

The Floating Continental Shelf

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ABSTRACT

The piece "The Floating Continental Shelf" is crafted from a synthesis of imagery derived from Google Globe View, employing Stable Diffusion and the Control Net tool as an artistic rendition. The artist selected three distinct continental shelves as the basis for this creation, which underwent material preparation, image preprocessing, SD generation, and multi-image synthesis stages, resulting in a total of 8 finalized images. Employing a fusion of photography, AIGC generation, and printing concepts, the work represents an amalgamation of these three elements. Leveraging the artist's photographic expertise, the piece is stylized to convey the grandeur inherent in geographic landscapes.

CCS CONCEPTS

• Human-centered computing; • Visualization;

KEYWORDS

Generative art, Abstractionism, Abstract art, Stable diffusion, Visual Arts

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1 INTRODUCTION

Maps have always been a testament to the patterns of human existence, whether explored, documented or created to demonstrate and proclaim the extent of one's territory, which is often politicised, with leaders imposing their methods of governance on the planet.

In fact, through the development of remote sensing technology, maps are gradually being stripped of this politicised experience and are returning to a purer, more observationally focused and data-reproducing example of proof. Modern remote sensing technology can analyse multispectral data with the help of the satellites to liberate the original 2D flat maps. Spectral analysis, depth information, and coverage without ground altitude limitations make maps 3D, which is not only a technological application, but also provides new visual perspectives in art creation.

The realm of creative endeavors utilizing satellite imagery for remote sensing photography is not lacking in practitioners. Such

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Figure 1: A Series of Unfortunate Events, 2008, Michael Wolf

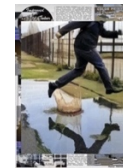


Figure 2: 49/23, 2023, Gregory Eddi Jones

photographic ventures direct their gaze towards weather patterns, human activities, planetary or even celestial realms. The utilization of geographical imagery as a medium for artistic expression and its corresponding art pieces are equally pensive. Michael Wolf, for instance, employed Google Maps' street view images (Figure 1) in his creation titled "A Series of Unfortunate Events (2008–10)" [1], where the imagery is both playful and intriguing, a product of artistic innovation under the guise of map technology. Intimate pieces are also prevalent, exemplified by works such as Nich McElroy's series "Drifting Bronze." In this collection, McElroy masterfully intertwines imagery and text with the landscape and geography of Michigan's Keweenaw Peninsula, offering a portrayal of the earth's tranquility and serenity.

Similarly, technology-driven artistic creations have seen AIGC compared extensively to photographic works [2], akin to the historical comparison between photography and painting. In the contemporary context, Greenbergian medium theory has fallen out of favor. The prolonged entanglement of photography and painting, spanning decades without one supplanting the other, suggests that AIGC should not be confined to considerations of it being a substitute for other mediums. The future undoubtedly lies in integration. Artist Gregory Eddi Jones exemplifies this in his work "49/23," (Figure 2) where he fuses text from the 1949 issue of "Popular Photography" with AI-generated images. Through his collage process, Jones interrogates the ever-evolving nature of photography and its impact on our perception of the world, serving as an exemplary case.

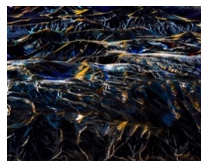


Figure 3: Alpenglow, 2024, QingtangLi

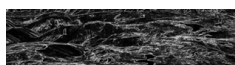


Figure 4: Wireframe diagram of preprocessing



Figure 5: Wireframe and SD outcome

2 GENERATING THE FLOATING CONTINENTAL SHELF

The creation "The Floating Continental Shelf" is founded upon images from Google Globe view, serving as the blueprint for this composite artwork crafted through the amalgamation of Stable Diffusion and ControlNet. The artist embarked on a journey of creativity by selecting three distinctive continental shelves for composition: the plains atop the shelf (piece: Alpenglow)(Figure 3), the highest peaks on the shelf (piece: Brass rubbing the top of continent), and the depth-rich undersea realms observed remotely (piece: Sea floor 1-6, with one featuring the Earth's deepest Mariana Trench), resulting in a total output of eight images.

Technically, the creation employed the SDXL Base (v1.0) for the generative model and Canny Edge Map for ControlNet (SDXL, Diffusers 1.0 Mid), with preprocessing (Figure 4) conducted by the artist. Although mature preprocessing models like Anyline from TheMisto.ai [3] exist today, the artist's decision to conduct preprocessing independently yields benefits, enabling nuanced differentiation of content at varying depths based on pre-selected map features. While preprocessing models lack contextual understanding, creators familiar with the entire workflow can optimize images for enhanced generation model performance.

The entire artistic process of creating this masterpiece involves material preparation, image preprocessing, SD generation, and multi-image synthesis. The rationale behind the synthesis of pieces like "Alpenglow" and "Brass rubbing the top of continent" is that the artist seeks to avoid direct full-image generation by SD. Such an approach is deemed unfavorable for stylization, potentially diluting the grandeur inherent in the landscapes themselves. Hence, employing a method akin to carving out 24:6 widescreen images (Figure 5), different parts are generated in distinct styles. This process mirrors the creation of rubbings from vast sculptures, necessitating the assembly of multiple rubbings. Each distinct "rubbing" in the generated pieces can embody unique visual styles, ultimately resulting in varied visual effects during the stage of multi-image synthesis.

3 WHY AI AND PHOTOGRAPHY?

Andreas Müller-Boller articulated in the Winter 2023/2024 edition of "European Photography," Vol. 44, Issue 114 [4], that "the most significant transformation of our era lies in the shift from natural intelligence to artificial intelligence, with the focal point of this epochal process being a medium that is both familiar and trustworthy: photography." In this current artistic endeavor, the artist has opted for the latter direction, drawing upon past photographic experiences. Just as in the practice of photography, the emphasis lies not on directly producing negatives but on comprehending and leveraging the characteristics of negatives, lenses, and lighting to inform the creative process.

Artificial intelligence in the realm of photography does not bring forth creativity or surprise; instead, it yields hollow, banal second-hand images—perfect yet monotonously uninteresting. AI is not here to replace any medium but to serve as a unique medium in itself, possessing its own idiosyncrasies. Its text generation and image creation stand out starkly in any field, yet they can become defining features in their own right. [5]

The goal is not for artificial intelligence to supplant photography but to complement it, as seen in this particular creative endeavor. Alongside the aforementioned approaches, there is also a blend with a classical technique: "rubbing".

4 BLEND WITH RUBBING

The resurgence of the art of rubbings, as a classical technique embraced in the contemporary era, serves as a sublime bridge across myriad domains: from installation art to bodily experimentation, graphic design, image creation, and beyond. In the creation at hand, the artist seamlessly interlaces rubbings as a unifying thread that links intricate cartographic details with the visual elements of two-dimensional artistic endeavors. Acting as an intermediary medium, rubbings further enhance the efficacy of generative models.

5 FUTURE EXTENSION OF THE WORK

Presently, the works are crafted from a static high-angle perspective, offering a bird's-eye view. In the future, they may undergo further development through the utilization of artificial intelligence models, introducing a perspective-enhanced lens application to augment the fusion of artistry and form, thereby elevating the visual impact of the creations.

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