



CASE STUDY ON THE CREATIVE PROCESS (CO-CREATION) OF THE DIGITAL ARTIST AND GENERATIVE ARTIFICIAL INTELLIGENCES

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Abstract. *This research analyzes the co-creation between the digital artist as a student and artificial intelligence and generative artificial intelligence, through a case study focused on the creation of 2D sprites for video games. The creative process of the student is compared with that of various AI systems – ChatGPT, Copilot, and Gemini – with the aim of examining the student's essence, authorship, creativity, and the co-creation process of the artist-machine. This comparison reveals how artificial intelligence optimizes the production of 2D sprites that interferes with the student's creative process as an artist, sidelining the student's intention and identity, and thereby diminishing their artistic essence.*

Keywords: *digital art, digital artist, artificial intelligence, generative artificial intelligence, co-creation, essence, creativity, 2D, sprites, video game, authorship.*

The arrival of Artificial Intelligence (AI) and Generative Artificial Intelligence (GAI) has brought about significant changes in contemporary digital art. Today, these technologies are capable of generating images, videos, and visual content from algorithms trained on large volumes of data. This has created uncertainty within the artistic sphere, particularly regarding authorship, creativity, and the role of the artist in visual production. Accordingly, the present research aims to present a comparison of various 2D sprites for video games created by the student (Figure 1), as well as by the machine; however, beyond this comparison, the study seeks to analyze how this co-creation between the digital artist and AI systems affects the student's creative process [1-4].

To understand this comparison, it is important to recognize that the creative process in contemporary digital art involves imagination, sensibility, technique, and experimentation, resulting in a workflow that responds to an artistic intention set forth by the digital artist. Unlike this student-driven creative process, generative artificial intelligence operates through neural networks trained on large volumes of data and images. For this case study, the same data and images were provided to ChatGPT, Copilot, and Gemini (Figure 2-4), optimizing the machine's creative process while revealing a pattern characteristic of each tool, as these were previously trained by their developers and only the artist intervened by providing new data inputs [3]. This demonstrates significant differences between the student's artistic work and the images generated by AI, noting also that the artificial intelligences required multiple corrections in order to approximate the expected result.



Figure 1 – Sprite Jump 2D (Autor: Alix Sandoval, estudiante del caso)



Figure 2 – Sprite Jump 2D (Autor: ChatGPT, IAG)



Figure 3 – Sprite Jump 2D (Autor: Copilot, IAG)

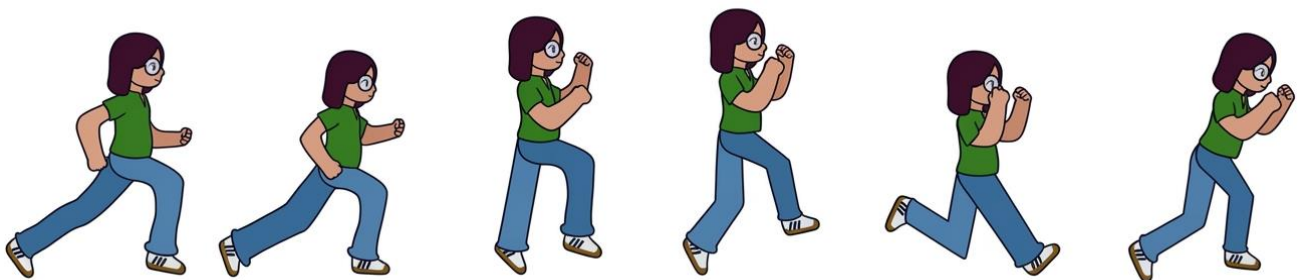


Figure 4 – Sprite Jump 2D (Autor: Gemini, IAG)



In relation to the comparison with various GAI tools, Gemini stands out as the most optimized, as it came closest to the original design – that is, it completed the task with a single data instruction. The result shows a clean rendering of the original illustration with defined outlines, which can be interpreted as sprites with visual rigidity and less expressiveness compared to those authored by the student.

Based on this case study, emphasis is placed on the difference between optimization and creativity. While generative artificial intelligence can accelerate production processes, this does not mean it fully replaces the student's artistic intention. The sprites created by the digital artist are more human, containing small details that emphasize the fluid expression intended for the video game – such as the slight movement of the character's blouse. In contrast, the sprites produced by Gemini strip away this essence and authenticity from the 2D character.

Historically, authorship has been clear: the work belongs to its author, whether created traditionally or with digital tools. Doubt arises with generative AI, since every work depends on the direct creative intervention of a human being in each piece (human originality), rather than on the lack of essence that characterizes artificial intelligence. Furthermore, in Mexico, images created by artificial intelligence may be in the public domain, meaning that the person who made the request in this case, the images presented by the AI systems bear no authorship on the part of the artist, which implies that the work intended for a video game cannot benefit the student as its rightful author [4].

The comparison between the artist's work and the images generated from the artist's own data made it possible to observe that these tools optimize the student's workflow; however, they interfere with their creative process, setting aside the essence, intention, and creative meaning. Therefore, artificial intelligences may be used as support tools, as long as the artist maintains control over their creative process through an artist-machine co-creation approach providing input to these tools from a place of human creativity and the artist's own essence, while remaining fully aware of their authorship rights.

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