

**ECE160 Assignment 6**  
Due: In class, 3:30p.m. May 17

1. The JPEG image compression algorithm uses a combination of:
  - Encoding to separate Luminance and Chrominance
  - Discrete Cosine Transformation
  - Quantization
  - Zigzag Ordering
  - Run length coding
  - Entropy coding.

Explain how these techniques work together and how each of the techniques is necessary for the others to be effective.

2. The logarithmic motion vector search method depends on a form of linearity in the image to be effective. Explain why the algorithm requires that linearity and justify the assumption for typical images. Suggest a kind of image for which the assumption is not justified and for which the algorithm might fail.

Does the hierarchical motion vector search algorithm depend on a similar assumption? Can you suggest a kind of image for which the hierarchical algorithm might fail?