1. 第一張圖片

Image analysis report - A.png

=== Image Characteristics ===

- Type: Color(RGB)

- Resolution: 106 x 64

- Bit Depth: 24-bit

- Michelson Contrast(ratio) Analysis: 0.66. The contrast is low; overall image contrast is insufficient.

- Sharpness Analysis:

1. Laplacian Variance: 206.19 (The image has slight blur or acceptable sharpness; details are recognizable.)

2. Edge Detection: 0.05 (Edge density is severely low; few or unclear edges are present in the image.)

=== Image Problem Detection ===

- Noise Detection: Detected 0 types. No obvious noise detected.

- Blur Detection: Detected 1 types:

1. Edge-based blur

- Lighting Issues: Detected 0 types. No obvious lighting issues detected.

- Color Issues: Detected 1 types:

1. Low saturation

=== Image Problem Solutions ===

1.處理方法: Edge Enhancement - 去除邊緣模糊

函式: imclose(A, se), imopen(A, se), imdilate(A, se)

參數: A = 輸入影像, se = 結構元素

2.處理方法: Chroma Enhancement - 增強低飽和度

函式: 色度增強計算

參數: A = 輸入影像

1. 第二張圖片

Image analysis report - B.png

=== Image Characteristics ===

- Type: Color(RGB)

- Resolution: 122 x 40

- Bit Depth: 24-bit

- Michelson Contrast(ratio) Analysis: 0.99. The contrast is high; the image has a vivid visual appearance.

- Sharpness Analysis:

1. Laplacian Variance: 2954.32 (The image has slight blur or acceptable sharpness; details are recognizable.)

2. Edge Detection: 0.05 (Edge density is severely low; few or unclear edges are present in the image.)

=== Image Problem Detection ===

- Noise Detection: Detected 1 types:

1. Gaussian Noise

- Blur Detection: Detected 1 types:

1. Edge-based blur

- Lighting Issues: Detected 0 types. No obvious lighting issues detected.

- Color Issues: Detected 0 types. No obvious color problems detected.

=== Image Problem Solutions ===

1.處理方法: Gaussian Filter - 去除高斯噪聲

函式: imfilter(A, fspecial('gaussian', [m n], sigma), 'replicate')

參數: A = 輸入影像, [m n] = 濾波視窗大小, sigma = 標準差

2.處理方法: Edge Enhancement - 去除邊緣模糊

函式: imclose(A, se), imopen(A, se), imdilate(A, se)

參數: A = 輸入影像, se = 結構元素

1. 第三張圖片

Image analysis report - C.png

=== Image Characteristics ===

- Type: Color(RGB)

- Resolution: 238 x 40

- Bit Depth: 24-bit

- Michelson Contrast(ratio) Analysis: 0.72. The contrast is high; the image has a vivid visual appearance.

- Sharpness Analysis:

1. Laplacian Variance: 3115.33 (The image has slight blur or acceptable sharpness; details are recognizable.)

2. Edge Detection: 0.04 (Edge density is severely low; few or unclear edges are present in the image.)

=== Image Problem Detection ===

- Noise Detection: Detected 2 types:

1. Gaussian Noise

2. Salt & Pepper Noise

- Blur Detection: Detected 1 types:

1. Edge-based blur

- Lighting Issues: Detected 1 types:

1. Over exposure

- Color Issues: Detected 1 types:

1. Low saturation

=== Image Problem Solutions ===

1.處理方法: Gaussian Filter - 去除高斯噪聲

函式: imfilter(A, fspecial('gaussian', [m n], sigma), 'replicate')

參數: A = 輸入影像, [m n] = 濾波視窗大小, sigma = 標準差

2.處理方法: Morphological Operations - 去除椒鹽躁聲

函式: imopen(A, se), imclose(A, se), imerode(A, se)

參數: A = 輸入影像, se = 結構元素

3.處理方法: Edge Enhancement - 去除邊緣模糊

函式: imclose(A, se), imopen(A, se), imdilate(A, se)

參數: A = 輸入影像, se = 結構元素

4.處理方法: Pixel Value Control - 去除過度曝光

函式: 像素值限制控制

參數: A = 輸入影像

5.處理方法: Chroma Enhancement - 增強低飽和度

函式: 色度增強計算

參數: A = 輸入影像