Lab 3: Simple Steganography

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1 Detecting JPEG Compression Using DCT Coefficients Quantization Fingerprints

JPEG compression leaves behind fingerprints in the image's DCT coefficients. These fingerprints become clearly visible in the histogram of the DCT coefficients. This is due to the blocking effects and quantization that takes place during the JPEG compression process. The DCT coefficients histogram of a JPEG compressed image will not be smooth, it will contain gaps and the width of the gaps corresponds to the quantization level used during the JPEG process. If an image was doubly JPEG compressed the bins in the histogram will be grouped by a different width, so there new bins will either be zero or dramatically increase in height.

```
%Assignment 5
%Brian Hosler and Sarah Peachey
f1=imread('Assignment 5 - Part 1 Files/DCTfprints1.tif');
f2=imread('Assignment 5 - Part 1 Files/DCTfprints2.tif');
f3=imread('Assignment 5 - Part 1 Files/DCTfprints3.tif');
f4=imread('Assignment 5 - Part 1 Files/DCTfprints4.tif');
f5=imread('Assignment 5 - Part 1 Files/DCTfprints5.tif');

figure
subBandHist(f1,2,2)
%no JPEG

figure
subBandHist(f2,2,2)
%step size 10

figure
subBandHist(f3,2,2)
%step size 6

figure
subBandHist(f4,2,2)
%no JPEG

figure
subBandHist(f5,2,2)
%step size 10
```