How Pixels and Color Models Shape Digital Images

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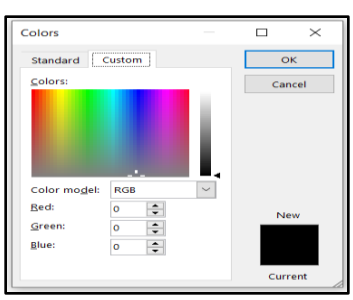
What is a Pixel?

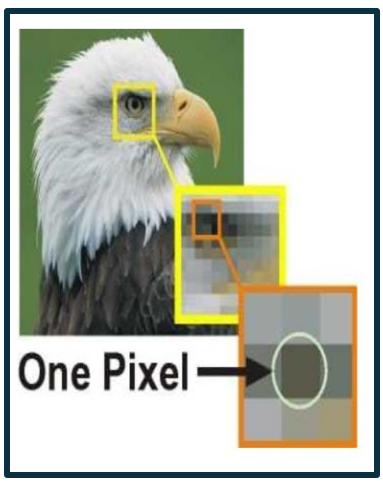
A pixel, or picture element, is the smallest unit of a digital image. Each pixel represents a single point of color.

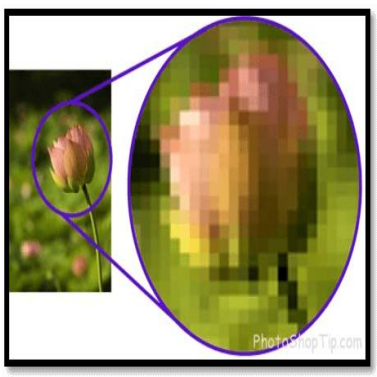
Pixels are arranged in a grid to collectively form images. The color and brightness of each pixel contribute to the overall picture. [1]

The RGB Color Model

RGB stands for Red, Green and Blue. This model is used for digital screens and cameras. Colors are created by combining different intensities of red, green, and blue light. For example, combining full intensity red and green creates yellow. [1]







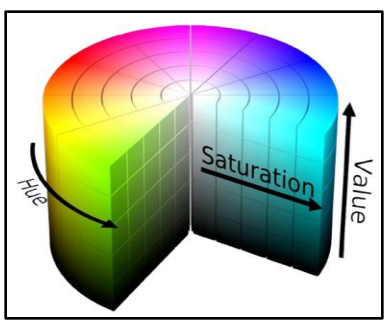
The HSV Color Model

HSV stands for Hue, Saturation, and Value. It represents colors in a way that is closer to human perception. [2]

Hue: The type of color (e.g., red, blue, green).

Saturation: The intensity or purity of the color.

Value: The brightness of the color.



RGB vs. HSV

RGB: "Great for digital displays and cameras. Colors are defined by their Red, Green, and Blue components."

HSV: "Useful for graphic design and user interfaces. It allows users to adjust colors in a more intuitive way."

How It All Comes Together

Digital images are composed of millions of pixels, each defined by a color model. Pixels are arranged in a grip pattern and made up of Red, green, and blue. Each pixel's color is determined by the brightness of it's subpixels. [3]

Whether using RGB for screens or HSV for design, understanding these models helps create and manipulate images effectively. [3]

Reference:

- TechTarget. (n.d.). Pixel. *TechTarget*. https://www.techtarget.com/whatis/definition/pixel [1]
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- Ripe Media. (n.d.). Why I love pixels and so can you. *Ripe Media*. https://www.ripemedia.com/why-i-love-pixels-and-so-can-you/ [3]