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Brianna R Cash* (brcash@math.umd.edu), 3103 Mathematics Building, College Park, MD 20742-4015, and **Dianne O’Leary**. *User-Aided Space Transformation of Color Images for Improved Edge Detection*. Preliminary report.

There are many accepted and well used edge detection methods that are fast and easy to implement when applied to gray scale images. Unfortunately gray scale images only capture the light intensity of the continuous scene, losing information about the colors (chroma). Although it is stated in the literature that 90% of the information in color images is captured in the gray scale image, there are foreseeable applications where that additional 10% is critical in finding the relevant edges. This loss of information can be important but it comes at a cost as color images are measured in three color coordinates versus single coordinate gray scale images. This work develops a new color space by user aided transformation of the three coordinate space into a single coordinate space where the color discontinuities of interest are captured. This method is applied to finding edges of spots of erythema (reddening) in images of skin after skin irritation. In this application background skin color/tone (an unaffected patch of skin) is known and can be used to help detect deviation. Example applications of this work are in monitoring the spread of infection, measuring the effectiveness of treatment for ulcers and other skin conditions, and cataloging skin artifacts such as moles. (Received September 13, 2013)