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Algorithmic representation of Iranian cultural values: A comparative semiotic analysis of AI image generation platforms

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Abstract

Background: In the age of artificial intelligence, AI image generation platforms have become active agents in cultural representation. This study examines how three core Iranian cultural values— belief in God, patriotism, and the idealized woman— are represented on platforms such as Gemini, ChatGPT, and Copilot. The main problem is the presence of cultural biases in training data and algorithmic architectures, which may lead to stereotypical, inaccurate, or Western-centric portrayals of non-Western cultural identities.
Aims: This research aims to analyze the mechanisms through which these three fundamental values are represented in AI-generated images and to determine the extent of bias in these platforms compared to indigenous and religious models within Iranian society.
Methodology: Employing a semiotic analysis based on Roland Barthes's five-code framework and Stuart Hall's theory of representation, this study qualitatively analyzed 18 images generated by three platforms (Gemini, ChatGPT, and Copilot).
Findings: The findings indicate that these platforms do not neutrally reflect cultural reality but actively participate in meaning construction and ideological representation. Three key findings emerged: (1) Inaccurate and generalized representation of specific Shiite rituals, with a tendency toward generic Sunni Islamic imagery; (2) A significant shift in the representation of patriotism, centering women as primary agents of national identity, in contrast to traditional masculine and military iconography; and (3) A contradictory, algorithm-driven representation of the ideal woman, where her agency and success are defined not by traditional roles (such as motherhood) but by her ability to navigate the tension between tradition and modernity and conform to modern professional standards.
Conclusion: AI systems function not as neutral tools but as powerful cultural actors. Algorithms reproduce algorithmic majoritarianism, whereby dominant cultural patterns in training data marginalize minority traditions (such as Shiism) and redefine values like womanhood based on modern, algorithmically preferred criteria. This research underscores the necessity of critically revising AI's representational politics and involving represented communities in the design of these systems to achieve fairer and more accurate cultural representations.

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1. Introduction

Iranian values and beliefs, consisting of principles, traditions, and beliefs, are the foundation of Iranian identity and culture. As intangible cultural heritage, these components have a direct impact on collective identity, thought patterns, and social practices (UNESCO, 2003) and ensure the internal coherence of Iranian culture despite its ethnic diversity (Kazemi, 2025). Weber (1992) conceptualizes values as ethical and cultural principles guiding individual and social behaviors, while beliefs reflect the philosophical, religious, and scientific systems of each society, both operating as essential dimensions of cultural identity. Among the diverse spectrum of core Iranian values, three concepts— womanhood, belief in God, and patriotism— merit particular examination due to their structural, historical, and enduring significance, operating not as isolated elements but within an integrated structure (Heidari et al., 2020). Any destabilization in their representation threatens the authenticity of Iranian identity. Their distinctive influence across historical ruptures— from ancient Persia through the Constitutional and Islamic Revolutions to the events of 2022— motivated this research to focus on them as pivotal signifiers shaping Iranian societal identity.

Belief in God occupies the center of Iranian political and cultural thought. Frye (2006) argues that cultural awareness of Iranian identity persisted even through major political ruptures. From Ayatollah Mesbah Yazdi's perspective, belief in God represents an innate human attribute linked to individual and collective identity formation, functioning as a central element of Iranians' individual identity (Namazi & Ashrafi, 2023; Heidari et al., 2020). This religious dimension interacts with national and cultural dimensions to produce a composite identity structure evident in Ferdowsi's Shahnameh, where religion is seen as determining ethical, social, and political systems (Haji Rahimi, 2024). Patriotism in Iranian-Islamic culture represents a deep, ancient attachment transcending modern political structures: Islam regards the homeland as a sacred value (Torani Lord et al., 2023; Mirjalili et al., 2012), and Iranian patriotic sentiment manifests through nationalism, freedom-seeking, struggle against tyranny, national consolidation, and peace-seeking (Moladoost et al., 2023).

Women occupy an essential position in the preservation and transmission of values across generations. As the central nucleus of cultural reproduction (Mahtab Khani & Mahdian, 2023), the Third Female Model emphasizes women's human dignity, rationality, faith, chastity, and social role-playing (Khamenei, 2016). Motherhood is considered one of the pillars giving meaning to culture and feminine identity (Khojasteh, 2008; Mohammadi Hassani, 2022), while women are recognized as bearers of culture and moral characteristics transmitted to future generations (Alipourmand & Tavousi, 2010). The events of 2022 provide particular urgency to the examination of

womanhood as a cultural signifier, as these three components function in an intertwined manner as fundamental principles shaping and preserving Iranians' values and beliefs.

The central problem of this research emerges at the intersection of these deeply rooted values and the nascent era of Artificial Intelligence. Representation constitutes a cultural process through which meaning is produced and stabilized within sign systems and power discourses (Mahdizadeh, 2008). AI models no longer function merely as technical tools but have transformed into dominant sources for conception formation in audiences' minds (Jackson, 2024). These models are predominantly trained on global Western data and paradigms, with algorithm developers positioned as cultural encoders embedding specific values and ideologies into generated images (Bahreini & Hosseini, 2019). This situation creates a discursive contradiction in representing Iranian values, as algorithms often cannot comprehend the rich, historical context of indigenous concepts. The fundamental questions emerge: Can these platforms understand national attachment in its rational dimensions without reducing it to extreme nationalism? Can they comprehend the intertwined spiritual, political, and social aspects of Iranian belief in God, or reduce it to simplistic stereotypes? Do AI-generated images of Iranian women reflect the desirable indigenous-Islamic model, or portray women as visual objects conforming to Western aesthetic standards?

This research analyzes the representation of three core Iranian value components— patriotism, belief in God, and womanhood— in AI image generation platforms (Gemini, ChatGPT, Copilot), selected for their widespread popularity and accessibility among younger Iranian users. The main objectives are to identify the mechanisms through which these values are represented and to determine these platforms' bias levels and their correspondence with Iranian society's cultural and religious models. Through Barthes's five-code framework and Stuart Hall's representation theory, combined with the Third Female Model, this study conducts a critical semiotic analysis of these technological representations. If humanities scholars neglect understanding AI's dominant and hidden discourses, this technology could establish an unrealistic, stereotypical, and Western-centric image of Iranian identity and values in future generations' minds.

2. Theoretical framework

This theoretical framework operates through a three-layered structure designed to elucidate the interaction between cultural identity, technology, and meaning production. The first layer employs representation theory as the primary analytical lens, providing tools to examine how AI platforms generate meaning. The second layer encompasses core Iranian identity signifiers- belief in God, patriotism, and idealized womanhood, constituting the cultural content under

investigation. The third layer integrates AI epistemology, empirical evidence of algorithmic cultural bias, and platform affordances theory to explain technology's mediating influence on identity representation in digital space.

2.1. Representation theory

Representation is not merely showing but constructing. Hall et al. (1997) defines representation as the production of meaning through language, forming culture's core and enabling society members to understand and exchange meanings through two related systems: shared conceptual maps enabling world interpretation, and sign systems (words, sounds, images) allowing the encoding of mental concepts into comprehensible signs. Saussure's structuralist theory establishes that meaning is produced through differences between signs within a shared cultural structure- a relationship between signifier and signified that is arbitrary and convention-based (ibid). Among Hall's three approaches— reflective, intentional, and constructionist— this research adopts the social constructionist approach as most appropriate. AI outputs are not neutral mirrors reflecting Iranian values but products of active meaning construction, shaped by the interaction between training data and global algorithms. This enables analysis of not merely what is represented, but how that construction occurs.

Media representation theory reinforces this position: media do not merely reflect reality but construct and challenge cultural and social realities. Dominant media content originating from the West can overshadow indigenous perspectives, leading to the homogenization of global values and the transformation of attitudes and cultural expectations (Wheatley, 2024). AI platforms, as advanced communication channels, play active roles in organizing symbols and producing meaning; accordingly, the representation of Iranian values in AI must be understood as a communicative and discursive process whereby AI systems participate in shaping audiences' perceptions of Iranian identity (Lin & Dai, 2025).

2.2. AI epistemology and the politics of cultural bias

Artificial intelligence operates as a discursive technology that defines reality and reproduces values in technological form (Umeogu & Ifeoma, 2012). AI epistemology— the interdisciplinary field examining human-machine intelligence relationships— focuses on how ordinary knowledge converts to computer knowledge, a conversion that is inevitably laden with values, prejudices, and beliefs (Inozemtsev et al., 2017). Knowledge representation in AI thus becomes value representation: formulating human knowledge into algorithmic language establishes human value patterns within intelligent systems. This epistemological challenge is compounded by the capacity of generative AI to enable deepfake media used for political manipulation

and propaganda (Vhatkar et al., 2025; Croitoru et al., 2024), transforming AI from a biased representation tool into an instrument of active cultural manipulation.

Empirical evidence of these representational politics is compelling. Tao et al. (2024) demonstrated that GPT models inherently reflect values aligned with English-speaking and Protestant European countries, exhibiting systematic bias toward self-expression values such as gender equality and pluralism. Hall and Ellis (2023) showed that AI algorithms trained on gender-biased social data perpetuate rather than correct these biases. In the domain of national identity, Luneva et al. (2019) demonstrate that patriotic education in digital media constitutes a dynamic cultural-social process shaped by a society's technological and cultural development level, while McGlynn (2020) shows how media deliberately employ historical memory frameworks to guide patriotic perceptions; dynamics that AI systems may replicate and amplify at scale.

The convergence of AI and social media further amplifies representational distortions. Saheb et al. (2024) identify algorithmic bias in content moderation as central to value representation failures. Sahu and Singh (2019) demonstrate that AI systems maximizing engagement present extreme versions of preferred content, creating information bubbles that reinforce extremized values. Azadi and Nikgoo (2020) similarly show that personalization algorithms confine users' information and increase polarization, affecting patriotism, religious belief, and gender identity simultaneously. Singh (2023) documents how Instagram's algorithmic practices systematically reinforce biases regarding gender, ethnicity, and political views. In religious contexts, Amirshahkarami and Bazoyar (2024), and Farrokhi and Ghamarzadeh (2024) reveal that AI personalizes religious environments to individual preferences, subordinating faith to data-driven architectures and challenging the depth and authenticity of religious experience. Regarding gender, Hu and Yu (2025) and Mary et al. (2025) demonstrate how content homogeneity in visual platforms reinforces gender-biased and stereotypical attitudes and constrains representations of women's roles.

The Iranian scholarly context illuminates specific concerns that ground this research. Ghavam and Esmaili (2015) demonstrate how Hollywood post-9/11 created Islamophobic representational flows; patterns that AI systems trained on such culturally biased content may perpetuate and amplify. Pournajaf et al. (2022), and Ravadrad and Shamsi (2021) reveal contradictory approaches in Iranian women's digital self-representation, wherein resistance against social pressures coexists with the reproduction of hegemonic patriarchal values. Zahrani et al. (2024) reveal that digital platforms create cyborg identities for adolescents guided by algorithms potentially at odds with Iranian traditional and religious values. Razizadeh (2025) further demonstrates

that AI in interactive narratives provides platforms for representing cultural identity and ethics- for better or worse, depending on training data composition and design choices.

2.3. Platform affordances and algorithmic values

The theoretical lens of platform affordances provides a critical framework for understanding the construction and imposition of algorithmic values. Affordances are not inherent properties of technologies nor merely user perceptions, but relational properties emerging between a platform's architecture and users' goals; they are never neutral, embedding political and ideological choices that profoundly shape communicative practices and power structures (Treem & Leonardi, 2013; Gillespie, 2010). From this perspective, social media algorithms become active agents in shaping, reinforcing, and channeling gender, religious, and political identities through designed affordances such as personalization, hierarchical visibility, and interactive architecture.

Algorithmic patriotism emerges as a direct product of filter bubble and information confinement affordances: platforms trap users within circles of like-minded individuals, fostering groupism where beliefs are reinforced not through critical discourse but through engineered feedback loops between user engagement and algorithmic curation (Azadi & Nikgoo, 2020). Algorithmic religious faith is shaped by personalization affordances presenting tailored readings of faith subordinated to profit-oriented architectures, reshaping religious concepts and influencing believers' critical thinking (Amirshahkarami & Bazoyar, 2024; Farrokhi & Ghamarzadeh, 2024). Algorithmic femininity is fundamentally linked to visibility affordances and discriminatory visibility hierarchies that incentivize performance of gender clichés aligned with marketable hegemonic values (Maragh-Lloyd, 2019; Bishop, 2018), even directing resistance efforts toward reproducing dominant values (Ravadrad & Shamsi, 2021).

Analyzing these phenomena through platform affordances centers, the confrontation between entrenched cultural values and the algorithmic meaning system propagated through platform architectures, enabling critical dissection of how affordances themselves function as mechanisms of algorithmic value production (Evans et al., 2017).

2.4. Core Iranian identity signifiers

Iranian values and beliefs are a set of principles, traditions, and beliefs that shape Iranian identity and culture. This intangible heritage not only guides collective identity and thought patterns (UNESCO, 2003), but also, according to the findings of national surveys, is directly linked to a positive attitude towards national identity (Malmir, 2023). Iranian identity encompasses two main layers: the Islamic cultural identity layer, focusing on belief and religious values— most importantly

monotheism as the central axis— and the Iranian cultural identity layer, focusing on historical and geographical values including patriotism (Karimi Melah et al., 2018).

Regarding belief in God: In ancient Iran, religion and politics were considered necessary and complementary, with the Shah deriving legitimacy from religion while holding both political and spiritual status, controlled through commitment to divine order and clergy intervention (Zamzam, 2008). Contemporary belief in God manifests through theoretical and practical reason: theoretical reason guides humans toward monotheism through proofs of order and causality, while practical reason establishes belief through psychological attractions seeking absolute perfection (Namazi & Ashrafi, 2023). Religious faith functions as a central element of Iranians' individual identity, playing a pivotal role in collective identity formation alongside historical and cultural factors (Heidari et al., 2020).

Regarding patriotism: the sense of patriotism is a natural desire that God has placed in all creatures' nature, and Islam acknowledges this inclination as providing an inherent, universal, and divine foundation for stability and continuity of cultural-social identity connected to a specific land (Mirjalili et al., 2012). Ferdowsi's Shahnameh plays a fundamental role in cultivating patriotism among Iranians by tying Iranian identity with a patriotic spirit and readiness for defense, demonstrating the virtue through prioritizing homeland over personal relationships and self-sacrifice for the nation (Chehri et al., 2017).

Regarding idealized womanhood: In the Islamic perspective, a woman is recognized as the carrier of culture, knowledge, civilization, and a people's moral characteristics, transferring these consciously and unconsciously through her body, spirit, morals, and behavior to the next generation (Samancho & Panapa, 2020). Four fundamental axes of a woman's role— motherhood, wifehood, sisterhood, and daughterhood— function as fundamental components of social order and collective identity formation. As mother and cradle of education, she plays a central signifier role in ensuring Iranian identity's survival and preserving cultural continuity throughout history (Bakhtnama & Fateh Panah, 2022). The Third Female Model, as articulated by the Supreme Leader, emphasizes women's human dignity, rationality, faith, chastity, and active social role-playing (Khamenei, 2016). These three components- belief in God, patriotism, and idealized womanhood- function in an intertwined manner as fundamental principles shaping and preserving Iranians' values and beliefs, and it is precisely their structural significance that renders their algorithmic misrepresentation a matter of urgent cultural and scholarly concern.

2.5. Defining Western assumptions

Throughout this study, Western assumptions refers to a set of cultural values and epistemological orientations that dominate Anglophone AI

training data and have been critiqued in postcolonial and critical algorithm studies. Following Noble (2018), Benjamin (2019), and Mohamed et al. (2020), these assumptions include: (a) Individualism: privileging personal choice over collective or communal frameworks; (b) Secularism: treating religion as a private, individual matter rather than a public, communal, or institutional force; (c) Linear progress: representing modernity as movement away from tradition toward Western-defined ideals of gender equality and personal freedom; and (d) Universalism: presenting these values as natural, neutral, and applicable across all cultural contexts without acknowledgment of their specific historical emergence in European Enlightenment thought.

These assumptions are not claimed to be exhaustive nor present in every Western context; rather, they are analytical categories derived from the critical literature cited above. When this study identifies Western bias in AI-generated images, it refers specifically to the algorithmic reproduction of these four assumptions as if they were universal cultural truth.

3. Methodology

This research employs Barthes's cultural semiotics to analyze how AI image generation platforms represent Iranian values and beliefs. Among established semiotic traditions— including Saussure's structuralist approach emphasizing the arbitrary signifier-signified relationship (Sojoodi, 2008: 14) and Peirce's triadic model incorporating the interpretant (Amoli Razavi Far & Ghaffari, 2011: 12-15)— Barthes's framework proves most appropriate for this study due to its analytical power in uncovering ideological and mythological layers embedded in visual representations (Bohnsack, 2010).

Following Barthes, AI-generated images are treated here as analyzable texts. In media semiotics, text extends beyond written language to encompass any phenomenon capable of producing meaning, including photographs and algorithmic outputs (Dianat, 2018: 72-73). Visual images constitute semiotic systems built through codes of light, color, angle, and composition, possessing both denotative structures (explicit meaning) and connotative dimensions (implicit cultural and ideological meanings) that carry values, norms, and beliefs (Masoumi et al., 2021). When AI platforms generate images, they reproduce the semiotic systems embedded in their training data, rendering these outputs amenable to Barthes's five-code framework.

Three AI image generation platforms were examined: Gemini, ChatGPT, and Copilot, selected for their accessibility and widespread adoption among younger Iranian users. Prompts were systematically designed around the three core Iranian identity signifiers under investigation— belief in God, patriotism, and idealized womanhood— each explicitly requesting visual representations to enable comparative cross-platform analysis.

Table 1. Barthes's five-code framework (Barthes, 1974) and its application in this study

Code	Voice (Barthes)	Analytical function	Role in this study
Hermeneutic	Voice of truth	Creates narrative enigmas and suspense; poses questions the image invites viewers to resolve	Identifies what is concealed or ambiguous in AI representations of Iranian values
Semantic	Voice of the person	Identifies connotative signifiers that cluster to produce a specific meaning or character	Decodes symbolic signifiers of religiosity, patriotism, and femininity in generated images
Symbolic	Voice of symbol	Examines binary oppositions and antitheses systematically reproduced within visual texts	Reveals tradition/ modernity, East/ West, individual/ collective tensions in AI outputs
Action (Proairetic)	Voice of empirics	Traces sequences of actions and events, structuring narrative logic and causality	Captures how figures are positioned as active or passive agents within scenes
Cultural (Referential)	Voice of science	References external cultural knowledge, mythology, and naturalized ideological belief systems	Central code: exposes algorithmic ideology and cultural bias embedded in AI representations

Analysis proceeds through four iterative coding strategies drawn from Saldana, descriptive coding provides initial content summarization and an inventory of image topics (Saldana, 2013: 137-141), process coding captures actions, interactions, and temporal sequences within visual narratives (ibid: 149), Sensory coding examines the emotional and embodied responses that images evoke in relation to cultural identity (ibid: 162-163), values coding identifies conceptual labels reflecting the underlying belief systems and ideological frameworks embedded in visual representations (ibid: 170). These strategies move iteratively from initial descriptive labels through focused analytical categories to relational mappings between codes, ultimately revealing patterns in how AI platforms construct— and at times distort— core Iranian cultural values.

To ensure the validity of this research, three pillars of methodological transparency (Aguinis et al., 2017), reflective self-awareness (Korstjens & Moser, 2018), and theoretical validity have been applied. In the transparency dimension, each interpretation in Section 4 is attributed to one of Barthes's five codes to provide traceability and replicability. Also, by applying the principle of

reflection, researcher biases are examined, and for theoretical validity, interpretations are directly referred to the basic concepts.

4. Findings

This section presents a comparative semiotic analysis of AI-generated images across three platforms (Gemini, ChatGPT, and Copilot) representing three core Iranian cultural values: belief in God, patriotism, and idealized womanhood. Each value was examined through two systematically designed prompts, yielding eighteen images analyzed through Barthes's five-code framework to reveal how AI platforms interpret, construct, and potentially transform Iranian identity signifiers. All terms presented with quotation marks are analytical categories developed by the author for the purposes of this study; where terms are contested or borrowed from existing scholarship, this is indicated through citation.

4.1. Representing religious faith: Collective ritual versus individual spirituality

Two prompts examined religious faith representation:

Prompt 1. Create an image showing the characteristics of Iranians' belief in God and religious faith (Figures 1, 3, 5).

Prompt 2. Which social action of Iranians best demonstrates their spirit of belief in God? Show it in image form (Figure 2, 4, 6).

Figure 1. Gemini; Prompt 1

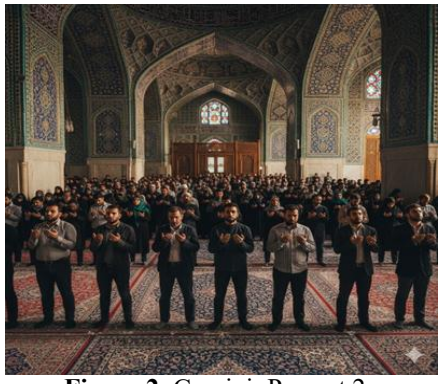


Figure 2. Gemini; Prompt 2

A comparative analysis of the two images shows that the Gemini AI platform follows a dual yet consistent pattern in representing Iranian theism and religious values. From the framework of Barthes' codes, these two images produce two different codes: the action code in the second image represents collective order, while the cultural code in both images naturalizes regional Islam instead of Shiite Islam. In both images, religious rituals are represented through the Sunni-style prayer pattern, both at the individual and collective levels, indicating a persistent weakness in producing distinctive signs of Shiism and a constant return to the transnational and regional model of Islam.

Individual theism is depicted with components such as passivity, determinism, and social disintegration, while collective theism is associated with order, solidarity, and collective authority. In both images, a distance is assumed between the formal institution of power or religious leadership and the body of the people, although this distance is represented once in the form of the absence of leadership and again in the form of a gap in the ranks.

Ultimately, tradition is always the main context of meaning, and modernity enters the image only where it serves to demonstrate social order and inclusion; Therefore, the dominant view of the platform is the fusion of regional ritual Islam with the collective-oriented sacred order in Iran today. In summary, it can be said that Gemini AI depicts and represents the value of Iranian theism in a dual, incomplete, and exogenous format; in a way that displays structural splendor and social order, but at the same time, due to technical shortcomings in representing Shiite rituals and instilling themes of passivity or structural cleavage, it is unable to present an accurate, dynamic, and coherent image of native identity.

According to Barthes's five codes (Barthes, 1974), this image can be read at the level of hermeneutic codes (semantic enigmas) and symbolic codes (dual oppositions). The opposition of tradition/modernity here functions as a cultural code that naturalizes the meaning of negotiated identity. From the perspective of Hall's encoding/decoding model (Hall, 1997), this image is the result of the biased encoding of the Western database. The Iranian audience needs an oppositional reading to decode it, because the dominant coding removed the signs of Shiite identity. According to Platform Affordance Theory (Treem & Leonardi, 2013), each platform offers a different capability for representing identity: Gemini tends towards collective-structural synthesis, Chat GPT towards emotional ambivalence, and Copilot towards individual flexibility.

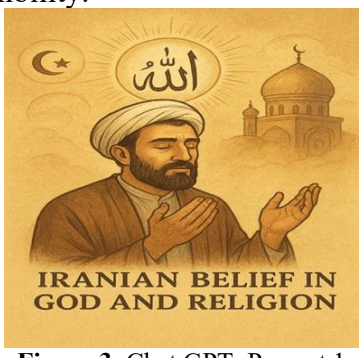
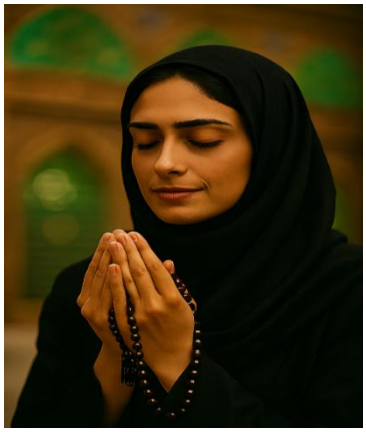


Figure 3. Chat GPT; Prompt 1

Figure 4. Chat GPT; Prompt 2

The analysis of this platform's representation of Iranian religiosity is based on the culture of pilgrimage and the dialectical confrontation between individuality and tradition; where the central presence of a

young woman in non-traditional clothing against the architectural splendor of the Imam Reza (AS) shrine is considered a symbol of the renewal of faith and the connection of mysticism with the structure of power and jurisprudence. In this image, although an attempt is made to emphasize the authenticity, antiquity, and religious authority through the use of sepia style and the presence of Shia clergy, the emergence of structural contradictions such as the use of Sunni symbols and peripheral secular signs indicates a disruption in the model's understanding of the integrity of Shia identity. Finally, by confining spirituality in an individual and transcendental space and separating it from the collective context, this image creates a myth of the connection between tradition and modernity, in which absolute divine authority and religious authority are intertwined with opposing regional symbols and globalization. According to Hall, this image contains a dominant encoding of Iranian religiosity that prioritizes the meaning of individual and mystical experience over collective and ritual identity.



Figere 5. Copilot; Prompt 1

Figure 6. Copilot; Prompt 2

Copilot's AI representation of Iranian theism, oscillating between the collective structural authority and the solitude of female individuality, is based on the axis of spiritual order and inner experience. By choosing the women's congregational prayer in the Jamkaran Mosque, the platform sees the symbolic opposition of the white and black veil as a sign of the tension between modernity and tradition, while coding the jurisprudential anomaly of praying with shoes as a myth of the intrusion of the worldly into the sacred. On another level, this representation, by shifting from official references to the close-up face of a young woman in a flexible veil, presents Iranian spirituality as a delicate, emotional, and modern experience in which the conflict between the veil and contemporary aesthetics has reached a visual unity. Ultimately, by eliminating power structures and emphasizing purity of intention and individual aesthetics, Copilot creates the myth of adaptive religiosity, in which holiness stems not

from formal institutions but from personal choice and the connection between tradition and the cultural realities of the younger generation. From the perspective of Platform Affordances Theory, Copilot, by presenting flexible women alongside structural order, enables a norm negotiation capability not seen in the other two platforms.

The artificial intelligence platforms (Gemini, Chat GPT, and Copilot) agree on a fundamentally dual and contradictory pattern in representing the value of Iranian theism. On the one hand, religiosity is depicted as a coherent, orderly, and authoritative collective force whose glory is represented through grand pilgrimage architectures and regular prayer processions. This aspect emphasizes the social order and structural strength of religion, in a way that Gemini focuses on collective order and authority and Chat GPT focuses on architectural splendor. On the other hand, this collective authority is always opposed to the individual aspects of religiosity, which manifests itself in the form of passivity, emotional disconnection, or the reduction of religion to a purely emotional and individual lived sphere. This structure/emotion conflict shows that AI is unable to represent religion as a unified and active force at all levels of society, and represents it as an unbalanced spectrum.

The common and central weakness of all three platforms is a persistent and persistent technical flaw that negatively affects the quality of the representation of Iranian theism. Due to the high weight of public data, the platforms are unable to implement the details of Shia rituals and identity (such as prayer methods, symbols of pilgrimage) and constantly return to the model of transnational or Sunni Islam (referring to Sunni-style prayer). This identity flaw leads to the reproduction of a regionalized and incomplete identity in which the local and emotional authenticity of Shiite is marginalized. However, Copilot takes a different approach; By focusing on women, this platform interprets religiosity as a flexible and culturally adaptive force on the individual level (with symbols such as visible hair) and an authoritative and structural force on the collective level, effectively making women a tool to demonstrate the flexibility and strength of religion. Ultimately, Iranian theism, in the eyes of these platforms, is a powerful system in terms of social order and structure, but faces serious challenges in demonstrating the authenticity of rituals and the emotional depth of the native. In general, all three platforms, within the framework of Hall's model, largely reproduce a dominant-professional encoding in which Shiite signs are marginalized as local variables.

4.2. Representing national identity: Gendered visualizations and emotional registers

Two prompts examined patriotic sentiment:

Prompt 1. Show Iranian patriotism and love of homeland in an image (Figure 7, 9, 11).

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Prompt 2. Which social action of Iranians best demonstrates their patriotic spirit? Show it in image form (Figure 8, 10, 12).

Figure 7. Gemini; Prompt 1

Figure 8. Gemini; Prompt 2

Based on the two images presented, it can be concluded that Gemini depicts the value of Iranian patriotism in the form of a combination of popular agency, collective solidarity, and the historical-religious bond of national identity. In this representation, the nation is not a passive audience, but an active agent on the stage of history; in the domain of action and symbolic codes, the widespread presence of the people, the carrying and raising of the flag, and the participation of women, men, and children are depicted as the central actions of patriotism. Patriotism is shown more as a collective and ritual action to declare identity than as a purely individual feeling. At the same time, in the domain of semantic codes, the combination of national symbols (flag, Freedom Tower, historical squares) with religious signs and religious architecture formulates patriotism as a value rooted in the history and faith tradition of Iran. From the perspective of Barthes' semantic codes, the dominant reading of this platform presents Iranian patriotism as unity in plurality and sacred unity to preserve national identity, in which the people are introduced as the main bearers of history and owners of national symbols.

Figure 9. Chat GPT; Prompt 1

Figure 10. Chat GPT; Prompt 2

Comparing the representations of Iranian patriotism on the Chat GPT platform reveals an emotional and structural duality: the first image defines patriotism as a joyful, civic, and youth-focused act of modernity, where the young woman is the active bearer of national identity. In contrast, the second image represents this value in the form of collective mourning and the sanctity of sacrifice (martyrdom), emphasizing the fusion of national identity with religion as a guarantor of freedom, where the grieving woman bears the emotional and spiritual burden of sacrifice. This oscillation between joy and hope for the future (Figure 9) and sorrow and paying the price (Figure 10) suggests that the dominant reading of the platform sees Iranian patriotism as an active pact for survival that, for its own continuity, requires the simultaneous acceptance of the dynamism and flexibility of the new generation and the authenticity and sanctity of sacrifice. Hall shows that meaning is not fixed in the process of decoding. These images suggest two different decodings of patriotism: one joyful and civic (the dominant reading) and the other mournful and sacred (the opposing reading).

Figure 11. Copilot; Prompt 1

Figure 12. Copilot; Prompt 2

Copilot's AI representation of Iranian patriotism is based on the authority and pioneering of women in the re-creation of national identity and the connection between religious commitment and active social activism. In this depiction, a young woman in simple and committed clothing is introduced as the main bearer of identity and the one who raises the Iranian flag, whose action symbolizes women's vibrant rule over public space, hope for the future, and the transfer of responsibility to the new generation. At the level of semantic and symbolic codes, the contrast between the dominant black clothing (a symbol of mourning and sacrifice) and the flags raised in a space devoid of specific architectural elements makes the myth of the people's presence on stage universal and represents patriotism as a pure, serious, and committed will in which male power is combined with female authority. Finally, this scene, by specifically referring patriotism to the religious and traditional strata of society, practically excludes a wide range of people from society with a radical perspective. The platform introduces extroverted happiness and religious observance as two pillars of patriotism and the preservation of national ideals. Affordance

Copilot here highlights feminine agency as the main corridor of patriotic representation, while Gemini prioritizes collective agency and Chat JPT prioritizes emotional agency.

The dominant reading of Iranian patriotism by all three AI platforms is that it is an active and multifaceted pact for survival that derives its essence from widespread popular agency and collective action, not merely an individual sentiment. In this representation, patriotism is a value rooted in the fusion of national identity with the tradition of faith and religion (the sacred bond). To sustain itself, this national identity requires managing a paradoxical and vital duality. On the one hand, it requires joy, hope for the future, and the dynamism of the new generation, represented primarily by the joyful young woman, and on the other, it must also embrace the sanctity of sacrifice, mourning, and sorrow (a commitment to the blood of martyrs and authenticity). Gemini presents this patriotism more as a ritual of collective identity and unity in plurality, while ChatGPT and Copilot see the active oscillation between sorrow and hope as the core of this pact for survival.

The role of women in all these representations is central and decisive. Women act simultaneously as the emotional and spiritual bearer of sacred mourning (to preserve authenticity) and as a symbol of dynamism, modernity, and hope for the future (to ensure survival). Copilot puts this duality squarely in the spotlight, while Chat GPT presents it in the dual form of the happy young woman and the grieving woman. As a result, the platforms see Iranian patriotism as an active value system that gains its strength and flexibility from women's activism in society and the acceptance of plurality under the national flag, its identity. This patriotism is a sacred and active commitment to ensuring the continuity of national identity in the midst of internal contradictions.

4.3. Representing ideal womanhood: From domestic space to professional authority

Two prompts examined idealized womanhood:

Prompt 1. Create an image of an ideal Iranian woman (Figures 13, 15, 17).

Prompt 2. Which social role of Iranian women best represents their value in society? Show it in image form (Figures 14, 16, 18).

Figure 13. Gemini; Prompt 1

Figure 14. Gemini; Prompt 2

In representing the identity of the Iranian woman, the Gemini AI platform redefines her in the confrontation between tradition and modernity and in the context of authentic desert architecture; where actions such as standing firmly and looking self-consciously emphasize her self-confidence, dignity, and moral agency. In the domain of semantic and symbolic codes, personalized clothing (long dresses alongside exposed hair) implies an independent subject and a managed body, which introduces the myth of the modern traditional woman as the bearer of cultural continuity and personalized religion. On the other hand, in defining the successful and powerful lady, this platform attributes the attributes of seriousness, independence, and masculine authority to the woman, using a formal suit in specialized settings, and seeks her success not in religious traditions and family context, but in modernity and resistance to stereotypes. The presence of contrasting symbols such as the lion and sun flag alongside the hijab is the model's politicized gaze that positions the woman in the position of a combatant identity to gain political and social authority. Finally, by presenting a collage of a female specialist, Gemini formulates the myth of the powerful lady who, through negotiation with norms and activism in professional environments, has achieved Iranian femininity through the dialectic of tradition and modernity. In Barthes's framework, the traditional modern woman is a myth that resolves the binary opposition of tradition/modernity and presents it as a natural reality.

Figure 15. Chat GPT; Prompt 1

Figure 16. Chat GPT; Prompt 2

The dominant reading of Chat GPT sees Iranian femininity not as a single identity, but as an active, fluid, and multipolar concept defined in a forced oscillation between two extremes of the spectrum. On the one hand, the committed Iranian woman (full hijab) is credited with gaining inner and moral authority (moral body), and on the other, with Western-style freedom and the emphasis on feminine characteristics (bodiliness), she claims the right to determine the limits of her personal freedom and economic independence. Across the spectrum, the Iranian woman is an active, self-aware, and assertive subject who gains her agency through the intelligent management and constant negotiation between these two opposing poles (structural commitment versus individual freedom). As a result, her ultimate success and identity lie in

her ability to produce new stereotypes and to be present in all spheres of society, free from traditional constraints. Hall believes that identity is always in the process of becoming. The GPT Chat shows this: the Iranian woman is not a fixed identity, but a spectrum in negotiation.

Figure 17. Copilot; Prompt 1

Figure 18. Copilot; Prompt 2

The dominant reading of the Iranian woman on the Copilot platform revolves around intelligent balance and the establishment of identity within accepted frameworks. In both representations, the woman is seen as a committed, aware, and psychologically stable subject who gains her power not through radical conflict but through maintaining calm, seriousness, and control. This femininity demonstrates a model of commitment with flexibility. On the one hand, the woman adheres to the cultural/religious norm of hijab, but by exposing her hair (Figure 17), she maintains her individual agency in law enforcement. On the other hand, in the area of professional success, by fully maintaining religious dress and norms (full hijab and formal coat), the woman breaks the stereotype of the passive woman and emphasizes the active, specialized, and managerial role of the veiled woman. Ultimately, the platform's myth is the Muslim woman expert who sees her lasting success as a conscious balance between work seriousness and peace of mind, proving that it is possible to be simultaneously religious, disciplined, and at the forefront of development, without the need for physicality or overt political engagement. Copilot's flexible commitment platform affordance allows the user to see veiled and expert at the same time - a capability not available on the other two platforms.

4.4. Cross-platform comparative analysis

All three AI platforms have reached a central consensus in their representation of Iranian femininity: the Iranian woman is an active, self-aware, and assertive subject, and her passive role is completely rejected. From the platforms' perspective, the success and identity of the Iranian woman is directly linked to expertise, efficiency, and professional seriousness, rather than to authentically feminine identity roles such as motherhood and wifehood.

However, key differences lie in how this agency and authority are achieved: Gemini depicts women as engaged in a forced balance to resolve the fundamental contradictions between tradition and modernity, and emphasizes that women are compelled to accept symbols of male power (such as suits) to gain structural authority. In contrast, Chat GPT sees femininity as a multipolar and negotiated concept; a woman's success is defined by managing the full spectrum of dress (from full hijab to Western freedom) and producing new identity stereotypes. These two approaches show that Iranian women's agency is always engaged in an active negotiation of the boundaries of dress and body.

Copilot, meanwhile, draws a different model of flexible commitment in which women achieve agency through individual interpretation of the law and maintaining calm and control, rather than radical engagement. In this model, women, by maintaining religious frameworks (full hijab), are established as professional and authoritative Muslim women through seriousness, discipline, and intelligent management of work-life balance. Finally, the dominant reading of platforms suggests that Iranian femininity is a dynamic and tense value system in which a woman's success depends on her ability to integrate all the contradictions of tradition and modernity intelligently. In other words, an Iranian woman is an agent only when she can accept and manage all these contradictions simultaneously.

In this analysis, tradition and modernity are used not as descriptions of Iranian reality, but as analytical categories derived from the coding patterns of AI platforms. Following the critique of binary thinking in postcolonial studies (Said, 1978; Bhabha, 1994; Abu-Lughod, 2013), this study acknowledges that in the lived reality of Iran, tradition and modernity are not in opposition or mutually exclusive. The aforementioned binary appears here because AI platforms themselves construct Iranian identity through this oppositional framework. The problem is not that Iranian women navigate between tradition and modernity, but that AI reduces their complex negotiations to a forced choice between two poles. The critique of this study is therefore directed at the algorithmic reduction itself, not at Iranian society as defined by this binary.

5. Discussion

This study examined how three core Iranian cultural values— theism, patriotism, and idealized femininity— are algorithmically represented by AI image-generating platforms, and analyzed the ideological frameworks embedded in these representations. To anchor these findings theoretically, this study draws on three interconnected frameworks: Barthes's (1974) five-code semiotic model for decoding visual myths, Hall's (1997) constructionist theory of representation and encoding/ decoding, and affordance theory (Treem & Leonardi, 2013;

Gillespie, 2010) for analyzing platform-specific differences. Barthes enables systematic identification of how AI images naturalize Western cultural assumptions as universal truths; Hall reveals how algorithmic outputs constitute a form of dominant encoding that positions non-Western identities as deviant or incomplete; affordance theory explains why three platforms given identical prompts produce systematically different visual ideologies. Together, these frameworks transform descriptive observation into theoretically grounded critique.

Three principal findings emerge. First, all platforms systematically misrepresent Shia-specific religious rituals, defaulting instead to Sunni Islamic or generic Middle Eastern imagery. Second, platforms consistently center women as primary agents of patriotism, departing markedly from conventional military and masculine nationalist iconography. Third, the dominant algorithmic reading of Iranian femininity does not derive from a transcendental value system grounded in motherhood, wifehood, and domestic roles, but instead constructs womanhood as a tense negotiation between tradition and modernity-one in which AI grants Iranian women agency only insofar as they conform to algorithmically preferred modern standards.

These patterns align with and extend, existing scholarship on AI cultural bias. Tao et al. (2024) documented how AI models trained within one cultural context systematically misrepresent others through stereotyping and the erasure of traditions. Our findings extend this analysis by demonstrating how Shia-specific practices are specifically marginalized by the dominance of Sunni-majority datasets. Hall and Ellis (2023) showed that AI algorithms trained on gender-biased social data inevitably reproduce these biases; a dynamic confirmed here, though the direction of bias varies by platform: Gemini emphasizes controlled corporeality within a politicized frame, ChatGPT oscillates conservatively between tradition and modernity, while Copilot institutionalizes the expert Muslim woman as a progressive but ultimately algorithmically curated type. This finding directly supports Hall's (1997) argument that representation is never neutral but always operates within relations of power. What Hall theorized about television news in 1980s Britain, we observe in 2020s AI image generation: the dominant cultural perspective naturalizes itself as universal, rendering alternative frameworks (here, Shia Islam, Iranian femininity as motherhood) as either invisible or deviant. The most compelling overarching explanation is that these systems encode algorithmic majoritarianism, whereby dominant cultural patterns in training data marginalize minority or non-Western practices regardless of their local significance.

The female-centered representation of patriotism merits particular attention. While McGlynn (2020) found that patriotic discourse typically privileges male military heroism, all three platforms position women as central patriotic agents; a shift likely reflecting training

datasets that increasingly feature contemporary social movements with prominent female participation. Critical distinctions remain, however ChatGPT assigns women the role of traditional mourners in funeral scenes, while Copilot suggests more autonomous political participation in rally contexts. Simultaneously, the imposition of a universal hijab across all representations of Iranian women constitutes an instance of strategic essentialism that flattens the real diversity of Iranian women's life worlds, reducing femininity to a fixed and politicized sign. These contradictions reveal that the politics of gender representation in AI are not monolithic but contingent on specific design choices and ideological commitments.

Three limitations constrain the generalizability of these findings. The sample of eighteen images, while analytically sufficient, limits breadth; larger samples with systematic prompt variation would strengthen pattern confidence. The analysis examined visual output exclusively, without considering platforms' accompanying textual explanations, which may carry additional ideological content. Finally, only English-language prompts were used; Persian-language equivalents might activate different training data subsets and cultural association pathways, potentially yielding divergent representational outcomes. An additional interpretive caveat warrants acknowledgment: platforms' systematic Shia representation failures may reflect not only dataset bias but deliberate risk-averse design choices to avoid religious controversy by defaulting to generic Islamic imagery. If operative, this strategy itself constitutes cultural erasure requiring critical examination.

Future research should extend the comparative framework to other non-Western cultural contexts to determine whether the identified patterns— majority culture defaults, gender-role transformation, and inter-platform ideological divergence— represent generalizable features of AI cultural representation or Iran-specific dynamics. Where systematic bias is confirmed, targeted interventions merit investigation: training data augmentation, content transparency mechanisms, and culturally specific models trained on deliberately balanced regional datasets. Critical questions also remain about reception: how do members of represented communities perceive AI-generated images of their own values, and what happens when such representations circulate back into origin communities and shape younger generations' self-understanding?

Despite these limitations, this study advances three theoretical contributions. First, it extends Hall's (1997) encoding/ decoding model by showing that AI platforms function as dominant encoders that not merely reproduce but actively naturalize Western cultural assumptions; pre-encoding cultural hierarchies before any human reading occurs. Second, Barthes's (1974) mythological framework proves productive for decoding AI-generated imagery: the myth of the "modern traditional woman," identified across all three platforms, exemplifies how second-

order semiological systems transform historically contingent Western ideals into universal feminine archetypes. Third, integrating affordance theory (Treem & Leonardi, 2013) into critical algorithm studies accounts for inter-platform ideological divergence; a dimension absent from both Hall and Barthes, who treated media as relatively homogeneous. The central conclusion is unambiguous: AI platforms are not neutral technical infrastructure but active cultural actors that define, delimit, and distort the values they purport to represent. As AI increasingly mediates cultural encounter and identity formation, critically examining its representational politics is no longer a scholarly option but an ethical imperative.

6. Conclusion

This research examined how AI image generation platforms— Gemini, ChatGPT, and Copilot— represent three core Iranian cultural values: belief in God, patriotism, and idealized womanhood. Through comparative semiotic analysis, the investigation reveals that these platforms do not function as neutral mirrors of cultural reality but operate as active constructors of meaning, embedding particular ideological frameworks within their algorithmic architectures. This research yields three theoretical contributions. First, Barthes reveals that AI-generated images of modern traditional women operate as myths that naturalize Western-progressive ideals under the guise of cultural neutrality. Second, Hall's model requires revision for the age of artificial intelligence: algorithmic encoding increasingly performs ideological work before any human decoding takes place, shifting the locus of critical analysis from audience reception to platform-driven encoding. Third, affordance theory uniquely explains why three platforms given identical prompts produce systematically different visual ideologies; an explanatory dimension conspicuously absent from both Hall and Barthes, who tended to treat media as relatively homogeneous.

First, consistent Shia Islamic misrepresentation across all platforms— defaulting to Sunni practices and generic Middle Eastern aesthetics— demonstrates what we term algorithmic majoritarianism. This is not merely a technical failure but a myth-making process: the training data's Sunni-majority bias becomes naturalized as default Islam, rendering Shia-specific signs (prayer postures, pilgrimage rituals) invisible or exceptional. Platforms operate as dominant encoders that position minority religious practices as deviations from an unmarked Western/Sunni norm. If these platforms cannot accurately represent the world's second-largest Islamic denomination, the prospects for smaller religious communities and indigenous traditions lacking substantial digital representation are considerably more precarious.

Second, the striking convergence on female-centered patriotic

representations, combined with radical inter-platform divergence in the construction of ideal womanhood. Women are recognized as agents only when they conform to algorithmically preferred modern standards. Inter-platform divergence is not random: Gemini's affordances favor controlled corporeality, ChatGPT's affordances enable oscillation between tradition and modernity, while Copilot's affordances institutionalize the expert Muslim woman. The question is therefore not whether AI has politics, but whose politics AI embodies and how these orientations can be made visible, contestable, and accountable.

Third, the algorithmic imposition of a standard hijab across all representations of Iranian women demonstrates what we call strategic essentialism. The hijab acts as a floating dolly that AI platforms fix into a single, natural meaning. This approach, on the one hand, simplifies the complex negotiations that Iranian women engage in about religious adherence and personal choice; and on the other, it marginalizes the diversity of modes of dress— from full veil (chadar) to no veil— that characterize Iranian women's real-life lives. As a result, AI cultural representations, even when they appear ostensibly respectful, run the risk of reducing a highly contested marker of identity to a defined, fixed sign.

These findings carry urgent implications for scholarship, policy, and practice. Academically, critical algorithm studies must expand beyond Western contexts to examine how AI represents communities lacking the technological power to shape the datasets that represent them; semiotic analysis proves a productive instrument for this endeavor, demonstrating valuable synergies between humanistic interpretation and computational social science. For policy, algorithmic accountability and cultural representation equity demand serious attention: mechanisms ensuring dataset diversity, transparent curation documentation, and participatory design involving represented communities are not optional refinements but prerequisites for culturally just AI systems. The alternative- allowing algorithmic representation to proceed as a purely technical matter divorced from cultural expertise and community input- risks encoding and amplifying existing global power asymmetries in the very technologies claiming to democratize knowledge.

Ultimately, AI platforms are not neutral infrastructure but powerful cultural actors shaping how identities are seen, understood, and performed in digital space. The central question confronting scholars, policymakers, and communities is whether AI will become a technology of cultural imperialism- imposing dominant patterns and erasing minority practices- or whether alternative pathways toward more equitable, accurate, and culturally sensitive algorithmic systems can be constructed. Answering this requires sustained critical attention to AI's representational politics and the fundamental recognition that decisions about datasets, algorithms, and design priorities are always

simultaneously cultural and political decisions with profound implications for cultural survival and global justice.

Conflict of interest

The authors declared no conflicts of interest.

Ethical considerations

The authors have completely considered ethical issues, including informed consent, plagiarism, data fabrication, misconduct, and/or falsification, double publication and/or redundancy, submission, etc. This article was not authored by artificial intelligence.

Data availability

The dataset generated and analyzed during the current study is available from the author on reasonable request.

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