Meeting: 1003, Atlanta, Georgia, SS 36A, AMS-SIAM Special Session on Mathematical Image Processing, I

1003-68-1496   **Irina Popovici*** (`popovici@usna.edu`), Mathematics Department, US Naval Academy, Annapolis, MD 21402, and **W. D. Withers**. *The Eidochromatic Transform for Color Image Coding.*

We introduce the *eidochromatic transform* as a tool for improved lossy coding of color images. Many current image-coding formats (such as JPEG 2000) utilize both a color-component transform (relating values of different image components at a single location) and a wavelet or other spatial transform (relating values of a single image component at proximate, but different image locations). The eidochromatic transform further reduces redundancy by relating image values simultaneously across color components and in the two spatial dimensions.

Our approach is to introduce an additional transform step following the color-component and spatial transforms. In tests, this step reduced the overall static entropy of the chrominance components of quantized transformed images by up to 40% or more. Combined with JPEG 2000's modeling and coding method, the eidochromatic transform was found to reduce the size of lossily coded color images by up to 27% overall. (Received October 05, 2004)