

Technology's encroachment on the natural world

The Price of Progress

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Introduction

Early stages of research
and conceptual
development

Purpose & Initial Objectives

- This project aims to critique the development of technological infrastructure and raise awareness of the effects it has on the natural landscape.
- I plan to use AI – a product of technological progress, its environmental costs include energy consumption and increased emissions.
- Within this project, AI will embody both a critique of technological advancement, as well as a tool to bring attention to it.

Purpose & Initial Objectives

- AI has the potential to create hyperrealistic imagery, which has the potential to exaggerate the environmental damage, in order to create a striking parallel to how technology disrupts the landscape.
- The project as a whole invites reflection on how AI might either dominate or co-exist with the natural world, as well as the path humanity is taking and emphasises the urgency of action.
- The use of AI has the potential to highlight the hidden consequences of technological progress as well as visible.

Initial Concepts & Ideas

- My initial idea for creating work with AI involves using a General Adversarial Network in order to generate imagery that depicts this tension between the man-made and nature.
- These images may include a visible interaction between man and nature.
- The resulting work should make it apparent that AI has been used within the process in order to invite reflection on its place within this discussion.

GANs - Generative Adversarial Networks

GANs are a type of neural network that consists of two types of network:

- **Discriminator**

The job of the discriminator is to take images as input and determine whether they are real or fake.

- **Generator**

The generator's job is to generate new images that trick the discriminator into thinking they are real.

By feeding the discriminator a variety of fake images made by the generator as well as real images, it learns to recognize patterns that help it classify each image as real or fake.

At the same time the generator gets feedback about which images are tricking the discriminator best and how it can alter its strategy to trick it more successfully.

GANs – Enhanced Creativity or Loss of Human Touch?

Creative Expansion:

GANs can produce new and innovative artworks by learning from existing data, this allows for rapid experimentation and leads to creations that can be considered aesthetically and technically advanced.

Lack of Intentionality:

In contrast, it could be said that the absence of human emotion within these works raises questions on authenticity and originality.

While this process shows great promise in enhancing creative forms, questions of originality and ownership remain to be answered as the use of AI advances further.

ChatGPT & DALL.E

Using poetry as input
for generative AI

Method

- My initial experimentation began with using ChatGPT to generate a poem that outlines the theme of interaction between humanity and nature.
- ChatGPT was then instructed to extract keywords from the results.
- These keywords were then used as prompts for DALL.E, an AI image generator
- From this I hope to gain an understanding on the extent of which AI can be involved in the creation process while retaining a sense of artistry.

ChatGPT Poem Result

*We once were whispers in the wind,
Bare feet upon the earth's cool skin,
Our hands, with reverence, touched the soil,
In nature's heart, we toiled and toiled.
The rivers sang, the trees stood tall,
We heard their call—an ancient thrall.
But then we sought to bend her will,
To mold her vastness to our thrill.
We built, we burned, we cut, we claimed,
And yet, she stirred, untamed, unnamed.
Her tides would turn, her storms would rage,
A wild force we couldn't cage.
Yet in her breath, a quiet plea—
"Remember what you took from me."
And now we seek, with gentle hand,
To heal the scars upon her land.
A dance we've danced through time and space,
Each step both harmony and waste.
But still, she waits, her roots run deep—
Our bond with her, we strive to keep.
For nature shifts, as do we all,
In rise and fall, in rise and fall.*

ChatGPT Poem Result

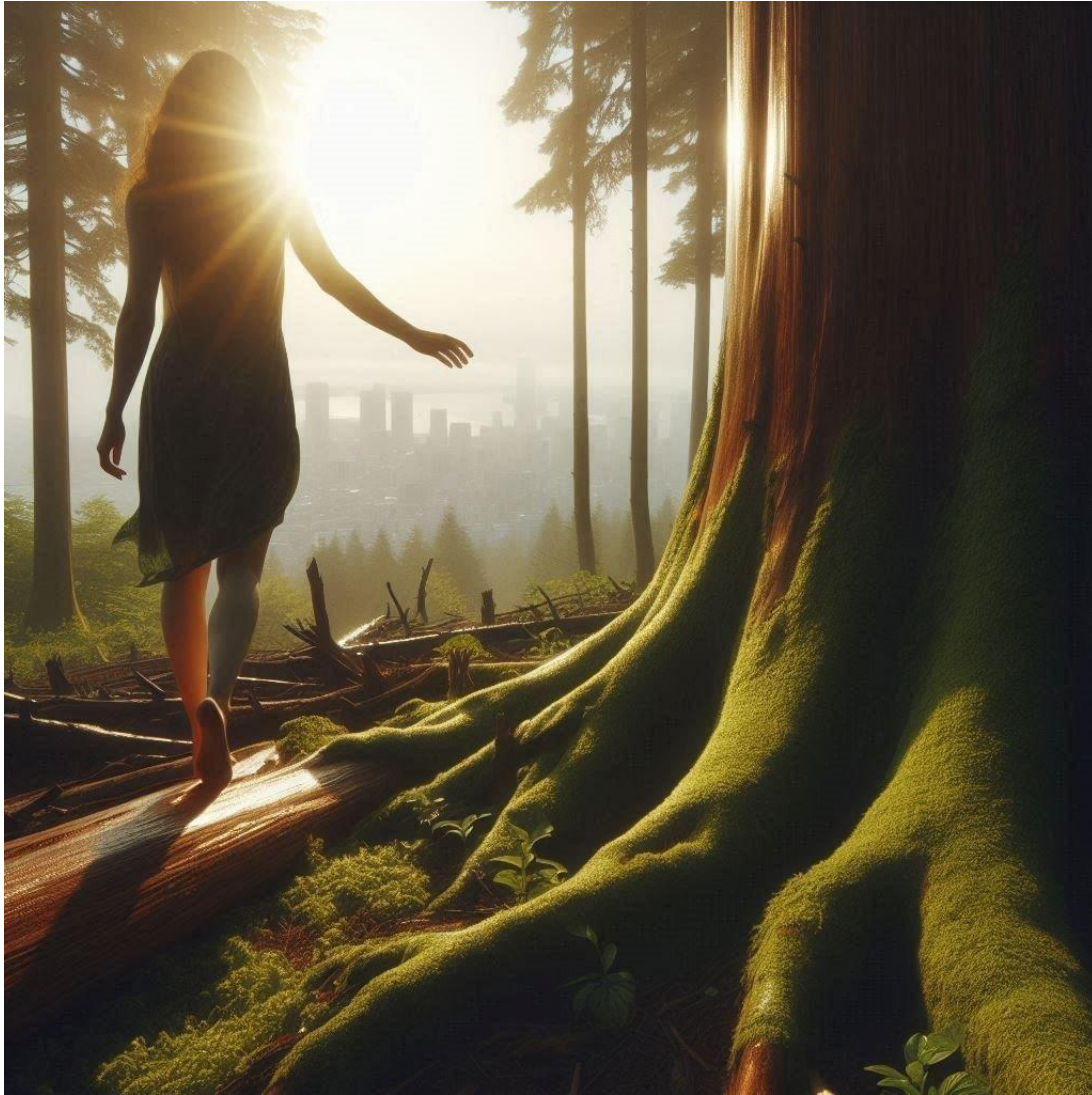
- I prompted ChatGPT to write this poem about humanities ever-changing relationship with the natural world.
- I raised key themes of environmental encroachment and the importance of preservation amidst the rapid advancement of technology of the present.
- The resulting poem was then analysed by ChatGPT and keywords were extracted for use in the image generation process.



Resulting
Images



Resulting
Images



Resulting
Images

Analysis of Results

- While these images have effectively followed the parameters I set and produced results that display themes of intertwinement between humanity and nature, there is something off-putting about them.
- Most of this creative process was carried out by AI and this has led to images that present an overly objective and literal approach to the subject matter, thus lacking (in my opinion) artistic value.
- This method is an example of how AI could be used as inspiration, or perhaps in a commercial setting, but I do not believe it has a high capacity for creating what could be considered as 'true art'.

Ethical Concerns – Intellectual Property

- While this method is effective for providing quick inspiration, it may prove an ethically challenging process due to the issues surrounding intellectual property.
- The images this AI pulls from its dataset are unknown and may infringe on original artist's intellectual property, depending on the stance you take on the subject.
- Personally, I believe this does not demonstrate what can be deemed as ethical practice when using AI in the process of image creation in this way.

Generative Fill

Experimenting with
generative fill as a tool
for enhancing human-
made imagery

Testing Photoshop Generative Fill

- To begin, I opened a few previously captured images in photoshop.
- I wanted to get an idea of how I can use this tool within my practice.
- The tool was prompted to include an expansive, desolate and polluted landscape
- This tool acted as way for me to implement a specific message within the images without having to physically capture it.
- This enables users to instill their own agenda within images, regardless of whether they can physically prove the symbolism they include, potentially raising ethical concerns.



Testing
Photoshop
Generative
Fill



Testing
Photoshop
Generative
Fill

Analysis of Results

- Generative Fill has successfully embedded themes of pollution in these images as a result of my prompting.
- This method has the potential for a more subtle and tasteful use of AI in the image creation process.
- It also could be considered a more morally acceptable practice due to the implementation of one's own work, making the resulting images unique.

Overview

- After a discussion in lecture about the direction my work is taking, submarine telecommunication cable systems were brought to my attention.
- This unseen form of technological infrastructure, while unassuming and unknown to the majority, have a massive impact on the day-to-day lives of everyone in the modern day, allowing communication across oceans and continents.
- While these systems provide many benefits such as instant communication, they also impose on the natural landscape and affect local ecosystems through their presence.



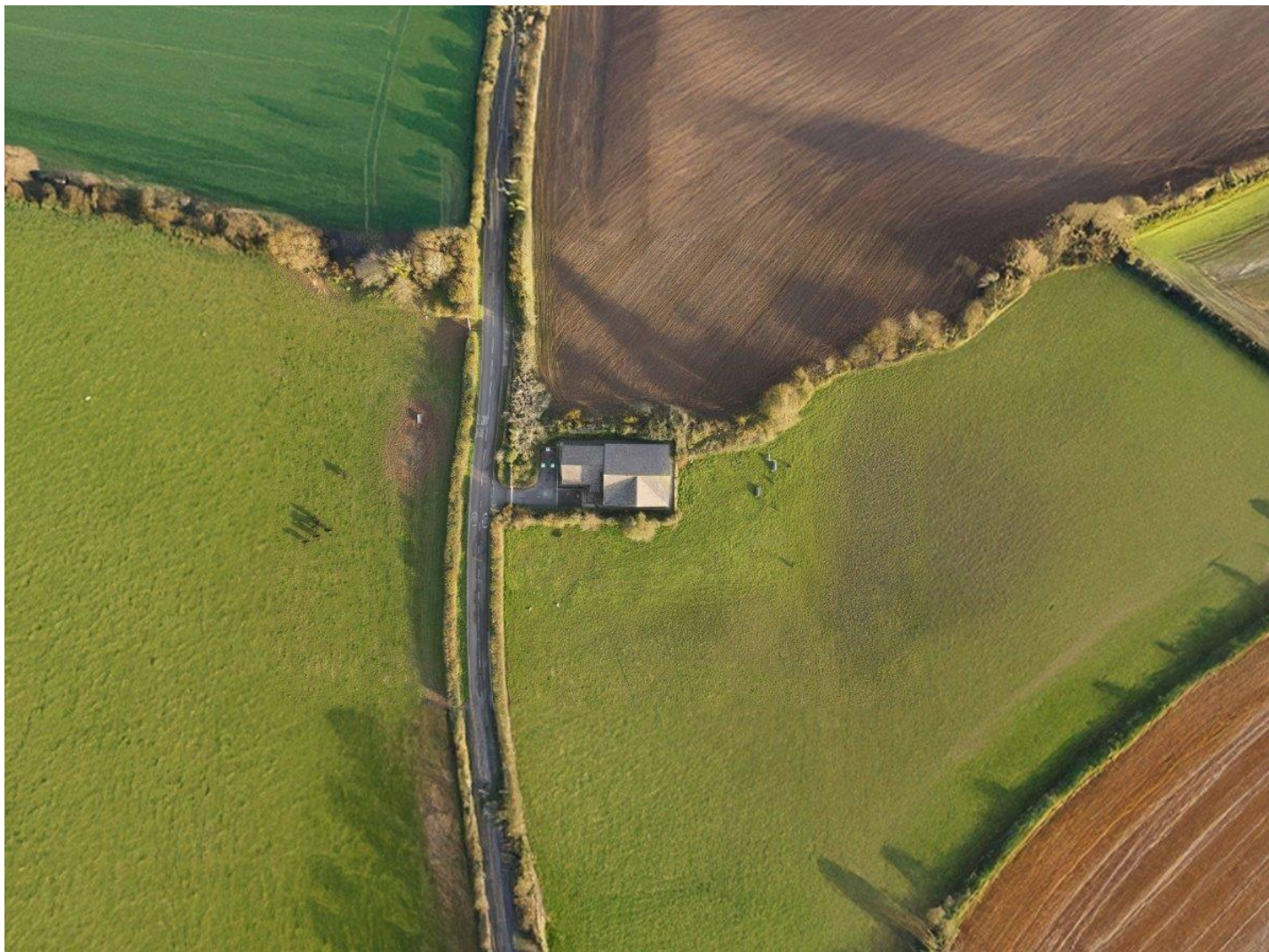
'Solas'

Capturing the unseen

- This process involved using a drone image captured at the 'Solas' submarine cable landing site near Oxwich Bay, then using Photoshop's generative fill to implement a large cable running from the building, leading out of frame.
- This was intended to reveal the unseen and the fact that the cable leads out of frame leaves room for thought into where it might lead and what effects it might have on the spaces it passes through.
- The employment of AI as a tool within this context aims to critique the careless actions humanity are taking in the name of expansion of technological infrastructure.



Capturing
the Unseen



Capturing
the Unseen



Capturing the Unseen

Analysis of Results

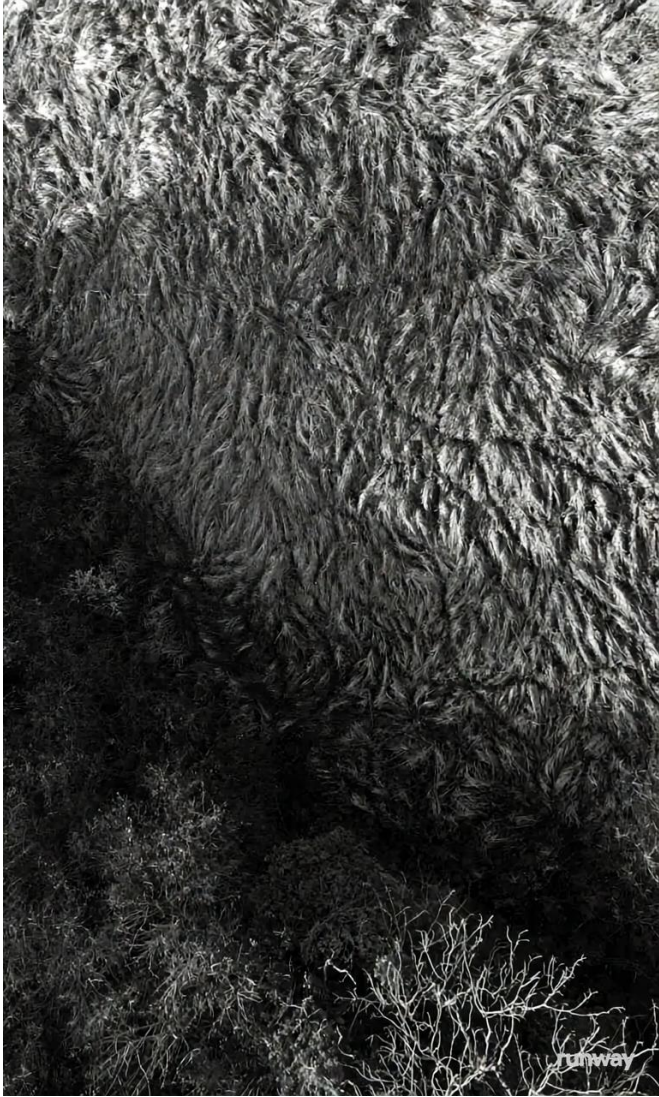
- This method effectively portrayed the unseen cable systems that lay beneath the surface, connecting locations spanning the globe.
- The use of AI to implement cables into the image provides not only visual cues, but also within the embedded meaning lies the notion that the cable has a largely unknown path to the viewer, leaving uncertainty on the effects it may have throughout the various ecosystems it passes through.
- While this process does act as a more creatively involved method and this is only a small part of the image, the data used to source the information in order to generate the cable is unknown to myself, meaning there may be copyright or intellectual property issues I am unaware of.

Runway AI

Compiling photographs
into moving image
using AI

Method

- For this process, I compiled images from a previous project into a moving image using Runway
- The purpose of this was to experiment with ways of which I can display multiple images in one piece of work in order to create a sense of scale and metaphorically encompass a worldwide problem into one piece by having a transition between images on loop.
- The goal of this was to achieve abstract visuals that have certain qualities that would make it apparent AI has been used, once again to highlight it as an unsustainable practice, ever increasing in its effects on the environment



<https://youtube.com/shorts/9Vjv6gmuk68>



<https://youtube.com/shorts/-cmjhMn-NwM>

Analysis of Results

- The resulting work was abstract in nature and possessed a certain quality that made apparent the use of AI within this process.
- It effectively transitioned between images smoothly and showed potential in creating work that might be able to demonstrate the vast scope of human encroachment on the landscape, compiled into one piece.
- While this method demonstrates the concepts I have set out to present, it does not differentiate AI work from more traditional methods – these transitions while abstract and difficult to replicate, lack the certain defining characteristics of AI I am looking to display in my work.

Infrastructure's Impact

The implications of
various forms of
technological
infrastructure

Roads & Inhibiting Migration

- While roads play a crucial role in modern day society, and are something we could not live without, it is important to address the environmental impact they bring.
- For example, their encroachment on natural spaces play a significant role in wildlife mortality.
- They act as barriers to movement, preventing animals from reaching food, water, or mating grounds, which also has an impact population dynamics.
- One method of mitigating these effects is the use of wildlife crossings, which promote biodiversity and act as a safe crossing for animals.
- Unfortunately, due to financial issues this is not possible for all locations where it may be required, raising questions on society's financial priorities and lack of priorities and lack of environmental consciousness.

Reservoirs & Disruption

- Reservoirs are a double-edged sword. They provide critical resources for human society but often come at significant ecological costs.
- For example, the flooding of large areas of land destroys terrestrial ecosystems such as forests, grasslands or wetlands.
- They also play a huge role in the disruption of fish migration. As the dams block the movement of migratory fish such as salmon, their life cycle is disrupted, potentially leading to a decline in population.

Powerplants & Pollution

- Powerplants, both nuclear and fossil fuel powered, have profoundly negative effects on the environment and are one of the leading causes of pollution.
- Fossil fuel plants are renowned for their release of greenhouse gases and other pollutants, contributing to climate change, having a vast effect on the wider natural world.
- Nuclear plants, while releasing no greenhouse gases, bring consequences such as long-lasting radioactive waste which has the potential to contaminate soil and water, as well as thermal pollution, affecting aquatic ecosystems in rivers and oceans.

Wind Turbines & Habitat Loss

- While wind turbines impact on the environment is generally considered less harmful than other energy sources such as fossil fuels, they do bring environmental consequences.
- The construction of wind farms has the potential to lead to habitat loss or fragmentation, particularly in delicate ecosystems.
- Another potential affect they may have is the alteration of local airflow and temperature patterns. This can affect soil moisture and microhabitats.
- Such means of energy production may prove to be a more sustainable option than alternatives, the impacts must still be considered in the grander idea of human encroachment on the natural, just way of the world.

Manufactured Landscapes

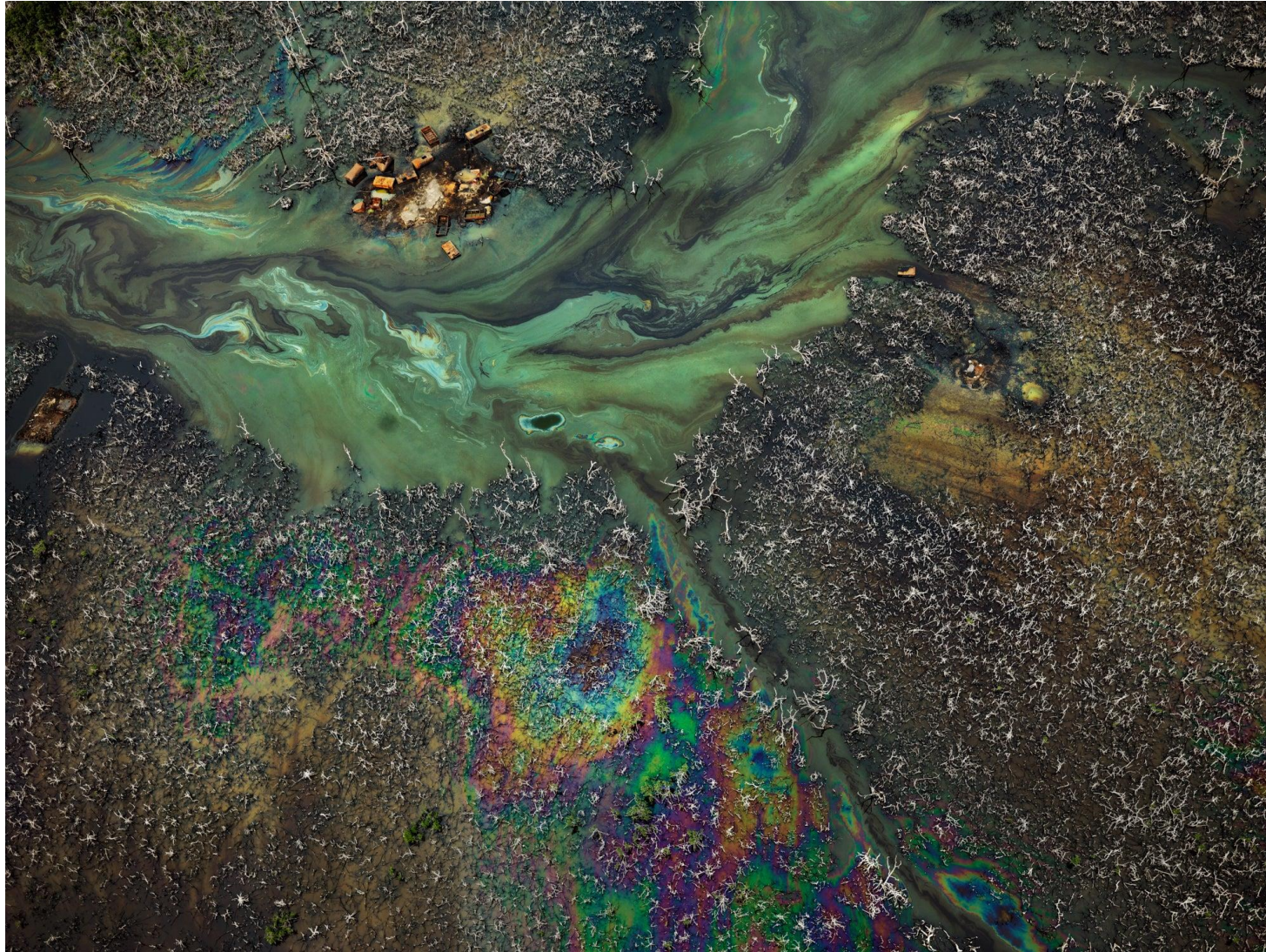
Edward Burtynsky



'Manufactured Landscapes'
- Edward Burtynsky



'Manufactured Landscapes'
- Edward Burtynsky



'Manufactured Landscapes'
- Edward Burtynsky

Analysis of practice

- Burtynsky's work takes the form of large-scale images that capture the expansive landscapes of which pollution and human infrastructure have affected.
- Despite the overarching themes of overconsumption and resource depletion, his images possess an unsettling beauty and raise questions on whether the ends justify the means.
- His work stands as a testament to humanity's profound and often destructive imprint on the natural world in the name of advancement.

Relation to my work

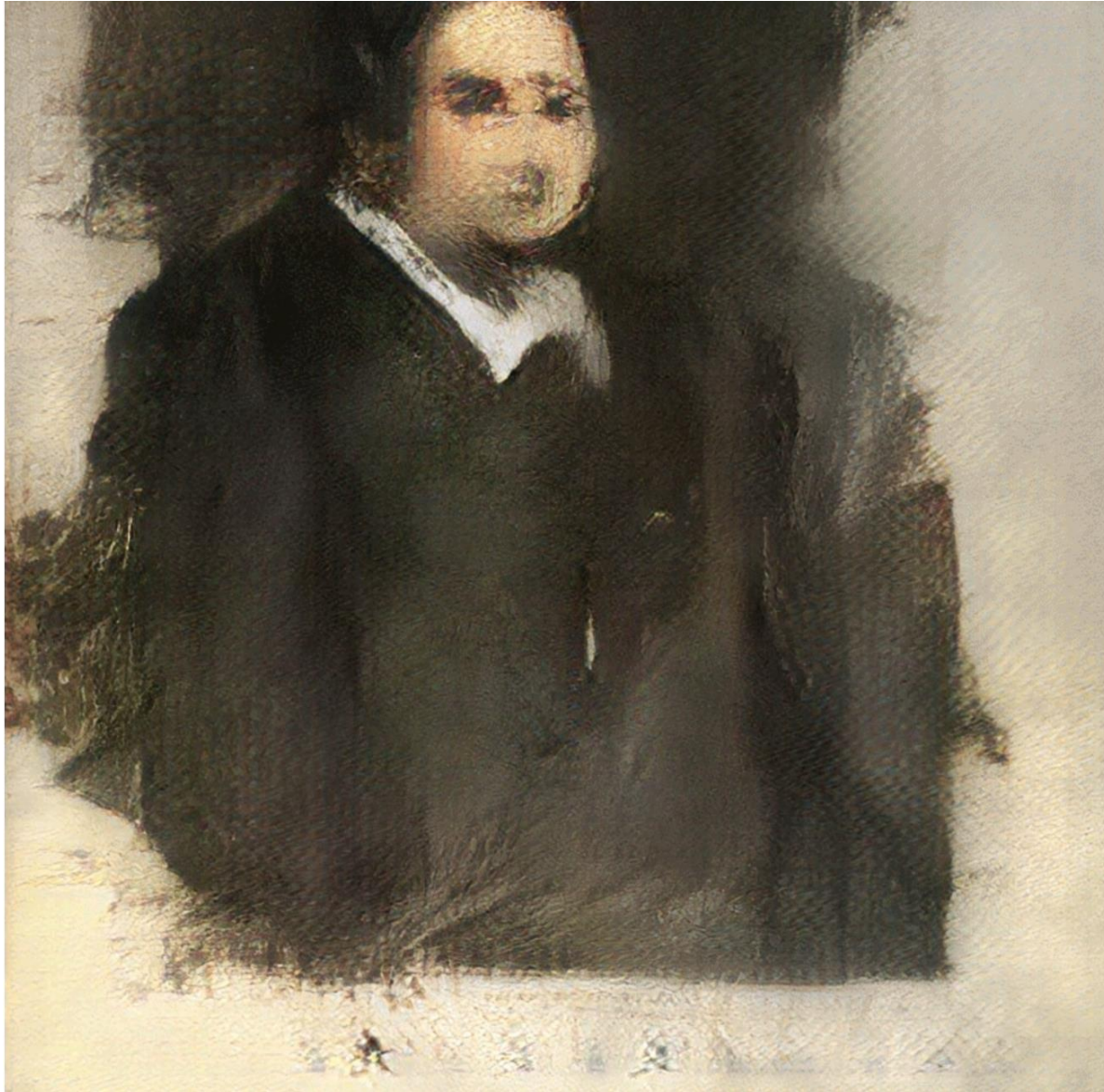
- Edward Burtynsky shows an ecologically conscious approach in his work, highlighting human infrastructure and its negative impact on the environment.
- His work presents a tension between beauty and horror - beauty found in the diverse colours and expansive landscapes, horror in the reality that such environments bring to local ecosystems.
- Within my work, I also aim to portray the interaction between infrastructure and nature, highlighting the progress such practice brings through the use of AI, as well as bringing to light the negative impacts through the visual pollution and encroachment of the landscape.



La Famille De
Belamy



'Obvious' Art Collective



'Edmond De Belamy'
-Obvious



'Le Comte De Belamy'
-Obvious



'La Baron De Belamy'
-Obvious

About this series

- 'La Famille de Belamy' is a series of AI generated portraits created by the French art collective Obvious.
- Obvious utilised a GAN in order to generate a collection of hauntingly distorted and incomplete images.
- The dataset used to create these images consisted of 15000 portraits spanning from the 14th to the 20th century, sourced from public domain.
- These imperfections, combined with their resemblance to classic oil paintings highlight both the limitations as well as the creative potential of AI

'Edmond De Belamy' Analysis

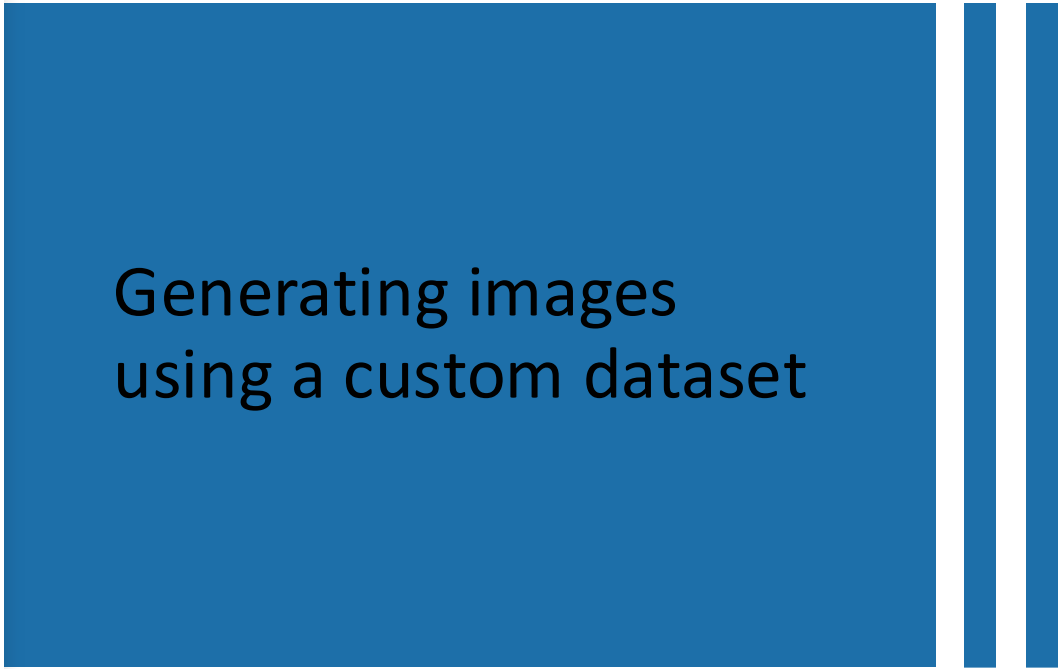
- This portrait depicts an ambiguous figure with blurred facial features, dressed in traditional attire reminiscent of 18th century portraiture.
- The seemingly incomplete nature, with its distortion and undefined features reflects the limitations of a GAN, while also bringing attention the use of AI in the process.
- Due to the work so obviously being AI generated, it could be said that the intention was to be a transparent and honest way of working with it.
- The visual cues that make this apparent could be interpreted as a signature of sorts, one left by the AI in order to represent this collaborative process between human creativity and AI's generative capacity.

Ethical Implications

- While the artworks within the dataset were in the public domain, repurposing them for AI training raised the question of whether the creators of the original works deserve recognition.
- As well as this, the dataset likely reflected Eurocentric biases, given the predominance of Western art in public domain. This has clearly influenced the aesthetic and cultural framing of the generated imagery.
- This leverage of publicly available resources underscores the tension between tradition and innovation in works created with this emerging artistic practice.



Exactly.AI



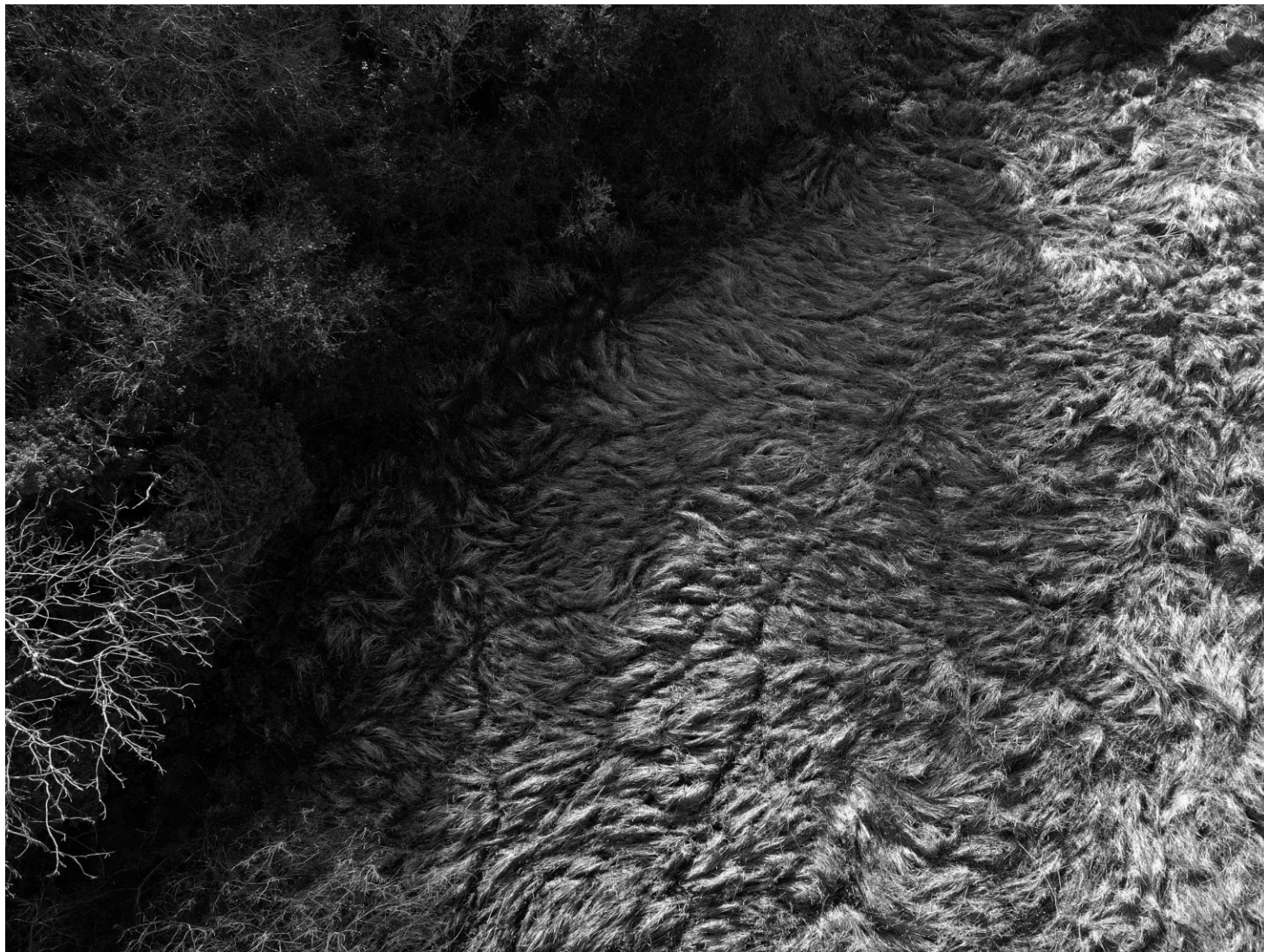
Generating images
using a custom dataset

Method

- This method involves creating a model on Exactly.AI in order to upload a selection of my own images as a dataset.
- The images uploaded will be those from my previous work within this subject area, which display themes of nature and man, and their intertwinement.
- I aim to encapsulate elements of technological infrastructure within these images, in order to capture the interlinking nature of these two forces.
- I will do this by prompting the AI to implement things such as wind turbines and powerplants; means of electricity production, as well as roads, bridges and reservoirs; infrastructure that is necessary to society to function.



The Dataset



The Dataset



The Dataset



The Dataset



The Dataset

Resulting Images

- This method provided images that followed the aesthetic parameters I aimed to achieve, accurately portraying the overarching message within my chosen subject matter.
- The images contained minor anomalies due to errors in generation. This could be seen as a negative but could also be viewed as the system providing a signature of sorts, leading to a more transparent approach to using such methods.
- This conscious acknowledgment of AI within the process could link to ideas of technological advancement as a whole. This provides the metaphorical notion that if you look hard enough, you will find traces of human technology within the natural world.



Resulting
Images



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Resulting
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Resulting
Images



Resulting
Images



Resulting
Images

Plans for Future Practice

Expanding the dataset
to produce a more
diverse array of results

Plans for Future Practice

- For my work leading up to the exhibition, I will incorporate several of the methods I have experimented with into my practice.
- In its final form, it may be projected onto a wall in the exhibition space, displaying a number of images as a slideshow.
- The slideshow will incorporate Runway.AI to act as a surreal and smooth transition between images.
- I will capture a large number of images depicting some form of human encroachment on the landscape.
- They will serve multiple purposes, some being edited without AI, some with the use of Generative Fill.
- The whole set will also be used as a dataset in order to generate images on Exactly.AI.
- This display will merge human created images with those created with some form of AI in the process, causing the viewer to question the reality of each image.