Assetography

Reframing Photorealism

An Inquiry into the
Use of Digital Assets
in Virtual Photography

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"Realism" *is the concept that inevitably accompanies the development and assimilation of computer graphics technologies. In media, trade publications and research papers, the history of technological innovation and research are presented as a progression toward realism — the ability to simulate any object in such a way that its computer image is indistinguishable from a photograph. At the same time, it is constantly pointed out that this realism is qualitatively different from the realism of optically based image technologies (photography, film), for the simulated reality is not indexically related to the existing world.*

Lev Manovich
Assembling Reality: Myths of Computer Graphics

Introduction

Significant advancements have occurred in computer graphics in the decades following Manovich's contemplations about the nature of computational images and their relation to photography. During that period, the discourse predominantly focused on 'completely synthetic' 3D objects[1] and the computational photogrammetry and photorealistic indexical assets were still in early phases of development. In the subsequent years, computational imagery evolved to more comprehensive mimesis and illusion of reality, transitioning from basic wireframe models to intricately shaded objects, photorealistic textures and raytraced lighting, finally achieving optical verisimilitude. Another paradigm shift has been the democratization of digital creation tools. The move from exclusive, proprietary assets, exemplified by companies like Pixar and ILM, to a more open-source environment is as significant as the technological evolution itself. This transformation is highlighted by the emergence of 'freeware' like Blender and Unreal Engine[2], used widely in various industries to create photorealistic environments and consequently facilitating the growth of a 'free assets' culture.

Emergence of Assets

In the contemporary digital landscape, 'assets' constitute the fundamental elements of digital environments, and consequently, the nature of these assets warrants closer examination. In my research, which is conducted through artistic practice, I explore 'readymade' photorealistic assets, the three-dimensional objects that are computationally rendered and textured and utilized in the context of virtual and computational photography. Here the assets refer primarily to 'photorealistic photogrammetrical assets,' a category distinct from completely synthetic 3D assets. While these synthetic 3D assets, created within 3D programs, may bear some resemblance to real-world objects, their relation is typically iconic, interpretive, and universal. Conversely, 'photogrammetry objects' exhibit a more immediate and direct relationship to their real-world counterparts, capturing their unique features and histories.

Photogrammetric objects extend beyond mere replication of the visual aspects of their real-world counterparts; they also capture and convey the history, wear, and unique visual characteristics inherent in the original object, a unique 'Haecceity' - *objects primitive thisness*. Contrary to generative AI images which are generated via representative statistical approximations, each photogrammetrical asset constitutes a causal record, chronicling the objects interactions with its environment and the resultant traces. Thus, photogrammetric objects can act as conduits between the physical and digital realms, not only transferring the *iconic form*, but also transposing some of the specific attributes of the original object into the digital domain.

From Screenshotting to Assetography

Technological advancements have also been a catalyst for the emergence of new cultural and artistic expressions. Among these is 'screenshotting,' a practice deeply rooted in gaming culture involving in-game photography within virtual game worlds. The second is what I propose to be called 'assetography' (or 'asset-o-graphy'); practice of creating photorealistic photographic images in computer programs utilizing freely available photogrammetrical assets.

Screenshotting entails capturing moments and scenes within computer game worlds, often utilizing in-game cameras to document the virtual environment as it is presented to the player.

In the realm of 'wandering games,' a term coined by Melissa Kagen[3], screenshotting not only can facilitate a sense of virtual embodiment, presence, and place, but offers opportunities for performative engagement with and within the 3D world. Artists like Benoit Paille[4], Ollie Ma[5] and even Joanna Zylinska[6] have created artistic works by utilizing in-game cameras, often equipped with specialized aesthetic filters, to capture the virtual environment. While both screenshotting and assetography both utilize ready-made assets and constructed environments, the former typically involves the acceptance of the game world as 'closed.' Players may manipulate this environment to a certain degree, but such interactions are confined within the game's inherent limitations. Although performative elements can be included, like rearranging the world, exploring boundaries, or revealing glitches, these manipulations are generally minimal, and the world's environment—including objects and lighting—is usually accepted as given.

In contrast, the practice of assetography in its simplest form can be described as using a 3D program with photorealistic rendering capabilities to create photographic images utilizing pre-made assets, downloaded freely from digital repositories. The created computational, photorealistic images can be, and often are, indistinguishable from film or digitally based photographs. To further define assetography, it could be distinguished based on certain metrics: it is agential (not automated), intentional, and causally driven (bound). Acknowledging that while assetography offers significant creative freedom, it is not limitless: The artist is bound by the nature of the assets (their realism, detail, computational limitations) and this binding factor roots the creative process in a specific context and set of possibilities, distinguishing it from more abstracted or generative computational creative methods.

Assets as placeholders

These assets, serving as icons, placeholders, and stand-ins in virtual environments, compel us to reconsider the concept of 'thingness'[7] in digital contexts. Assets exist in a dual state; representing specific real-world objects while also serving as universal symbols. Under certain circumstances, these digital assets align with what Jacob Gaboury describes as 'Image Objects.'[8] They are inherently iconic, yet their indexical capacity varies. Occasionally, they can signify a specific object of particular significance, such as the Queen's coronation crown as opposed to a generic crown. Alternatively, they might represent a certain temporal or causal state of an object, exemplified by the distinction between a partially burned log and a freshly cut log. However, these assets are often mere stand-ins or placeholders: a log is just a log, any log, a log. Their role is to represent the universal - the substitute, the mundane, and the forgettable. Paradoxically, due to their inherent characteristics, photogrammetric assets are uniquely

particular by design. Contrasting with 3D modeling or generative 3D modeling, which often start from an abstract or generalized concept, photogrammetry necessitates a pre-existing, distinct object for its realization.

This complex interplay of digital assets is further illuminated through the lens of semiotics, particularly Charles Sanders Peirce's categorization of signs into *icons, indexes, and symbols*[9]. Digital assets, especially in the realm of photogrammetry, often exhibit characteristics of all three categories: *Icons in their visual resemblance, indexes in their causal connection to the real world, and symbols in their broader representational role, digital assets defy straightforward semiotic categorization.*

Thingness of Things

The 'thingness' of things raises further questions about the relationship *between* objects and places; What constitutes a place? Are places a constellation of things? In virtual environments, these 'things' often serve as icons or placeholders, but their detachment from the point of origin, particular real-world objects, complicates this notion. Their fluctuation between the particular and the universal - between icon or artefact - underscores a distinct characteristic of virtual places or virtual *non-sites*[10:] They are inherently unstable, untrustworthy, and unexhaustable.

Defining thingness in the digital realm is not a simple endeavor. Without careful consideration, digital things could be misconstrued as having the same status as real objects, or worse, as having no status at all. One approach to understanding and defining 'thingness' of virtual objects could involve examining Wittgenstein's picture theory[11], or Heidegger's notions of 'Vorhandenheit' (present-at-hand) and 'Zuhandenheit' (ready-to-hand)[12]. The primary interest lies in interpreting Wittgenstein's concept of 'picture' and to assess its applicability to 'image objects,' objects which reside across multiple levels of appearance and existence. This is to reclassify virtual objects and their relationship to the 'real' world as such reclassification is vital for building our understanding of virtual worlds; how we categorize and perceive different realities and foremost, how virtual objects relate within worlds and between worlds.

Bio: Petri Juntunen (b. Gothenburg, Sweden) is a Finnish visual artist and doctoral researcher Aalto University, currently living and working in Helsinki. In his artistic practice, Juntunen explores the topics of social constructs, technology-human relations, and various modes of existence. He often employs novel methods of imaging and representation, virtual reality, photogrammetry, AI, 3D, photo sculptures, and digital installations.

1. In his discussions about 'completely synthetic' 3D objects, Lev Manovich is referring to objects created entirely within a digital or virtual environment using computer graphics (CG). These objects might be based on, or derived from, real-world physical entities but they are constructed from scratch using various CG modeling and software.

2. While Epic Games proprietary programs like Unreal Engine, Metahuman, Reality Capture and TwinMotion are free to use, they have a revenue-dependent pricing model for commercial use. For the sake and purposes, they have been included under the 'freeware.'

3. In 'Wandering Games' Kagen underscores that games which permit players to roam freely within the game's environment, be they walking simulators or open-world games, all fall under the category of 'wandering games'.

4. Benoit Paille: https://gbuffer.myportfolio.com/crossroad-of-realities

5. Ollie Ma: https://petapixel.com/2016/06/07/open-world-photos-screenshots-blend-real-virtual/

6. Joanna Zylinska, Flowcuts (2020): https://flugschriftencom.files.wordpress.com/2020/04/flugschriften-7-joanna-zylinska-perceptions-at-the-end-of-the-world-or-how-not-to-play-videogames.pdf

7. 'Thingness' is here used in reference to 'Thing-in-itself' and Kant's concept of noumena. Kant used 'Ding an sich' to refer to the reality of an object independent of our perception of it. According to Kant, our understanding of the world is mediated by our senses and cognitive faculties, meaning we can never know the thing-in-itself but only the thing as it appears to us. This distinction raises questions about the nature and existence of virtual objects. Firstly: *If our perception of physical objects is already a representation filtered through our senses and mind, what does this imply about virtual objects, which are further removed from thing-in-itself and exist primarily as data interpreted through technology?* Secondly: *Can virtual objects be considered 'things-in-themselves' in their own digital realm, or are they always mere representations of other things?*

8. Gaboury, J. (2021) *Image Objects - An Archaeology of Computer Graphics*, The MIT Press, Cambridge, Massachusetts London, England

9. Charles Sander Peirce - icons, indexes, and symbols

10. Referring here to Robert Smithsons concept of "Non-sites". Smithson, R. (1996) *The Collected Writings* p.364, University of California Press

11. Wittgenstein, L. (1922) *Tractatus Logico-Philosophicus*, KEGAN PAUL, TRENCH, TRUBNER & CO., LTD.

12. Heidegger, M. Concepts of 'Vorstellung' and 'Darstellung', *Being and Time*, p.26-122

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