# EXPERIENCE ART WITH ARTIFICIAL

INTELLIGENCE









### AI/ML/ART EXPERIENCE

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.

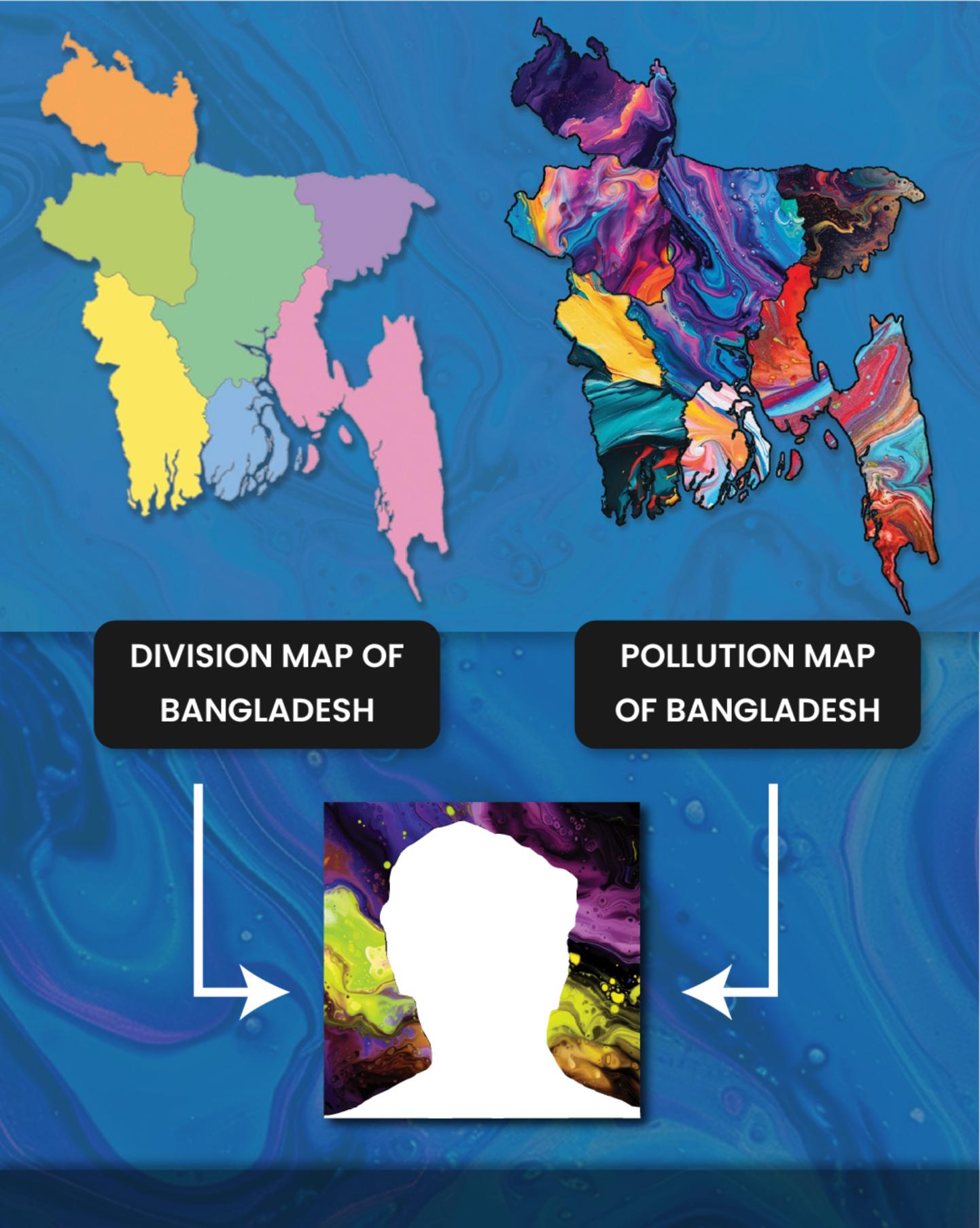
"Identity = Consumption + Pollution"

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



## 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

Various data points are assigned to different color channels:

Red Channel: Electricity

Consumption, Noise Pollution

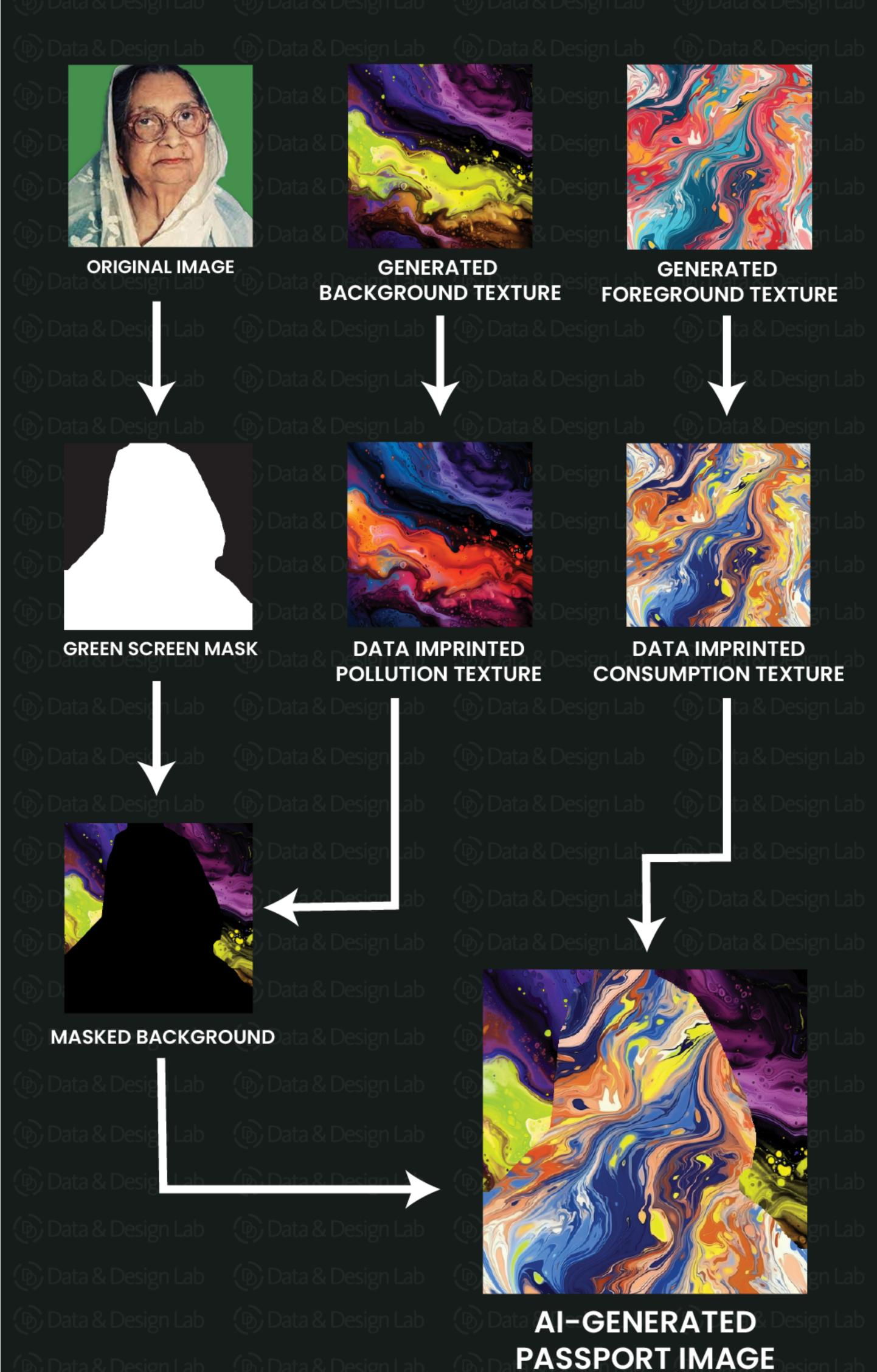
Green Channel: Fuel
Consumption, Air Pollution

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 Al 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



Process -2

Creation of the AI- generated passport image

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

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

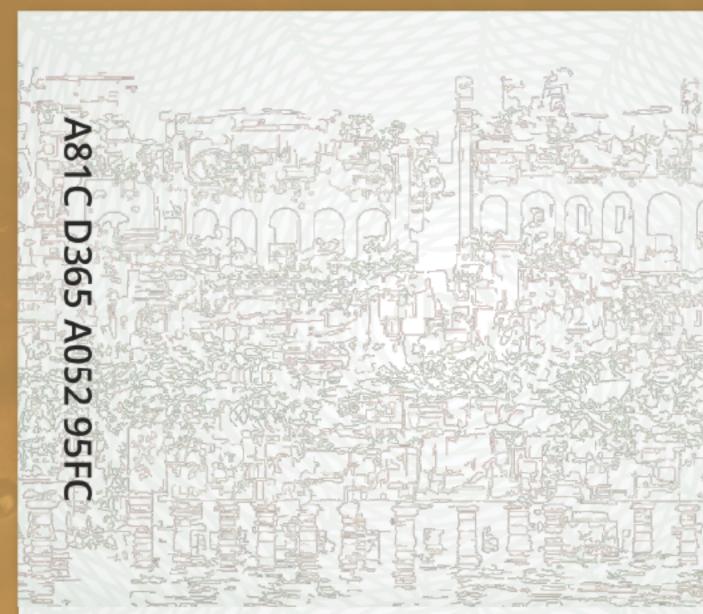
- Image Capture: The person's photo is taken with a green screen in the background.
- 2. Masking: The green screen is removed from the image.
- 3. Foreground Transformation:
  The foreground, covering the person's image, is replaced with an AI-generated texture that incorporates consumption data.
- 4.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

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

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.



DATA PASSPORT DATA & DESIGN LAB



PASSPORT NUMBER 95FC8F405DAB0142D9

**FULL NAME ASM Maksud Kamal** 

WATER

36.4 ML

WATER

27 ppm

POLLUTION

WIND SPEED

14.5 km/h

CONSUMPTION

ELECTRICITY CONSUMPTION 3547 GWh

SOUND POLLUTION 72 dB

**TEMPERATURE** 27.1 °C

COORDINATES 23.9536 ° N 90.1495 ° E DIVISION Dhaka

FOSSIL FUEL CONSUMPTION 6.2 ML

AIR POLLUTION 3357 ppm

SIGNATURE

5A052142D9<<DHA<<<<KAM<<<<<< 142D9<<<<<<<<<<<F405DAB0<<<<<<<DA

# 1A2A 717F B7DF A2DF

DATA PASSPORT DATA & DESIGN LAB



PASSPORT NUMBER A2DF2E278FFBAB6710

#### **FULL NAME** Qazi Motahar Hossain

WATER

36.4 ML

WATER

27 ppm

9.0 km/h

WIND SPEED

CONSUMPTION

ELECTRICITY CONSUMPTION 2646 GWh SOUND POLLUTION 86 dB

**TEMPERATURE** 

29.0 °C

COORDINATES 23.9536 ° N 90.1495 ° E DIVISION Dhaka

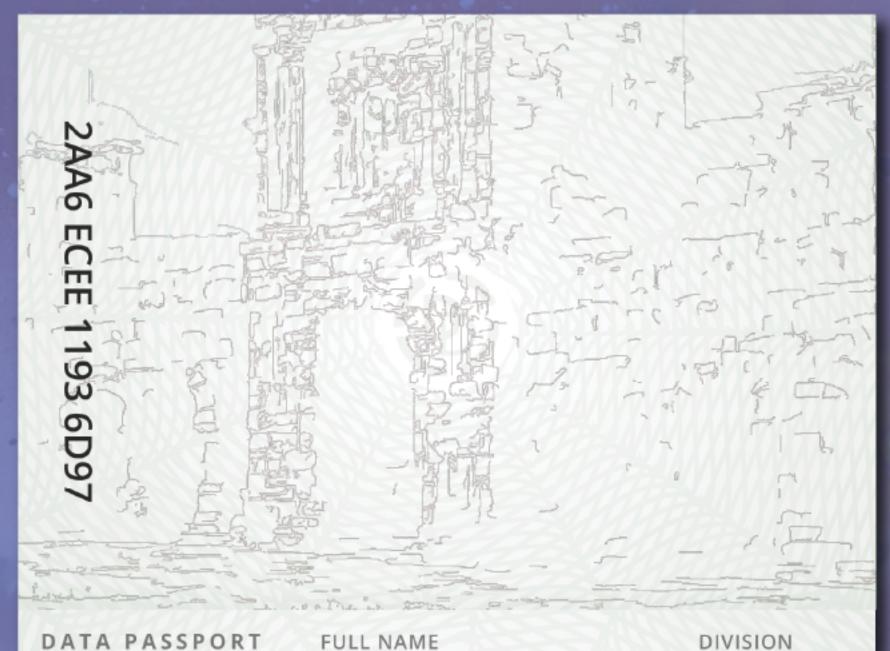
FOSSIL FUEL CONSUMPTION 6.2 ML

AIR POLLUTION POLLUTION 3357 ppm

SIGNATURE

FB7DFB6710<<DHA<<<<HOS<<<<<< B6710<<<<<<<E278FFBA<<<<<CDA

These information are artistic renditions of the climate and us.



DATA PASSPORT DATA & DESIGN LAB



PASSPORT NUMBER 6D9757D3E6C7BF64C7

**FULL NAME** Shishir Bhattacharjee

WATER

47.2 ML

WATER

35 ppm

POLLUTION

WIND SPEED

11.4 km/h

CONSUMPTION

ELECTRICITY CONSUMPTION 4560 GWh

SOUND POLLUTION 60 dB

**TEMPERATURE** 41.8 °C

COORDINATES 25.8483 ° N 88.9414 ° E DIVISION Rangpur

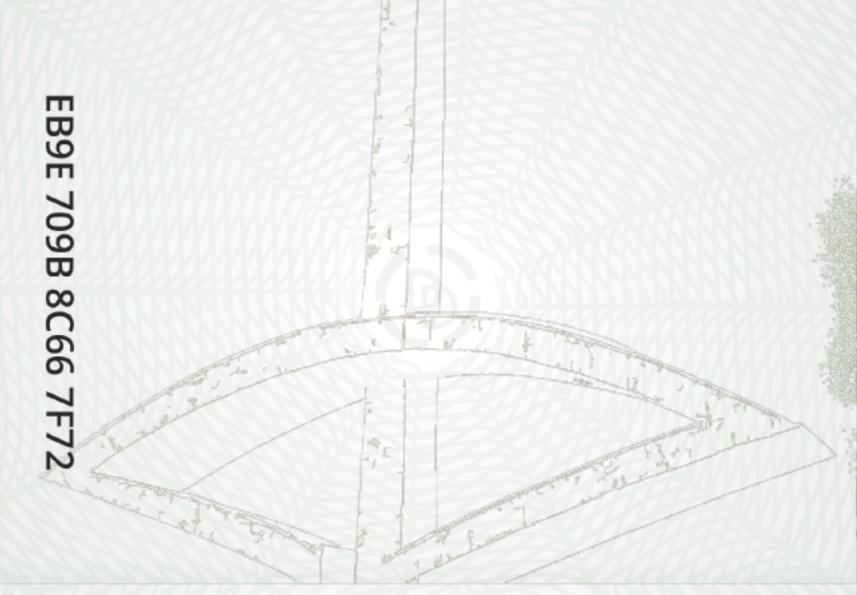
FOSSIL FUEL CONSUMPTION 8.1 ML

AIR POLLUTION 4356 ppm

SIGNATURE

E1193F64C7<<RAN<<<<BHA<<<<<< F64C7<<<<<<<<<<<RR

These information are artistic renditions of the climate and us.



DATA PASSPORT DATA & DESIGN LAB



PASSPORT NUMBER 7F72AC5651B0DDDBE0

**FULL NAME** Zainul Abedin

ELECTRICITY

CONSUMPTION 2379 GWh SOUND POLLUTION 85 dB

**TEMPERATURE** 36.3 °C

WATER POLLUTION

CONSUMPTION

WIND SPEED 11.2 km/h

5 ppm

WATER

6.8 ML

DIVISION

Mymensingh

FOSSIL FUEL

POLLUTION

SIGNATURE

626 ppm

1.2 ML

AIR

CONSUMPTION

COORDINATES 24.7136 ° N 90.4502 ° E

B8C66DDBE0<<MYM<<<<ABE<<<<<<< DDBE0<<<<<<<<<<MH

These information are artistic renditions of the climate and us.





PASSPORT NUMBER ED25D2FBA4C03C39E9

ELECTRICITY CONSUMPTION 4476 GWh

SOUND POLLUTION 75 dB

**TEMPERATURE** 38.2 °C

WATER CONSUMPTION 41.8 ML

POLLUTION 31 ppm

WATER

WIND SPEED 10.7 km/h

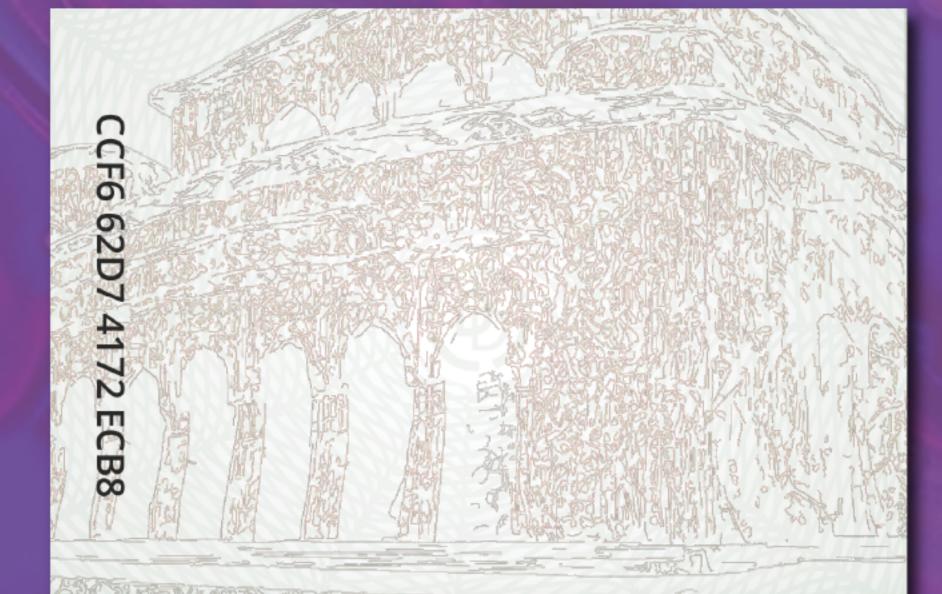
COORDINATES 22.3811 ° N 90.3372 ° E FOSSIL FUEL CONSUMPTION 7.2 ML

AIR POLLUTION 3861 ppm

SIGNATURE

90AEDC39E9<<BAR<<<<KAM<<<<<<<< C39E9<<<<<<<<<<<EHL

These information are artistic renditions of the climate and us.



### DATA PASSPORT DATA & DESIGN LAB



PASSPORT NUMBER ECB8B4E8E74DE4883B

**FULL NAME** Suchitra Sen

ELECTRICITY CONSUMPTION 4340 GWh

SOUND POLLUTION 80 dB

**TEMPERATURE** 35.0 °C

WIND SPEED

WATER

16.7 ML

WATER

12 ppm

POLLUTION

CONSUMPTION

7.0 km/h

DIVISION Rajshahi

FOSSIL FUEL CONSUMPTION 2.9 ML

AIR POLLUTION 1541 ppm

SIGNATURE

COORDINATES 24.7106 ° N 88.9414 ° E

741724883B<<RAJ<<<SEN<<<<<<< 4883B<<<<<<<<RI

These information are artistic renditions of the climate and us.





PASSPORT NUMBER

529BA0F58AE6AAAC83

These information are artistic renditions of the climate and us.

COORDINATES

25.8483 ° N 88.9414 ° E

46EC4AAC83<<RAN<<<<NOO<<<<<<<

AAC83<<<<<<<<<RR

These AI-generated passports were obtained from our Interactive-AI immigration booth. The image is divided into two parts:

Upper Part: Features an

AI-generated reimagining of
a landmark architecture from
the person's chosen division.

Lower Part: Displays the data-enhanced image and variables of pollution and consumption used to create this new identity.

The passport number is an encrypted unique identifier combining the person's name and division. By integrating Al-generated art and superimposed data, these passports represent the synergy between consumption and pollution in shaping one's identity.

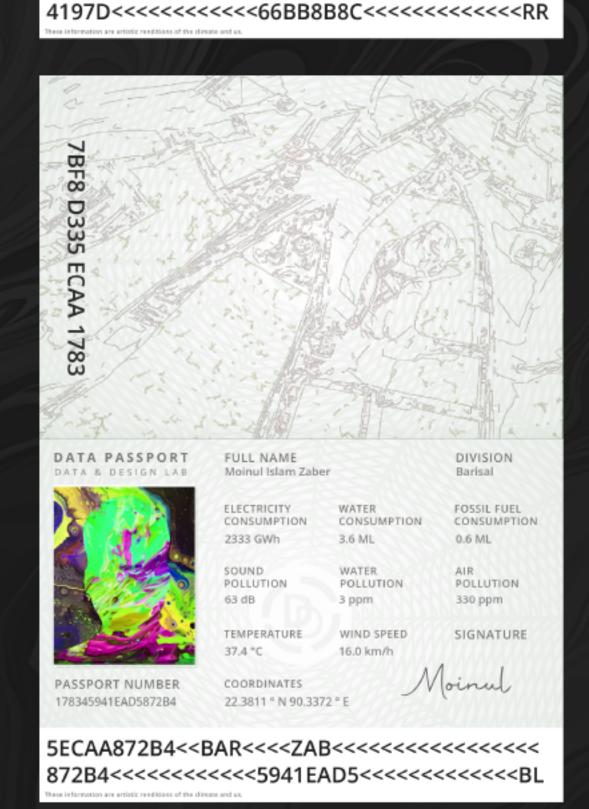


















# MEET THE AI/ML/ART TEAM



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 an 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.

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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.