**Loading and Processing the Dataset**

import pandas as pd

# Load the dataset from the Excel file

df = pd.read\_excel('path\_to\_dataset/fake\_colorized\_image\_detection\_dataset.xlsx')

# Display the first few rows of the dataset

print(df.head())

# Example: Filtering out fake images

fake\_images = df[df['Image\_Type'] == 'Fake']

print("Number of fake images:", len(fake\_images))

# Example: Analyzing SSIM and color difference for fake images

print("Average SSIM for fake images:", fake\_images['Color\_Consistency\_SSIM'].mean())

print("Average ∆E color difference for fake images:", fake\_images['Color\_Difference\_∆E'].mean())