RRY025-- Image Processing

Exercises 8 – Lecture 10 – Compression II

EX 1. Data types during wavelet compression.

One general issue with transform decoders is that transforms are usually composed of decimal numbers instead of integers between 1-256. For example, Fourier transform results in a complex number and Wavelet transform in decimal coefficients.

Explore by experimenting what are the pros and cons of pre-compressing the cameraman using wavelet transform ('Haar', lvl 5) and then treating the coefficients as short/long integers (*uint8()* and *uint16()*) instead of decimal numbers. In particular, try to find out: Can you increase the compression in comparison to using the original decimal number coefficients, while still retaining acceptable image quality? Note that once you have integer numbers in hand, you can also use Huffman coding…

EX 2. Predictive compression

Implement in Matlab predictive coding on cameraman using the second order linear (=gradient based) predictor (cf., Lecture notes). Does this predictor work well in the case of cameraman? (The key here is to think about what "working well" means…)