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import cv2
import numpy as np
import matplotlib.pyplot as plt

def analyze_histogram(image_path):
    image = cv2.imread(image_path)

    if image is None:
        print(f"Error: Unable to load image at {image_path}")
        return

    color_channels = ('b', 'g', 'r')

    plt.figure(figsize=(10, 5))
    for i, color in enumerate(color_channels):
        histogram = cv2.calcHist([image], [i], None, [256], [0, 256])
        plt.plot(histogram, color=color, label=f"{color.upper()} Channel")

    plt.xlim([0, 256])
    plt.title("Color Histogram Analysis")
    plt.xlabel("Pixel Intensity")
    plt.ylabel("Frequency")
    plt.legend()
    plt.tight_layout()
    plt.show()

image_path = r"C:\Users\K.B.S PRADEEP\Downloads\image_search_1708233870475.jpg"
analyze_histogram(image_path)
```

