Algorithm Documentation: Seamlessly Integrating a Person into a Scene

Objective

The goal was to integrate a person's image into a natural outdoor background to create a photorealistic composite using simple online tools.

Tools Used

- **Remove.bg** – For background removal.
- **Canva (Free Version)** – For merging the person's cutout with a new background and performing brightness, contrast, and color adjustments.

Step-by-Step Process

Task 1: Capturing and Preparing the Person's Image

Step 1: Capture High-Quality Image

- Used a personal photo (white shirt, front view, even lighting).
- Chose this photo for its clarity and consistent lighting, which helps with realistic blending.

Step 2: Remove Background

- Uploaded the image to **Remove.bg**.
- The tool automatically detected the foreground and removed the background, creating a transparent PNG cutout of the person.
- Downloaded the PNG for further editing.

Task 2: Selecting Background and Analyzing Lighting

Step 1: Choose Outdoor Background

- Selected an image of trees and flowers during golden hour from **Canvas**.
- Considered the warm tones and soft sunlight to match the original photo's lighting.

Step 2: Analyze Light and Shadows

- Observed the direction of light in the background scene.
- Planned placement and adjustments so the person aligns naturally with the light source.

Task 3: Merging and Adjusting for Realism

Step 1: Import and Position the Cutout

- Opened Canva and created a new design.
- Added the background image and overlaid the transparent PNG.
- Adjusted scale and position so the person fits proportionally into the scene.

Step 2: Color and Lighting Adjustment

- Used Canva's **Edit Image** panel to adjust:

- **Brightness** (-5%)
- **Contrast** (+10%)
- **Saturation** (+5%)
- Minor warm filter added to match golden hour tones.

Step 3: Adding Shadows

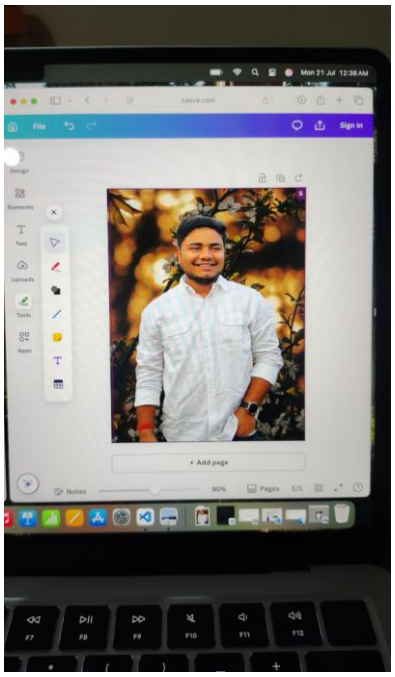
- Lowered opacity of shadow to ~20% and applied blur for a natural contact shadow effect.

Step 4: Edge Blending

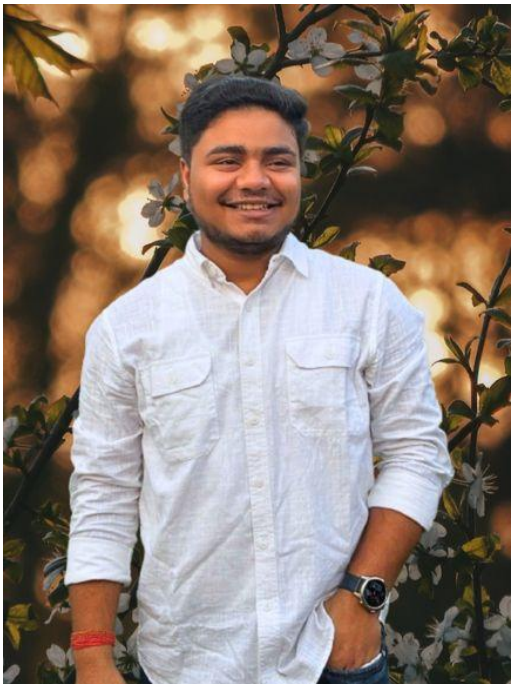
- Applied slight feathering using Canva's built-in blur effect around edges.
- Smoothed hard cutout lines to merge better with the background.

Deliverables

Original Image



During Process



Final Image