



**GeoVerde** is a team of academics and students launching a series of NFT tokens of environmentally endangered locations around the world.

Glaciers, barrier reefs, and forests around the world are going away, some perhaps forever. We'd like to save them.

GeoVerde plans to help *sustain* and *preserve* these endangered locations using GIS technology and high-resolution digital images that will be available for sale on NFT platforms. We will help *sustain* the locations by geo-coding and archiving collections of unique, data-rich, NFT-based digital twins of the locations. We will help *preserve* the locations by giving 10% of all sales to NGOs and Non-Profits directly associated with the locations.

GeoVerde is currently in the pilot launch phase. And we're looking for talented, engaged students to help launch the pilot. The goal of the pilot is to launch a small series of NFTs to test market reaction and optimize the steps in our launch process. Follow-up opportunities beyond the semester will also be available to interested students.

Additional details about GeoVerde and the pilot project for your GIS lab can be found below.

## About Us:

As the world grapples with the devastating effects of climate change, there is a growing sense of urgency to protect the planet's most vulnerable landscapes. In response to this global crisis, we are proud to present a series of five unique and captivating NFT artworks that showcase the beauty and fragility of landscapes most affected by climate change.

Each artwork in this series is based on GIS (Geographic Information System) images of varying landscapes, including icebergs, glaciers, and land masses most vulnerable to climate devastation. Each digital artwork carries a call to action and responsibility to protect the precious ecosystems they represent.

Once purchased, NFT holders become citizen scientists capable of monitoring and tracking changes in the landmasses they have purchased images of. Detailed instructions for joining, tracking, and monitoring will be dispersed upon purchasing the NFTs and entry into a private network of climate activists, scholars, and citizens dedicated to fighting climate change.

Additionally, we will give 10% of our proceeds to international and indigenous-led organizations fighting for #landback efforts and climate justice.

By generating the NFTs, GeoVerde creates three types of *value*: (1) the planet has thousands of beautiful landscapes, and the NFTs generated from them have *aesthetic value* as digital art objects; (2) the NFTs are unique digital tokens, and each acts as a store of *economic value* and a medium of exchange; (3) the project has a social purpose, and the built-in smart contract creates *social value* by returning 10% to organizations fighting climate change every time an NFT is exchanged.

## Our Mission Statement:

GeoVerde combines Geographic Information Systems (GIS) and blockchain technologies to propel pathways for environmental awareness and action amidst the ongoing climate crisis.

GeoVerde is more than an NFT project; it is a movement driven by passion, creativity and social responsibility that uses the transformative power of art and technology to make lasting impacts on the fight against climate change.

## **Our Values:**

1. *Impactful Climate Advocacy*: We utilize blockchain technology and NFTs as impactful tools that highlight the effects of climate change and enable holders to monitor and engage in advocacy;
2. *Charitable Contribution*: We understand the urgency of addressing climate change and are committed to making a meaningful difference by ensuring 10% of proceeds support international and indigenous-led environmental organizations and causes related to climate change;
3. *Data-Informed Innovation*: The climate crisis is fluid and pressing which drives us to ensure the data and tools we develop are easily accessible and empower ordinary citizens to play a pivotal role in shaping a sustainable future;
4. *Engaging Community Building*: We understand the importance of community in driving change. We seek to foster meaningful interactions, answer questions, and provide insights into our project while cultivating a supportive community of individuals who share our values and mission;
5. *Uniqueness and Collectibility*: Collectors gain ownership of exclusive features and designs, fostering pride in their contribution to our mission. Our multi-NFT rewards further cement the bond between our brand and supporters.

## **Descriptions of Our Planned NFTs:**

The first artwork in the series, "Melting Miniverse," is a breathtaking depiction of an iceberg floating in a sea of turquoise water. The intricate details of the iceberg are captured in stunning high resolution, with each crevice and facet of the ice perfectly illuminated. The colors and textures in this piece are mesmerizing, evoking a sense of awe and wonder at the fluid ephemerality of our world. As we look closer, we can see the signs of climate change, with the ice slowly melting and breaking apart. This piece serves as a powerful reminder of the urgent need to address the climate crisis and protect our planet's most vulnerable landscapes.

The second artwork, "Fractal Fragility," takes us to a remote corner of the world, where a fragile ecosystem is struggling to survive. The image is a GIS rendering of a section of the Amazon rainforest, where deforestation and climate change are threatening the delicate balance of this incredible ecosystem. In this piece, we see the lush greenery of

the forest canopy juxtaposed with the barren, brown earth below. The intricate details of the leaves and trees are brought to life in vivid detail, reminding us of the immense biodiversity that exists in this ecosystem. However, the stark contrast between the vibrant canopy and the barren ground below highlights the urgent need to address the threat.

The third artwork in the series, "Casual Catastrophe," is a stunning digital representation of a glacier slowly melting away. The intricate details of the ice and snow are captured in exquisite detail, with shades of blue and white blending seamlessly together to create a mesmerizing visual experience. However, as we look closer, we can see the signs of climate change in the form of the melting ice and the pools of fresh water forming around the glacier. This piece serves as a poignant reminder of the urgent need to reduce global temperatures and preserve the Earth's glaciers which act as natural reservoirs and sources of fresh water for communities around the world.

The fourth artwork in the series, "Rising Sea Levels," takes us to the coastlines of the world, where rising sea levels are threatening communities and ecosystems. The image is a GIS rendering of a coastline, where the blue of the sea meets the brown of the land. In this piece, we see the intricate details of the coastline, with each wave and ripple of the water perfectly captured in digital form. However, as we look closer, we can see the water levels threaten to inundate communities and destroy vital ecosystems. This piece serves as a call to action to address the threat of rising sea levels and protect our planet's coastlines.

The final artwork in the series, "Endangered Species," is a moving tribute to the many species that are at risk of extinction due to climate change. The image is a GIS rendering of a section of the Great Barrier Reef, where rising sea temperatures and ocean acidification are causing irreparable damage.

Another idea we plan to explore is an NFT based on a GIS image of bauxite mines in Jamaica. The image could capture the stark contrast between the rugged, rocky terrain of the mines and the lush greenery that surrounds them as well as the threat to indigenous sovereignty the mines pose to traditional Maroon settlements protected under the UN Declaration of Indigenous rights."

## Project Schedule + Instructions

### Project Planning and Setup

- ☐ Create a shared folder in Google Drive or GitHub to keep your project files together
- ☐ Use Trello or a similar tool to organize tasks and see who is working on what
- ☐ Pick a chat app like WhatsApp to stay connected with your team

### Collecting GIS (Geographic Information System) Data using ArcGIS Tools

- ☐ Sign up for ArcGIS Online and explore its capabilities
- ☐ Learn how to use ArcGIS Notebooks to collect and analyze geographic data
- ☐ Create and execute Python scripts in ArcGIS Notebooks to fetch and visualize satellite data
- ☐ Download and store the collected images for further processing

### Algorithm Development for NFT Conversion using Visual Studio Code

- ☐ Set up Visual Studio Code for coding and ArcGIS Notebooks for scripting
- ☐ Research and design the NFT conversion algorithm
- ☐ Write Python code for the algorithm in ArcGIS Notebooks and Visual Studio Code
- ☐ Use the Pillow library to manipulate images and add metadata to create NFTs

### Algorithm Testing and Optimization in Visual Studio Code

- ☐ Test the algorithm using sample images and data in ArcGIS Notebooks.
- ☐ Debug any issues in the algorithm using the debugging tools in both ArcGIS Notebooks and Visual Studio Code
- ☐ Optimize the code for performance by identifying and refining bottlenecks
- ☐ Collaborate with your team to find areas for improvement and optimization

### User Interface Design and Development using Simple App Tools

- ☐ Start with a simple app creation tool like Thunkable or Appy Pie
- ☐ Draw a sketch of how your app should look, with buttons for uploading images and creating NFTs
- ☐ Follow the tool's instructions to drag and drop elements to build your app's interface
- ☐ Experiment with adding buttons, text, and images to your app layout

### App Integration and Full Process Testing

- ☐ Integrate the NFT conversion algorithm from ArcGIS Notebooks into the app tool
- ☐ Configure the app to send images to the NFT algorithm and receive NFTs
- ☐ Thoroughly test the app's functionality by simulating user interactions
- ☐ Debug and refine the integration to ensure seamless communication

### App Refinement and User Testing

- ☐ Imagine your app as a bicycle – ride it to find any bumps or wobbles (bugs)
- ☐ Share your app with friends or classmates and gather their feedback
- ☐ Use their suggestions to fix anything that seems confusing or broken

### Documentation, Deployment, and Finalization

- ☐ Write an easy guide for your project, explaining how it works step by step
- ☐ Use your app tool's instructions to create an app package for Android or iOS
- ☐ Share your app with friends or upload it to a testing platform to check if it works for others
- ☐ Double-check everything, make sure it is all working well, and your project is good to go!