1125-VC-1625 **Hieu Nguyen*** (nguyen084@connect.wcsu.edu), 23 Scuppo Rd, Unit 5-1, Danbury, CT 06811, and **Julia Yu** (juliayu1@live.com), **Sarah Zhao** (brighthearty@gmail.com) and **Xiaodi Wang** (xiaodiwang1@yahoo.com). *Pseudo Quantum Steganography and M-Band Wavelet based Denoising in Color Barcode.* Preliminary report.

Due to their high data capacity, color barcodes have garnered much interest from researchers and corporations. In our research, we looked to enhance the applications of a color barcode. First, we stacked multiple color channels together to create a color barcode with a higher capacity. The resulting algorithm creates a color barcode with greater capacity than the black-and-white QR code. We then used this color barcode as host data and embedded secret information, such as images and audio, into the color channels of the barcode through the use of M-Band Wavelets and pseudo-quantum steganography. Finally, we investigated the denoising of a noisy, unreadable color barcode; the denoising of such a barcode was accomplished through the use of Patch Group Prior based Denoising (PGPD) and wavelets. This denoising algorithm was capable of removing heavy noise from the color barcodes, as seen when evaluated by the peak signal-to-noise ratios (PSNR) of various noisy and denoised images. Ultimately, we have achieved a higher capacity and robustness of a color QR code through the stacking of color channels together with the use of new steganography and denoising algorithms. Hopefully, such research could contribute to future commercial use of the color barcode. (Received September 18, 2016)