X-Ray Imaging

Progress Report

Pseudo Colouring
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RGB color space describes colors in terms of the amount of red, green, and blue present. HSV color space describes colors in terms of the Hue, Saturation, and Value. In situations where color description plays an integral role, the HSV color model is often preferred over the RGB model. The HSV model describes colors similarly to how the human eye tends to perceive color. RGB defines color in terms of a combination of primary colors, whereas HSV describes color using more familiar comparisons such as color, vibrancy and brightness.
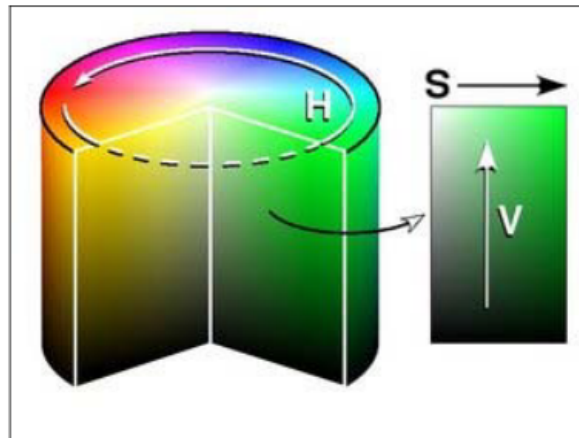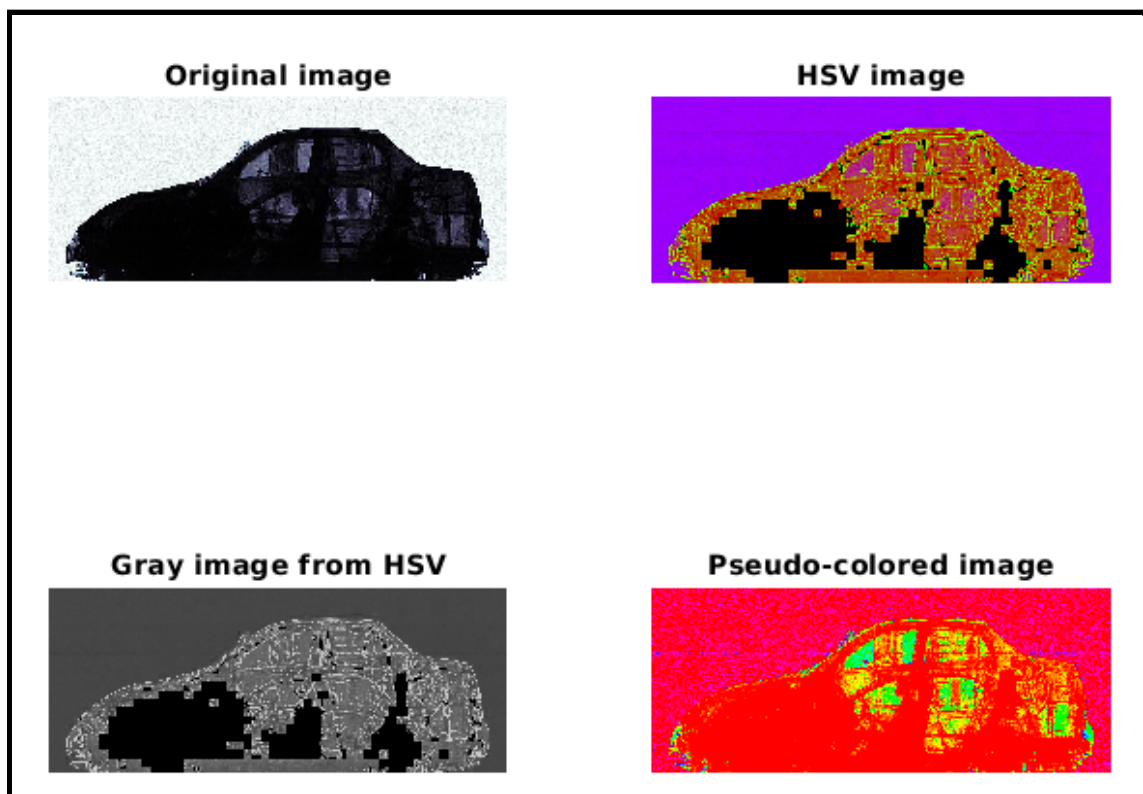

Figure 1: HSV color wheel

Methodology:

- We convert the images to HSV representation using MATLAB's *rgb2hsv()* function, so that objects in image which have distinct colours and luminosities can be distinguished easily.
- Then we obtain a gray scale image by using MATLAB's *rgb2gray()* function. This is because we want to ultimately map the colours to a custom colormap with 256 allowed colors.
- This grayscale image is then passed into MATLAB's *gray2ind()* and *ind2rgb()* functions. This compares the shade of gray in the image and indexes it to one of the colors in the colormap. In our case, the colormap is *hsv(256)* which allows for lots of distinguishable colors.
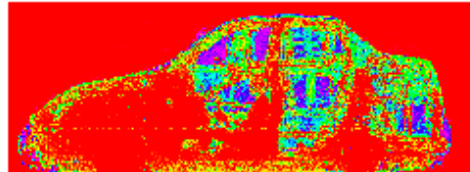
Results

Original image
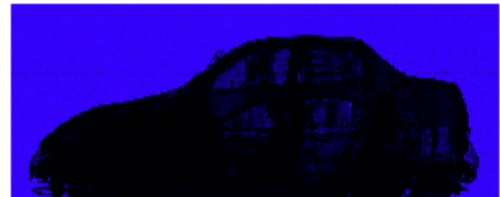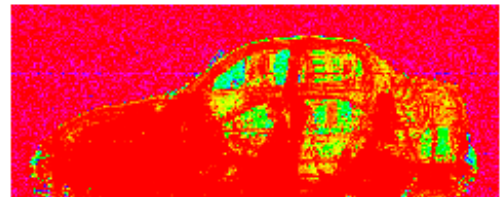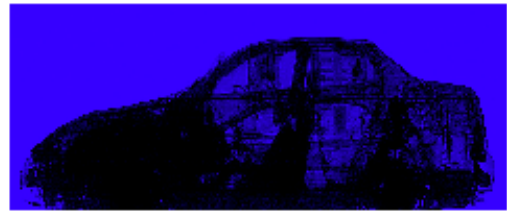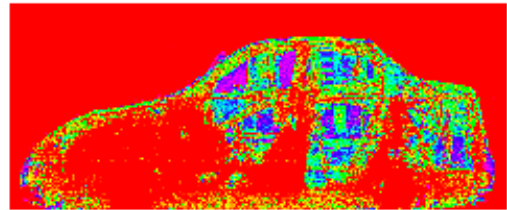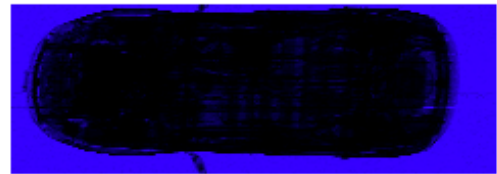
HSV image

Gray image from HSV

Pseudo-colored image

Original image

HSV image

Gray image from HSV

Pseudo-colored image

Original image
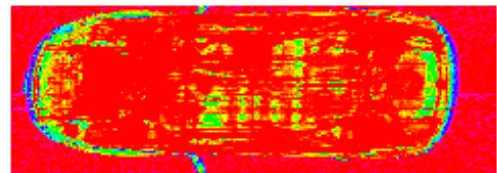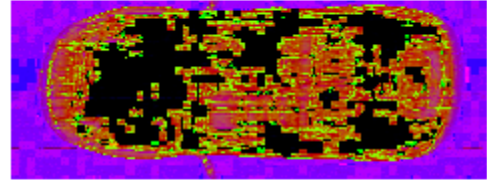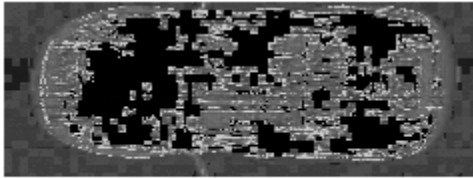
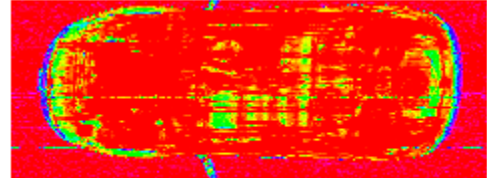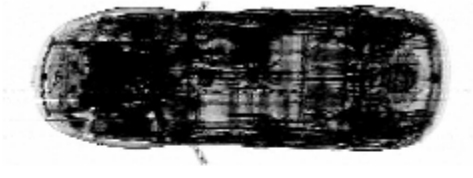**HSV image**

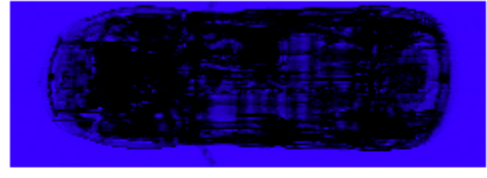**Gray image from HSV**

Pseudo-colored image

Original image

HSV image

Gray image from HSV

Pseudo-colored image

Original image

HSV image

Gray image from HSV

Pseudo-colored image

Original image

HSV image

Gray image from HSV

Pseudo-colored image