticity and contextual fidelity can be preserved by integrating design philosophies in the process of creating data-sets, generative modeling, and fabrication processes. Meanwhile, education programs and heritage protection should be modified to accommodate the artisans as they learn the digital tools, so that the shift reaffirms and does not undermine their cultural and economic functions.

## **7. CONCLUSION**

The nature of the investigation of issues of ethical issues in AI-made sculptural art is that it has created a fast developing creative environment where technology disrupts creativity and establishes a new art platform of cultural significance and artistic identity as well as social responsibility. The more generative models, mesh network, and automated fabrication systems are involved into structural sculptural process, the more they affect the conventional notions of authorship and agency as well as aesthetic intentionality. The paradigm shift draws the attention to the ethical hostility due to the reason that even the data bias, algorithmic oblivion, and reproduction of motifs haphazardly, are also a threat to the integrity and authenticity of cultures. The review has revealed that, as much as AI systems are capable of expanding creativity, they also raise uncertainties, which does not stand in line with the artistic norms and values that have been there over the ages. The study also emphasizes the issue that the presented artwork is not the boundary of the range of ethical conflicts because it influences the broader socio-economic and cultural contexts. When icons or designs are not perceived in unease, cultural artisans may be driven out, traditions and customs also eroded and misrepresentation of communities takes place. In order to resolve these problems, there is a great need to possess ethical regulations that implement the aspects of cultural sensitivity, data management and responsible creative process. Institutional policies must also evolve in order to safeguard intellectual property, regulate data collection and use as well as to create a shared model that can engage artists, technologists and owners of cultural resources. Anyway, there will

be a need to balance between innovation and preservation to ensure that AI-generated sculpturings are ethical. By engaging in responsible, participatory and open-minded business, the industry will be in a position to embrace technological innovation and still retain the artistic tradition and preserve the cultural narratives. This will not only make the creativity more honest, it will also contribute to its survival, and remain culturally respectful, to the future of AI-based sculpture.

## CONFLICT OF INTERESTS

None.

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