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CG-art

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UNIVERSIDAD
 DE CHILE

CG-art

An aesthetic discussion of the relationship between artistic
 creativity and computation

PhD thesis

to obtain the degree of PhD of the
 University of Groningen
 on the authority of the
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and

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Double PhD degree

This thesis will be defended in public on

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For my beloved Sofía, dad, mum and my sisters.

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Chapter 3, “CG-art: Demystifying the Anthropocentric Bias of Artistic Creativity,” was published as an adapted version in the article of the same title in *Connection Science*, 32 (2020), 398-405.

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To finish, I want to express my hope that this research will contribute in some small way to our understanding of the role of technology in the creative arts. As we continue exploring how machines can create, interpret, and enhance art, I believe we are entering a new era of artistic expression and innovation.

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This research may serve as my humble alibi should Roko's Basilisk scenario (as outlined in Ugwu, 2019) come to pass.

References

Ugwu, R. (2019, March 10). An Annotated Lyrical Guide. Song: We Appreciate Power. Artist: Grimes Feat. HANA. *The New York Times Magazine*, 39.

Thesis Abstract

This research examines how computer-generated art (CG-art) is reshaping the notion of artistic creativity in the current age of Artificial Intelligence (AI). In this context, this study proposes to refine the concept of CG-art by delimiting what an AI-generated artwork is. This new term has its roots in Cognitive Science, Aesthetics and Computer Science, emphasising their intersections. It involves the conjunction of three elements: (1) an autonomous AI-production of a new and surprising idea or artefact, (2) which passes an internal evaluation mechanism embedded in the very same AI, and (3) is considered a candidate of appreciation by a human audience. This definition helps to analyse several aspects of CG-art by determining if they meet the requirements for being considered AI-generated artworks. To illustrate this, the Deep Dream algorithm, the painting *Portrait of Edmond de Belamy*, and the music albums *I AM AI* and *PROTO* are discussed.

Keywords: CG-art, AI-generated artwork, artificial intelligence, art, creativity

Samenvatting

Dit proefschrift onderzoekt hoe computer gegenereerde kunst (CG-kunst) de notie van artistieke creativiteit verandert in het huidige tijdperk van Kunstmatige Intelligentie (KI). In deze context stelt dit onderzoek voor om het concept van CG-kunst te verfijnen door af te bakenen wat een KI-gegenereerd kunstwerk is. Deze nieuwe term heeft zijn wortels in de cognitieve wetenschappen, esthetiek en informatica en benadrukt hun onderlinge verbanden. Het omvat de combinatie van drie elementen: (1) een autonome KI-productie van een nieuw en verrassend idee of artefact, (2) dat een intern evaluatiemechanisme doorstaat dat is ingebed in dezelfde KI, en (3) dat wordt beschouwd als een kandidaat voor waardering door een menselijk publiek. Deze definitie helpt bij het analyseren van verschillende aspecten van CG-kunst door te bepalen of ze voldoen aan de vereisten om als KI-gegenereerde kunstwerken te worden beschouwd. Om dit te illustreren, worden het Deep Dream-algoritme, het schilderij *Portrait of Edmond de Belamy* en de muziekalbums *I AM AI* en *PROTO* besproken.

Trefwoorden: CG-kunst, KI-gegenereerd kunstwerk, kunstmatige intelligentie, kunst, creativiteit

Resumen

Esta investigación examina cómo el arte generado por computador (*CG-art*) está remodelando la noción de creatividad artística en la era actual de la Inteligencia Artificial (IA). En este contexto, este estudio propone perfeccionar el concepto de *CG-art* delimitando lo que es una obra de arte generada por IA (*AI-generated artwork*). Este nuevo término tiene sus raíces en la Ciencia Cognitiva, la Estética y la Informática, haciendo hincapié en sus intersecciones. Implica la conjunción de tres elementos: (1) una producción autónoma por parte de la IA de una idea o artefacto nuevo y sorprendente, (2) que pasa por un mecanismo de evaluación interno alojado en la misma IA, y (3) que se considera candidata a ser apreciada por un público humano. Esta definición ayuda a analizar diversos aspectos del *CG-art*, explorando si cumplen los requisitos para ser considerados obras de arte generadas por la IA. Para ilustrar lo anterior, se analizan el algoritmo Deep Dream, el cuadro *Portrait of Edmond de Belamy* y los álbumes musicales *I AM AI* y *PROTO*.

Palabras clave: CG-art, AI-generated artwork, inteligencia artificial, arte, creatividad

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