

EXPERIENCE

THE

ART

WITH

ARTIFICIAL

INTELLIGENCE



AI/ML/ART EXPERIENCE

Explore the relationship between consumption and pollution through our "AI/ML/ART EXPERIENCE" project, merging Artificial Intelligence and Art to foster environmental awareness. Utilizing advanced image processing and generative AI, we create unique passports that artistically represent your consumption patterns and environmental impact.

Use of environmental awareness includes use of electricity, water, and food which contributes to carbon emissions and habitat loss. Our exhibition visualizes these interplay, emphasizing sustainable practices, technological innovation, and policy change.

The synthetic data used includes:

Pollution: Sound, Water, Air
Consumption: Electricity, Water, Fossil Fuel

Welcome to our interactive AI Art Show.

“Identity = Consumption + Pollution”

By now we hope you have collected your AI generated passport from our immigration booth! Thank you for patiently waiting for your turn to obtain your very own AI/ML/Data passport.

Our theme merges climate change and immigration highlighting the paradox of seeking better lives while our consumption habits pollute the natural world. In this exhibition, we present you with a new passport that uniquely identifies you by linking your consumption and the resulting pollution.

The artworks displayed in this exhibition as AI generated artistic data

passports illustrate the synergy between consumption and pollution data. In the image portrayed in the passport, we see a person's photo being transformed into an artistic representation of their identity. We believe that identity is not only about names and origins but also about how our consumption behavior shapes our surroundings. The foreground of the portrait is altered with data indicating the individual's consumption behavior, while the background reflects the pollution caused by this consumption. The colors and textures in the background represent synthetically generated pollution data, and the foreground features represent consumption data, creating a holistic view of one's environmental impact.



**DIVISION MAP OF
BANGLADESH**



**POLLUTION MAP
OF BANGLADESH**



POLLUTION MAP

The textures and colors represent the different pollutions – noise, water & air in each division.

These polluted textures are imprinted on the picture background after bbeing polluted with the pollution data in the form of colors.

The Process -1

In this interactive AI installation, a person's profile picture is taken at the booth and transformed using data derived from division-level datasets across Bangladesh. We integrate one year of data encompassing three types of pollution and three types of consumption, randomized with the poverty index of each division. These datasets are used to alter AI-created textures that indicate pollution and consumption, which are then applied to the photograph.

Various data points are assigned to different color channels:

Red Channel: Electricity Consumption, Noise Pollution

Green Channel: Fuel Consumption, Air Pollution

Blue Channel: Water Consumption, Water Pollution

The intensity of each data type alters the hue within its respective color channel, creating a dynamic visual representation. Artists can choose the output or let AI generate it. The resulting image encapsulates the person's new identity, merged with the pollution and consumption patterns of their area.

The pollution map illustrates how AI-generated textures, reflecting different data points, map onto Bangladesh's divisions. These textures are manipulated by changing hues to represent varying levels of pollution and consumption, visually embedding this data into the photograph's background to symbolize our environmental impact.

IDENTITY = CONSUMPTION + POLLUTION



ORIGINAL IMAGE



GENERATED BACKGROUND TEXTURE



GENERATED FOREGROUND TEXTURE



GREEN SCREEN MASK



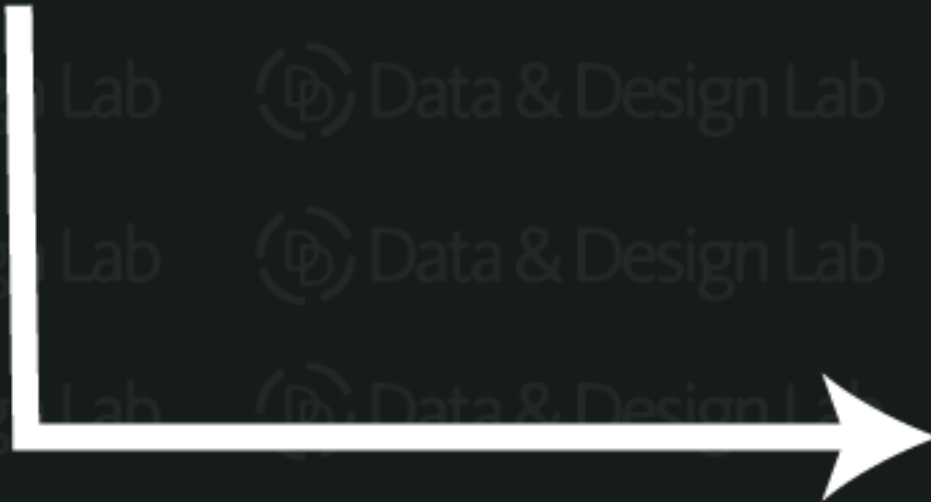
DATA IMPRINTED POLLUTION TEXTURE



DATA IMPRINTED CONSUMPTION TEXTURE



MASKED BACKGROUND



AI-GENERATED PASSPORT IMAGE

Process -2

Creation of the AI-generated passport image

This poster shows the process of how the passport image was generated:

1. Image Capture: The person's photo is taken with a green screen in the background.
2. Masking: The green screen is removed from the image.
3. Foreground Transformation: The foreground, covering the person's image, is replaced with an AI-generated texture that incorporates consumption data.
4. Background Transformation: The background, replacing the green screen, is filled with another AI-generated texture embedded with pollution data.

The data used to pollute the images consists of data representing the year 2023.

The data used for this artistic rendition has been repurposed and may not realistically portray the actual ground reality.

This artwork uses synthetic data that we generate from random parameters - temperature, windspeed and poverty index. The data used may not be accurate and is only used to visualize the concept rather than showing real data.

The computation time for generating the AI images involves training the custom made model based on the open source stable diffusion Image to Image model and the Denoising Diffusion Probabilistic Model (DDPM). The model was trained on a custom-made dataset using multiple A100 GPUs for approximately 3 to 4 weeks.

The model takes around 1 minute to generate the image on an L4 GPU.

MEET THE AI/ML/ART TEAM



MOINUL ZABER
CREATIVE ARTIST & TECHNOLOGIST



AZYZ SHARAFY
AI ART PIONEER



TANVEER AHMED RUMEE
ART ENTHUSIAST



KHANDOKER ASHIK UZ ZAMAN
AI ART DEVELOPER



Salman Siddique Bhuiyan
IMMIGRATION OFFICER



MURSHED AL AMIN
LOGISTICS EXPERT



ABIR PARTHA
TECHNOLOGY MAN

WE HOPE YOU ENJOYED THE AI ART EXPERIENCE

VISIT WWW.DNDLAB.ORG FOR MORE INFORMATION

This exhibition was a collaboration between Data & Design Lab and Charukola.

Data and Design Lab blend Data science, machine learning, statistical inference with human-centric design principals to aid policymakers what they do the best – policymaking. We believe evidence-based policymaking can help policy-making easier and efficient. However, we do not think everything can be solved from data-driven knowledge. We, therefore, focus only on certain fields- energy, education, ICT, health- where there is an access to data that can be harnessed.

VISIT WWW.DNDLAB.ORG FOR MORE INFORMATION

The convergence of Artificial Intelligence (AI) and Art has become a fascinating subject of modern research. Through this project, we seek to delve into the intersection of consumption and pollution by generating art using AI technology to promote environmental consciousness. By utilizing modern image processing and generative AI techniques, we anticipate expanding the horizons of conventional art by expressing an individual's identity and environment through an artistic representation on a passport.

The complex interplay between societal demands and environmental consequences is exemplified by the relationship between human consumption and pollution. People consume a variety of resources, such as electricity, water and fossil fuels etc, driven by cultural norms and personal preferences. These consumption patterns are deeply embedded in daily life and socio-economic structures.

The importance of using art and modern technology to depict this complex relationship between human consumption and pollution, as a means to initiate informed discussions and encourage collective commitment to sustainable stewardship of our planet.