Prodigy Infotech Internship Report

Prodigy Infotech Internship - Task 04

Task Title: Image-to-Image Translation using Conditional GAN (Pix2Pix)

Objective:

The objective of this task was to demonstrate image-to-image translation using pre-trained models (simulating Pix2Pix via Stable Diffusion Inpainting). A sketch image was transformed into a realistic visual using a textual prompt, representing a generative application of AI in computer vision.

Tools and Libraries Used:

- Python (Google Colab)
- Hugging Face Diffusers
- Stable Diffusion Inpainting model
- Torch, PIL

Process Overview:

1. Installed required Python libraries (diffusers, torch, transformers, etc.)
2. Loaded a sample sketch image from Hugging Face's datasets.
3. Used Stable Diffusion Inpainting as a proxy for Pix2Pix image translation.
4. Provided a descriptive prompt to generate a realistic image from the sketch.

5. Displayed and saved the output image.

Sample Input & Output:

Input: A rough black-and-white sketch of scenery

Prompt: "Convert sketch to realistic scenery"

Output: A vivid, photo-realistic colored scene generated by AI.

Learning Outcomes:

- Understood the concept of image-to-image translation using conditional GANs
- Implemented diffusion-based inpainting techniques
- Explored Hugging Face pipelines for generative vision tasks
- Practiced prompt-driven image generation using pre-trained models

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Files Submitted:

- Task_04_Pix2Pix_Image_Translation.ipynb
- This PDF report

Submitted By:

Divya Shirke

Intern, Prodigy Infotech

Subject: Generative AI

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