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In the world of digital image processing, there are various ways of representing color images. These include RGB (Red, Green, Blue), HSI (Hue, Saturation, Intensity), and other color spaces such as CMYK (Cyan, Magenta, Yellow, Black). The RGB space is an efficient method for capturing digital images but has deficiencies. For example, if one wants to change the brightness of an RGB pixel, one must adjust values in all three matrices (R, G, B), whereas in the HSI representation, this same operation requires a single value change. The HSI color space is a representational model which closely mimics the representation of imagery found in the human brain, therefore it is a reasonable manner in which to represent image data which must be processed. The goal of this talk is to describe an efficient algorithm for converting images from RGB to HSI space and back. Such conversions are used for example in analyzing multi-spectral & panchromatic satellite images. (Received September 21, 2010)