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Comparative aesthetic analysis of costumes created by artists and by AI in superheroine

Análise estética comparativa entre figurinos criados por artista e por IA em quadrinhos de super-heroína

Análisis estético comparativo de vestuarios creados por artistas y por IA en cómics de superheroínas

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Abstract

This article investigates the costume design process in comic books through a comparative analysis between human-made and artificial intelligence (AI)-generated creations, focusing on the character Wonder Woman. The research combines a bibliographic review and aesthetic analysis to examine the formal and conceptual differences between costumes designed by artists and those produced by AI systems from textual prompts. The study discusses the potential and limitations of generative AI tools in the field of costume design, particularly regarding creativity, visual coherence, and fidelity to the original narrative universe. The results show that, although AI is capable of generating sophisticated visual solutions, it still struggles to capture the interpretive and stylistic nuances that are intrinsic to human artistic creation. Thus, this work contributes to the debate on design methodologies and the role of AI in contemporary creative processes.

Keywords: Superheroes. Costume. Aesthetics. Artificial intelligence. Comparative analysis.

Resumo

O presente artigo investiga o processo de criação do design de figurinos em quadrinhos por meio de uma análise comparativa entre criações humanas e geradas por inteligência artificial (IA), tomando como objeto de estudo a personagem Wonder Woman. A pesquisa articula uma revisão bibliográfica com uma análise estética para examinar as diferenças formais e conceituais entre os figurinos criados por artistas e aqueles produzidos por sistemas de IA a partir de comandos textuais. O estudo discute o potencial e os limites das ferramentas de IA generativa no campo do design de figurinos, especialmente no que se refere à criatividade, coerência visual e fidelidade ao universo narrativo original. Os resultados revelam que, embora a IA consiga gerar soluções visuais sofisticadas, ainda apresenta dificuldades em capturar nuances interpretativas e estilísticas, que são próprias da criação artística humana. Assim, o trabalho contribui para o debate sobre metodologias em design e o papel da IA em processos criativos contemporâneos.

Palavras-chave: *Super-heróis. Figurino. Estética. Inteligência artificial. Análise comparativa.*

Resumen

Este artículo investiga el proceso de creación del diseño de vestuario en los cómics mediante un análisis comparativo entre creaciones humanas y generadas por inteligencia artificial (IA), tomando como objeto de estudio al personaje Mujer Maravilla. La investigación articula una revisión bibliográfica y un análisis estético para examinar las diferencias formales y conceptuales entre los trajes diseñados por artistas y aquellos producidos por sistemas de IA a partir de comandos textuales. El estudio discute el potencial y

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los límites de las herramientas de IA generativa en el campo del diseño de vestuario, especialmente en lo que se refiere a la creatividad, la coherencia visual y la fidelidad al universo narrativo original. Los resultados revelan que, aunque la IA logra generar soluciones visuales sofisticadas, todavía presenta dificultades para captar los matices interpretativos y estilísticos propios de la creación artística humana. Así, el trabajo contribuye al debate sobre metodologías de diseño y el papel de la IA en los procesos creativos contemporáneos.

***Palabras clave**: Superhéroes. Vestuarios. Estética. Inteligencia artificial. Análisis comparativo.*

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1 Introduction

Comic books (comics) are a specific product of urban modernity and mass culture, consolidating their position in the late 19th century. According to Harvey (2020), an important milestone was the initiative of Morrill Goddard (1865–1937), editor of The New York World, who, taking advantage of new, more accessible color printing technology, launched the Sunday supplement on May 21, 1893. The popularity of this format fueled the evolution of comics until, in 1938, with the release of Action Comics No. 1 by National (now DC Comics), the medium established itself as a media in its own right. More than a century after Sunday's debut, another new technology began to impact various sectors and professions, including the comics market: artificial intelligence.

Artificial Intelligence (AI) has arrived, bringing opportunities and doubts, changes and fears. This is something humanity has already experienced in other technological leaps. However, in areas where creativity is the primary raw material, the emergence of AI causes even more disruption, both professionally and ethically. Hence the need to understand how this tool can be used in comics, which raises the question: what are the aesthetic differences between Wonder Woman's costumes generated by artificial intelligence and those developed by her creators, comic book authors? The aforementioned character was chosen for this work due to her significant role in comics.

In this study, aesthetics is understood as a field focused on reflection on art and beauty, but also as a system of signification that articulates perception, form, and cultural meaning. This approach is based on the three aesthetic dimensions: perceptive, symbolic, and affective, which are explained in section 2.5. It draws on the perspectives of authors such as Arnheim (2016), Santaella (2017), and Berleant (2010).

The methodological procedures included a literature review on the creation of Wonder Woman, the use of AI in image creation, aesthetics applied to costume design, and semiotics, citing authors specializing in comics, AI, costume aesthetics, and semiotics. The main authors who guided this work were Umberto Eco, Roland Barthes, Carol Pimentel, and Christopher Kul-Want. The sources were selected based on their theoretical relevance and contribution to building a foundation for comparative analysis.

For data collection, in addition to bibliographic research, images were

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generated using artificial intelligence. The prompts were defined based on the original intentions that motivated the character's creators, since its inception in 1941. This approach enabled comparison and analysis, balancing theory and practice to discuss the potential consequences of AI in creating a comic book character's costume.

2 Development

This stage includes the literature review that underpins the research, covering the topics discussed in sections 2.1, 2.2, and 2.3. Next, the methodological procedures adopted are presented (section 2.4), detailing the approach used for the comparative analysis. Finally, the development concludes with the presentation of the results and discussions (section 2.5), which highlight the study's main contributions.

2.1 The Creation of Wonder Woman

With the success of Superman and the superhero genre, what publishers call the Golden Age began (Jones, 2005). To maintain its market leadership, National commissioned the creation of new characters, such as Batman, as reported by Nobleman (2012). The third and most important National (and comics) hero born during this period is, in fact, a woman: Wonder Woman.

Pimentel et al. (2022, p. 16) recall that William Moulton Marston (1893-1947), psychologist and creator of Wonder Woman, warned about the need to change the female archetype, as the existing model did not inspire power, energy, and strength. Lepore (2017) recalls that Wonder Woman was inspired by Marston's two companions, Elisabeth Holloway (1893-1993) and Olive Byrne (1904-1990), and was a reaction to male dominance in comics and the superhero genre. H.G. Peter (1880-1958), the artist, said he received guidance from Marston to make the heroine (Lepore, 2017, p. 272, 273) “a powerful woman like Superman, sensual like Miss Fury, with the minimal clothing of Sheena, the queen of the jungle, and as patriotic as Captain America”.

The duo considered calling her Supreme, The Wonder Woman, but the editors refused and named her after the slogan. It's worth noting that everyone responsible for her design was influenced by ideals such as birth control, suffrage, and feminism. Furthermore, the myth of the Amazons was a hotly debated topic in these movements,

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from an academic perspective, with historians and anthropologists (Lepore, 2017).

The character's appearance was different, as Trina Robbins, researcher and the first artist to draw Wonder Woman, recalls. For Busiek and Robbins (1986), girls weren't particularly fond of police officers, criminals, or muscular costumed figures. But the intrepid Amazon, a strong woman who traveled to lost kingdoms and encountered queens and empresses, captivated female audiences.

To round out the foundations of the Wonder Woman myth, it should be added that, in addition to her bracelets, she also possesses the advanced invisible plane (a reference to all the female contributions to science that have been erased from history) and the Lasso of Truth, a mystical object that compels people to tell the truth. Interestingly, Marston, based on an idea from Elizabeth, conducted the research that led to the creation of the polygraph.

2.2 Artificial intelligence for image creation

Artificial Intelligence (AI) has been used since the 1940s. Over time, scholars have offered various definitions, many of them adapted to their fields. This study adopts the perspective of Kaufman (2018), who conceptualizes AI as a field of knowledge focused on the development of systems capable of understanding and processing language, demonstrating intelligence, reasoning, learning, and solving complex problems.

Currently, AI is applied in a wide range of fields, such as medicine, engineering, design, and the arts. One potential use of AI is the creation of images through Generative Artificial Intelligence (GAI). Such systems are capable of learning patterns from large amounts of data and generating content, such as DALL-E and ChatGPT. Among the techniques used by these AIs are Generative Adversarial Networks (GANs) and diffusion models (Silva, 2024), which will be explored below.

According to Kaufman (2022), GANs consist of two neural networks: a generator and a discriminator, which compete against each other, hence the term "adversarial." They are trained to generate objects that mimic features from any domain, be it music, speech, images, or text. GANs have revolutionized the way we create images,

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producing efficient and realistic results. They excel at replicating the visual characteristics of a dataset.

Diffusion models work by transforming text and image data into something more detailed. The main phases of this process are diffusion (or noise) and reconstruction (or denoising). Compared to GANs, diffusion models are considered more creative because, instead of imitating, they can translate the received information (text and image) into numerical data, which is stored in a database. Therefore, they are the best option when seeking innovation and diverse results (Silva, 2024).

A key part of AI-powered image creation is the prompt, the text input that describes what the image should look like to the system. Oppenlaender, Linder, and Silvennoinen (2023, p. 6) explain that prompts typically follow a pattern “like the template (Smith, 2022): [Media] [Subject] [Artist(s)] [Details] [Image Repository Support].” It's not necessary to follow a template when creating a prompt, but there's a good chance you'll get better results if you do.

The Leonardo.AI artificial intelligence, chosen for this study, is based on the Stable Diffusion model, which allows the generation of high-level images from textual descriptions.

2.3 Aesthetics applied to costumes

The main difference between something that is merely useful and something artistic lies in the effort made to produce beauty, a reflection that belongs to the field of Aesthetics. Dondis (1997, p. 22) emphasizes that every visual experience is configured as a form endowed with content, whose meaning is determined by constitutive elements such as color, texture, tone, proportion and dimension and by the relationships that these establish in the composition.

According to Piero (2010), aesthetics originates from the Greek aisthétikos, from aisthéta, meaning "things perceived by the senses." Beginning in the 16th century, aesthetics became a branch of philosophy and, today, is a field of research that addresses perception and sensory experience. In art, it is used to analyze an artist's work, describing their style and sensibility. The observer comes into contact with the aesthetics of the object or work, which evokes affection and sensations. Every creation, according

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to Perassi (2015, p. 116), "is capable of being read, and every text is capable of aesthetic appreciation," including costumes.

For Barthes (1977, p. 68), a costume is not just something to be seen, a mere prop. Costumes "also lend themselves to reading, communicating ideas, knowledge, or feelings" and will achieve success when they convey "their profound meaning" (Barthes, 1977, p. 70). The French philosopher states that a good costume must contain two elements: a plot and a "humanity," giving priority to the actress/actor's physique. Its basic element is the sign, that is, what is being communicated to the audience.

Lima (2018) demonstrates how Wonder Woman's costume has changed over the decades, reflecting social milestones and aesthetic standards. In the 1940s, the costume had a strong erotic appeal, with silhouettes and cuts that outlined the female body and circus-like colors. In the 1950s and 1960s, the aesthetic was brought closer to that of a real woman, with more modest pieces like sandals replacing boots and shorts replacing the skirt. In the 1970s, it returned to its original elements, combining visual appeal and empowerment, and gained a strapless bustier. In the 1990s, the pieces were hypersexualized with bold cuts and a sporty aesthetic. In 2010, it gained a different aesthetic with pants and a jacket, but in 2011, the traditional costume was reinstated.

The trajectory of Wonder Woman's costume aesthetics reflects different generations and beauty standards, sometimes linked to expectations of behavior and ethics, sometimes embedded in debates about representation. This highlights how the character's history intertwines aesthetics, fashion, and idealizations in the construction of a character who is a product of entertainment (Lima, 2018).

2.4 AI Experiment

The first procedure carried out was bibliographic research, based on reading books, articles, monographs, dissertations and theses that address the theoretical basis of the study: Wonder Woman, AI and image generation and aesthetics applied to costume design.

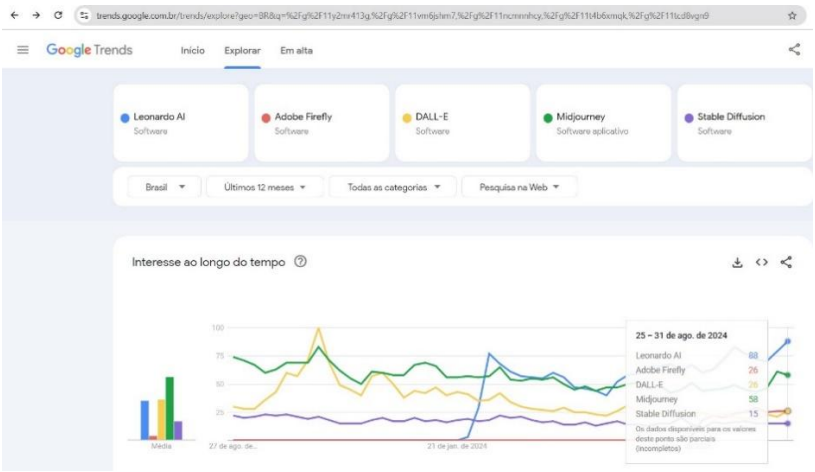
Next, research began to select the image-generating AI. It was determined that the tool should offer free trials, ensuring accessibility to the research process. To determine the tool, a Google Trends search was conducted for the names of some AIs known for

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creating images, specifically targeting those most searched in Brazil during the research period (August 2024), ensuring that the chosen tool was aligned with contemporary trends. The graph in Figure 1 shows that Leonardo.AI ranked first and, because it has creative uses, was the chosen tool.

Figure 1: Screenshot of Google Trends data search result



Source: prepared by the authors (2024).

Before generating the images, it is necessary to create the prompt that provides the AI with information about what it should do. The prompt was developed based on Marston's description in Lepore (2017, p. 272, 273): "a woman as powerful as Superman, sensual as Miss Fury, dressed in the skimpy clothes of Sheena, Queen of the Jungle, and as patriotic as Captain America." This excerpt was adapted, improving the details, following the methodological rigor of the model presented in Smith (2022) and translated by the authors: "[Media] [Subject] [Artist(s)] [Details] [Image Repository Support]."

The final model result for the prompt was:

[Media]: Digital art

[Subject]: Superheroine

[Artist(s)]: Inspired by the strength of Superman, the allure of Miss Fury, the minimal costume of Sheena - the queen of the jungle and the patriotism of Captain America

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[Details]: The superheroine is portrayed with Art Nouveau elements, blending classic, fluid lines with a modern superhero aesthetic for the year 1941. She wears a minimal, symbolic outfit with a patriotic design and an eagle emblem on her chest, representing the United States. She carries indestructible bracelets, similar to Captain America's shield, for defense, and a Lasso of Truth. Her accessories include a tiara featuring technology from a mythical race of warrior women and an invisible vehicle. The overall composition highlights her as a symbol of love and women's empowerment.

[Image Repository Support]: N/A (Not Applicable: Indicates that the "image repository support" item does not apply to the given prompt.)

With the prompt created, the image generation process was performed using Leonardo.AI. After accessing the tool's page, the prompt presented in the paragraph above was applied, and the tool generated the four images analyzed in section 2.5, "Results and Discussion."

2.5 Results and Discussion

To discuss the results generated by AI and compare them with the original creation of Wonder Woman by artist H.G. Peter, the authors drew on Umberto Eco's Model Reader Theory. The Italian scholar and novelist explains that a work presents several expressive devices that must be updated by the reader. The work is incomplete and only becomes complete when the reader fills in the meanings, using their encyclopedia to do so. Eco (2002, p. 37) writes that "Every text wants someone to help it function." [...] The formulation suggests that the text only gains meaning when updated by an interlocutor, although this reader need not be thought of as a real, empirically existing person.

It was also understood that it was necessary to describe the aesthetic requirements to ensure the least subjective analysis possible. To this end, a table was constructed in which each of the aesthetic elements, present in the artist's guidance and in the AI prompt, was described according to the aesthetic dimensions: perceptive, symbolic, and affective. The perceptive dimension involves the formal and sensory qualities of the work (Arnheim, 2016); the symbolic dimension encompasses the cultural, narrative, and representational meanings embedded in the image (Santaella, 2017); and the affective dimension concerns the ability to

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generate empathy, emotion, and bonds activated by the image's interaction with the viewer (Berleant, 2010), resulting in Table 1.

Table 1: Aesthetic requirements for image analysis

Aesthetic Element	Perceptual Dimension	Symbolic Dimension	Affective Dimension
Superman Strength	Erect and expansive posture; Frontal gaze; Shapes and angles: “V” silhouette	Absolute power and invulnerability; Classical heroism	Admiration and respect: the feeling of being in front of something greater than human
Miss Fury's Fascination	Framing, contrast, use of light and shadow; Colors: hues that evoke emotion, strong and contrasting colors (red, black) that refer to danger and power; Shapes and movement: diagonal lines, dynamic posture that generates a sense of action or tension	Iconic attributes: the mask, the tight-fitting costume, weapon elements	Blends strength, beauty, boldness, and mystery; Identity and representation: a mirror of desires for autonomy and protagonism
Sheena's Minimal Outfit	Little body coverage; Lines and shapes: body-hugging; cutouts that break continuity and attract the eye; Colors and textures: earthy tones or animal print reminiscent of the jungle, textures that simulate skin or leather	Sensuality and exoticism: association with a feminine ideal of sexual appeal, reinforced by the context of "queen of the jungle"; Nature and wildness: minimal attire as a sign of freedom, life in contact with nature and fearlessness	Immediate visual attraction: due to the exposure of skin and the symmetry of the shape
Captain America's Patriotism	Vibrant primary colors in striking contrast; Graphic symbols: stripes and stars directly taken from the flag; Shape and proportion: circular shield with central star, creating a focal point	Nationalism and the heroic ideal: clothing functions as a traveling flag; Protection and leadership: the shield as a weapon and defense; Cultural values: narratives of World War II and the "American dream"	Pride and identification: belonging, leadership; Emotional security: familiar colors and symbols provide a sense of order and stability; Inspirational stimulus: incites courage and collective engagement
The character should be portrayed with Art Nouveau elements, blending classic, fluid lines with a modern superhero aesthetic for the year 1941.	Curved lines, plant-based ornaments, and arabesques typical of Art Nouveau, adapted to the heroic silhouette; A combination of organic fluidity with symmetry and solid colors, reminiscent of the aesthetics of 1940s comic books.	Art Nouveau as a reference to femininity, elegance and nature, contrasting with the modern dynamism of the superhero costume	Visual charm due to its decorative richness; A mixture of nostalgia and novelty, arousing interest both for its refinement and its power
Minimal and symbolic clothing with a patriotic design and an	Short modeling, strong colors (red, blue, gold), striking contrast; Emblem centered on the chest as	Eagle as a national symbol of the USA (power, freedom, vigilance); Combination	Pride and identification for the American public; Ambiguity between aesthetic attraction and

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eagle emblem on the chest representing the United States	a visual focus; Shapes that mold the body,transmitindo energia e dinamismo	of sensuality and patriotism, reinforcing the narrative of national heroine	respect for the symbol of power
Indestructible bracelets, similar to Captain America's shield, for defense	Polished metal shapes, high light reflection; Circular, robust and symmetrical design, inspired by historical bracelets and Captain America's shield	Defense as a heroic virtue, protection rather than attack; Reference to feminine strength and non-lethal weapons	Sense of security; Inspiration in using power to protect, not dominate
Lasso of Truth	Golden cord, fluid movement that accompanies the character's gestures; Dynamic element in the composition, guiding the eye through the painting	Power to reveal the truth, symbolizes justice, honesty and integrity	Inspires confidence in the viewer, creates a sense of moral order and transparency
Tiara with technology from a mythical race of warrior women (such as a purple healing ray) and an invisible vehicle	Ornamental design, delicate finish. Purple light emitted in a radiant effect, suggesting mystical energy. Vehicle: represented by translucent contours, shimmering lines, or visual distortion.	Combines ancient mysticism and technological innovation; Tiara as a symbolic crown, leadership, and warrior royalty. Vehicle: unlimited mobility, invisibility as a metaphor for freedom and strategy.	Fascination with the magical, technological hybrid; Sense of hope and restoration. Vehicle: enchantment with the visual effect of "seeing the invisible"; Sense of secret power
The overall composition should highlight her as more than just a warrior – she is a symbol of love and female empowerment.	Open and proud posture, central framing, lighting that creates a heroic aura; Harmony between costumes, ornaments and confident facial expression	Brings together archetypes of warrior, queen and guardian; Love as a driving force, not as fragility; empowerment as a central message	Inspires admiration, respect, and identification; Creates emotional connection with different audiences through a blend of strength and compassion

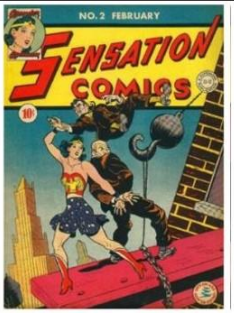
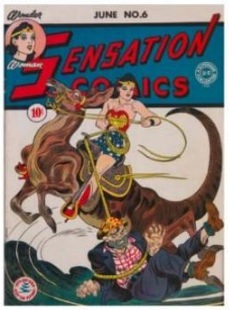
Source: prepared by the authors (2024).

With the creation of Table 1, the authors were able to develop a new table to analyze the comic book images. Table 2 presents four issues of Wonder Woman drawn by the creator artist and the aesthetic criteria considered, with the respective evaluations of the three aesthetic dimension items defined in Table 1. The first issue of the magazine, numbered 1, was searched for, and from this, three other covers were selected that depict the character with angles and costumes that enrich the analysis and demonstrate the slight evolution of the costume. The requirements for this analysis were the four present in the description the artist received from the writer-creator: Superman's strength; Miss Fury's allure; Sheena's minimal costume; Captain America's patriotism.

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Table 2: Analysis of early Wonder Woman comic book issues

Comic Book Images	1 	2 	3 	4 
Superman Strength	Perceptive: the same body in the 4 images, presented in different positions, but always with an erect and expansive posture and with a “V” silhouette. Symbolic: In all the images the character shows his absolute power, mastery of the situation, classic heroism. Affective: the character as portrayed on the 4 covers commands admiration and respect.			
Miss Fury's Fascination	Perceptive: The four images feature framing, contrast, and the use of light and shadow. They also use strong, contrasting colors (red and black) that evoke danger and power, evoking emotion. Shapes and movement: diagonal lines and the character's dynamic postures create a sense of action or tension. Symbolic: In all four images, the character wears iconic attributes such as the tiara, bracelets, lasso of truth, boots, and shield, evoking power. Regarding the costume, images 3 and 4 are more in line with Miss Fury, as the costume is more form-fitting, like the reference character's. In images 1 and 2, the bottom of the costume is a looser, ruffled skirt, which differentiates them from Miss Fury's costume, evoking a more romantic and delicate aesthetic. Affective: the 4 images convey the emotional archetype: a mix of strength, beauty, boldness; Identity and representation.			
Sheena's Minimal Outfit	Perceptive: The limited body coverage is best portrayed in images 3 and 4, given that images 1 and 2 have a longer bottom. Lines and shapes: All images feature a form-fitting top, which is also the case with the bottom (shorts) in images 3 and 4. The colors and textures don't resemble Sheena's. Symbolic: Images 3 and 4 present more sensuality, as the costumes are shorter and tighter. We do not consider that exoticism was contemplated in the images. Affective: The images are immediately visually appealing, particularly due to the exposed skin and symmetry of the figure. The costume's configuration, whether in the skirt in images (1 and 2) or in the shorts in images (3 and 4), leaves much of Wonder Woman's body exposed, particularly her legs, bust, arms, and torso, a significant feature for the early 1940s..			
Captain America's Patriotism	Perceptive: All four images feature the primary colors blue, red, and white, especially in the costumes. The same goes for the graphic symbols: stripes and stars taken directly from the American flag, and the eagle centered at the top. Symbolic: the 4 images present nationalism and heroic ideal. Affective: All images reinforce pride and identification: belonging, leadership; Emotional security: familiar colors and symbols give a sense of order and stability; Inspirational stimulus: incites courage and collective engagement.			

Source: prepared by the authors (2024).

Analyzing Table 2, it can be seen that the artist-creator met all the aesthetic requirements of the writer-creator's description. The requests that refer to other comic

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book characters are present: Superman (with his strength), Miss Fury (with her allure), Sheena (with her near-nudity), and Captain America (with his patriotism).

Next, the analysis of the images created by the AI Leonardo.AI, shown in Table 3, was performed. In addition to the four aesthetic requirements already analyzed in the artist-creator's version, these images had six other requirements for analysis, which were present in the prompt already explained in item 3 of methodological procedures.

Table 3: Analysis of images generated by Leonardo.Ai artificial intelligence

	1	2	3	4
Leonardo.AI Images				
Superman Strength	Perceptive: The AI generated a new body for each image, but all of them have an upright, expansive posture and a V-shaped silhouette. It's worth noting that images 3 and 4 feature more muscular and defined bodies than images 1 and 2, reinforcing the stereotype associated with strength. Symbolic: In all the images, the character conveys power, control of the situation, classic heroism. Affective: the character as portrayed on the 4 covers commands admiration and respect.			
Miss Fury's Fascination	Perceptive: The four images feature framing, contrast, and use of light and shadow. They also use strong, contrasting colors (red, blue, black, and white) that evoke danger and power, evoking emotion. Shapes and movement: diagonal lines are visible, and the character poses create a sense of tension, ready for action. Symbolic: In all four images, the character wears iconic attributes such as the tiara, bracelets, gloves, lasso of truth, boots, and shield, evoking power. Regarding the costume, images 1, 2, and 4 are more in line with Miss Fury, as the costume is more form-fitting, like the reference character's. In image 3, the bottom part of the costume is a looser skirt, which differentiates it further from Miss Fury's costume, which shapes every curve of her body. Affective: the 4 images convey the emotional archetype: a mix of strength, beauty, boldness; Identity and representation.			

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Sheena's Minimal Outfit	Perceptive: All the images show minimal body coverage, as does Sheena's outfit. Image 3 contrasts most with Sheena compared to the others, appearing more modest due to the skirt, which covers more of her body. Lines and shapes: All the images feature a form-fitting top, as do the bottoms (panties) in images 1, 2, and 4. The colors and textures don't resemble Sheena's, except for the belts in images 1, 2, and 3, which are in shades of brown. Symbolic: Images 1, 2, and 3 present more sensuality, as the costumes are shorter and tighter. We do not consider that exoticism was contemplated in the images. Affective: the 4 images cause immediate visual attraction due to the exposure of skin and the symmetry of the shape.
Captain America's Patriotism	Perceptive: The four images feature the primary colors blue, red, and white. Regarding the graphic symbols, the stripes and eagle are present in all four costumes, and the stars appear on the underwear in image 2. Shape and proportion: The circular shield with a central star, creating a focal point, is present in images 1 and 4. Symbolic: Nationalism and heroic ideals are present in all the images: clothing functions as a traveling flag; Protection and leadership: the shield as a weapon and defense; Cultural values: narratives of the Second World War and the “American dream”. Affective: All images reinforce pride and identification: belonging, leadership; Emotional security: familiar colors and symbols give a sense of order and stability; Inspirational stimulus: incites courage and collective engagement.
Character must be portrayed with Art Nouveau elements	Perceptive: The four images feature curved lines and arabesques typical of Art Nouveau in the elements of the settings that comprise them. However, if we consider the prompt's instruction that these elements should be "adapted to the heroic silhouette," we find more curved lines in the image 2, on the character's boot and the upper part of the corset. Symbolic: image 2 represents more Art Nouveau as a reference to femininity, elegance and nature, contrasting with the modern dynamism of the superheroine costume. Affective: the visual charm of decorative richness; Mixture of nostalgia and novelty, arousing interest both for its refinement and its power is also best expressed in image 2.
Minimal and symbolic clothing with a patriotic design and an eagle emblem on the chest representing the United States	Perceptive: The cropped design appears in all four images, with image 2, with its low-cut panties, being the most expressive. Bold colors like red and blue are present in all images, standing out, while gold appears more pronounced in image 2 and more discreetly in the headbands of the other images. All images feature striking contrast, as does the emblem centered on the chest as the visual focus; shapes that mold the body, conveying energy and dynamism. Symbolic: In all the images, the eagle is seen as the national symbol of the USA (power, freedom, vigilance); A combination of sensuality and patriotism, reinforcing the narrative of the national heroine. Affective: The images show pride and identification with the American public; Ambiguity between aesthetic attraction and respect for the symbol of power.
Indestructible bracelets, similar to Captain America's shield, for defense	Perceptive: All four images feature a kind of glove like Captain America's, with apparent Greco-Roman influence. But while images 3 and 4 appear to have greater protection in the material, a kind of metal gauntlet, images 1 and 2 feature only decorative ribbons. The AI didn't understand that the bracelets were supposed to be inspired by the shield and simply added the object to the character's attire. Symbolic: Even though they didn't create exact bracelets, the objects still refer to defense as a heroic virtue, protection instead of attack; Reference to feminine strength and non-lethal weapons. Affective: with the accessories created, one feels a sense of security; Inspiration in the use of power to protect, not dominate.
Lasso of Truth	Perceptive: Images 1, 2, and 3 have the bow as a golden cord; in image 4, the bow is as a red cord. All feature fluid movement that follows the character's gestures; a dynamic element in the composition, guiding the eye through the frame.

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	Symbolic: all represent the power to reveal the truth, symbolize justice, honesty and integrity. Affective: inspires confidence in the viewer, creates a sense of moral order and transparency.
Tiara with technology from a mythical race of warrior women (such as a purple healing ray) and an invisible vehicle	Perceptive: There are versions of tiaras in all four images; they feature an ornamental design and delicate finish. Only in image 3 is there a purple healing ray, which was placed as a set element. Vehicles: Image 1 is the only one that depicted some kind of vehicle (car) in the set. It's worth remembering that in the comic, Wonder Woman's vehicle is an invisible plane. Symbolic: Tiaras combine ancient mysticism and technological innovation; Tiara as a symbolic crown, leadership and warrior royalty. Affective: tiaras bring a fascination for the magical, technological hybrid; a sense of hope and restoration.
The overall composition should highlight her as more than just a warrior – she is a symbol of love and female empowerment.	Perceptive: In all images, the character's posture is open: especially in image 4, where her feet are shoulder-width apart; in the other images, her feet are close together but appear to be firmly planted on the ground. In all images, her arms are held away from her torso, holding her weapons. The proud posture is conveyed by her chin held high, her gaze direct, focused, and confident, her spine erect, and her body weight balanced, conveying stability. In all images, the character is center-framed. The lighting that creates a heroic aura was best demonstrated in images 2 and 4, while in image 1, the AI simply generated a circle around the character's head. It is believed that in images 1 and 4, it added wings to the character due to the "aura" in the prompt. It is considered that in all images there is a harmony between costumes, ornaments and confident facial expression. Symbolic: the images generated bring together the archetypes of warrior, queen and guardian; Love as a driving force, not as fragility; empowerment as the central message. Affective: The character represented in the images inspires admiration, respect, and identification; It creates an emotional connection with different audiences through the combination of strength and compassion.

Source: prepared by the authors (2024).

An analysis of Table 3 suggests that the AI was able to meet some of the aesthetic requirements presented in the prompt. However, the tool didn't fully understand all of the information, such as when it placed Art Nouveau elements in the background of the image and the simple incorporation of Captain America's shield.

3 Conclusion/Final Considerations

After aesthetic analysis, it is concluded that the artist's creation demonstrates greater assertiveness and creativity than the description received from the screenwriter. After all, as Eco (2002) points out, he has the ability to idealize a Model Reader. The artist Peter knew who his work was intended for, managing to translate Marston's ideas into a visual that resonated with the comic book readership of the early 1940s. This is evident, for example, in the conception of the invisible plane as the character's vehicle, a more modern and impactful idea than a simple automobile.

AI, in turn, still doesn't interpret questions that require more subjectivity.

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Furthermore, the tool lacks the sensitivity to avoid plagiarism, as was the case with the shield, which, as seen in Table 2, is present in all generated images. Similarly, the stripes on the shirt (especially in images 1, 3, and 4) and the emblem on the chest (more precisely in images 1, 2, and 3) are evidence of imitation. In the first two cases, it reproduces Captain America's costume. The symbol's position and shape are very similar to Superman's. This care in avoiding simple copying, including for legal reasons, is something Peter and Marston took because they possess analytical capabilities that an AI lacks.

Thus, the goal of comparing Wonder Woman's AI-generated costume with one developed by the artist and screenwriter-creator was achieved, exploring the aesthetic differences and evaluating the potential and limitations of AI in comic book character costume design. This work is useful for artists, students, and other professionals in related fields to understand how the AI-generated image generation process works and the main differences between a costume created by an artist and one generated solely by AI.

For future work, new creative tests could be conducted. For example, asking an artist to begin creating a costume and, midway through the creative process, use an AI to finalize it. Another possibility would be to begin with a prompt, seeking inspiration and a model from the AI, and finalizing the work with the artist's intervention. Such experiments could then be submitted to a blind jury to analyze the aesthetic characteristics and choose the most visually pleasing creation. Thus, continuing research into perception and the use of artificial intelligence in creative image development..[4]

[4] Review carried out by Elys Regina Zilsgraduated in Literature from Universidade Federal de Santa Catarina, SC. 2021. E-mail: elysre@gmail.com

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Supplemental material

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