

CreativeCollab: AI-Powered Real-Time Desing Platform

Overview

This project provides a platform that can be used to create realistic and artistic images by the use of inputs by the users. It includes semantic image synthesis using SPADE, Neural Style Transfer (NST), and image enhancement using Real-ESRGAN, thus, it allows users to create high-quality visual content at a high level of efficiency.

The workflows are supported by the system in creating images based on segmentation maps, converting content images into a variety of artistic styles and improving outputs in terms of clarity and resolution. It is modular (written in Flask and Python) and the front-end applications can communicate via HTTP endpoints. The platform is aimed at digital artists and designers and content creators who are interested in using an intuitive, fast, and creative workflow to generate images aided by AI.

Features

- **Semantic Image Synthesis (SPADE):** Synthesis of realistic images with the usage of segmentation maps.
- **Neural Style Transfer:** Conversion of content images to different artistic styles.
- **Real-ESRGAN RESTful API:** Image can be upscaled and enhanced.
- **CORS Enabled:** Support of the front-end frameworks entirely.

Prerequisites

Python 3.7+

pip

CUDA-compatible graphic card (optional for more accelerated processing)

Git

Installation

Step 1:

Create a environment

```
cd backend >> python -m venv venv
```

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Step 2:

Activate the environment

```
venv\Scripts\activate
```

Step 3:

Install dependencies

```
pip install flask flask-cors pillow torch torchvision numpy
```

Step 4:

Create directors if not available

```
mkdir -p images/{content-images,style-images,output-images} output temp
```

Stept 5:

Run the application

```
(.env) backend >> python app.py
```

Access locally: `http://localhost:5000`

Access via network: `http://0.0.0.0:5000`

Step 6:

*At the same time run the **Stripe payment API***

```
cd frontend >> src >> payment >> py -3.11 server.py
```

Step 7:

Then run the frontend in new terminal

```
cd frontend >> npm start
```