How to change hue, saturation, and luminance of an image in android

Asked 2 years agoModified 2 years agoViewed 412 times

I want to change the hue for specific color on image. I have searched many times but found nothing. Currently I'm using this piece of code i get from SO for changing image hue.

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```java
public static class ColorFilterGenerator {
    static ColorFilter adjustHue(float value)
    {
        ColorMatrix cm = new ColorMatrix();

        adjustHues(cm, value);

        return new ColorMatrixColorFilter(cm);
    }

    static void adjustHues(ColorMatrix cm, float value) {
        value = cleanValue(value) / 180f * (float) Math.PI;
        if (value != 0) {
            float cosVal = (float) Math.cos(value);
            float sinVal = (float) Math.sin(value);
            float lumR = 0.213f;
            float lumG = 0.715f;
            float lumB = 0.072f;
            float[] mat = new float[]
                {
                    lumR + cosVal * (1 - lumR) + sinVal * (-lumR), lumG + cosVal * (-lumG) +
            sinVal * (-lumG), lumB + cosVal * (-lumB) + sinVal * (1 - lumB), 0, 0,
                    lumR + cosVal * (-lumR) + sinVal * (0.143f), lumG + cosVal * (1 - lumG) +
            sinVal * (0.140f), lumB + cosVal * (-lumB) + sinVal * (-0.283f), 0, 0,
                    lumR + cosVal * (-lumR) + sinVal * (-(1 - lumR)), lumG + cosVal * (-lumG)
            + sinVal * (lumG), lumB + cosVal * (1 - lumB) + sinVal * (lumB), 0, 0,
                    0f, 0f, 0f, 1f, 0f,
                    0f, 0f, 0f, 0f, 1f};
            cm.postConcat(new ColorMatrix(mat));
        }
    }

    static float cleanValue(float p_val)
    {
        return Math.min((float) 180.0, Math.max(-(float) 180.0, p_val));
    }
}
```

But this code changes the whole image hue while dragging the seekbar. Can someone please tell me how can i achieve this for a specific color (like only for red) ? Thank you.

java	android	bitmap	hsl	colormatrix

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edited Sep 27, 2020 at 5:56

asked Sep 27, 2020 at 4:58

p   ps_who
127   9

Related: Programmatically Lighten a Color – Morrison Chang Sep 27, 2020 at 7:24

I didn't get the answer from this – ps_who Sep 27, 2020 at 9:12

HSV/HSL is just another representation of color like RGB. When you say you want to change a specific color and only that color you do realize you are asking for only selected values of selected pixels in any image array to be modified. Read the section on end-user software and realize that when you say red the question becomes the set of values (shades) of red that need to be transformed . If your code is too slow look at: Renderscript, OpenGL ES shaders, JNI C/C++ code. – Morrison Chang Sep 27, 2020 at 19:37

If you give some code examples it would be better for me to understand. – ps_who Sep 28, 2020 at 5:44

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1 Answer

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You could use OpenCV for Android. Then you can read the image in and convert to HSV and then change the hue directly.

```
Mat image_bgr = Imgcodecs.imread("image_path");
Mat image_hsv = image_bgr.clone();
Imgproc.cvtColor(image_bgr, image_hsv, Imgproc.COLOR_BGR2HSV);

double hue = ...
for (int row = 0; row < image_hsv.rows(); row++) {
    for (int col = 0; col < image_hsv.cols(); col++) {
        double[] pixel = image_hsv.get(row, col);
        pixel[0] += hue;
        image_hsv.put(row, col, pixel);
    }
}
```

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edited Sep 27, 2020 at 6:26

answered Sep 27, 2020 at 6:02

Zac Todd
113   1   11

Can you share some example code? Or is it possible to do it without using OpenCV? – ps_who Sep 27, 2020 at 6:16 ✏

Can you show me full working demo code if possible. Because I'm totally beginner in OpenCV and have no idea that how to use it in Android Java. – ps_who Sep 27, 2020 at 6:52

You will have to follow the instructions in the above link to install OpenCV for android then this should be able to add hue to the image. I don't understand what kind of demo you would want. I would recommend using OpenCV if you are doing a lot of image stuff. – Zac Todd Sep 27, 2020 at 7:02