

# Slides Media Data Formats

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## Questions for Lecture Notes - Section 3.2.1

- 1 Describe the 2-D DCT - how is it applied in baseline JPEG ?
- 2 What is the DCT DC coefficient and which information does it carry ?
- 3 Describe DCT AC coefficient properties wrt. magnitude and distribution for increasing frequency.
- 4 If quantised coefficients are interpreted as weights, what is weighted for a block ?
- 5 How can we adapt the quantisation strategy to specific image content ?
- 6 What is the idea behind the design of the JPEG quantisation tables ?
- 7 How is compression strength controlled in JPEG ?
- 8 How is the scaling of quantisation tables related to JPEG quality factor ?

## Questions for Lecture Notes Section

- 9 How are the quantised coefficients mapped to a 1-D vector ? Why ?
- 10 Describe the (run,level) representation of the quantised coefficients.
- 11 How is the coefficient magnitude represented in JPEG ? Why ?
- 12 How is DC coefficient information encoded ?
- 13 Summarize the entire JPEG compression processing stages.
- 14 When setting a fixed quality factor, why are the resulting file-sizes different ?
- 15 What are the major add-ons in the JPEG extended system ?

## Questions for Lecture Notes Section

- 16 Describe the two variants of the Sequential Progressive Mode.
- 17 Describe the hierarchical progressive mode – how do the quantisation tables look like ?
- 18 Compare baseline JPEG and the progressive System with their corresponding advantages and disadvantages.
- 19 Describe the 2-D Wavelet Transform with respect to the generated detail subbands and how these are generated.
- 20 Why is the wavelet transform better able to deal with localised noise compared to DFT ?
- 21 Explain the wavelet packet decomposition and explain the best basis algorithm.
- 22 Where is wavelet packet-based compression being applied ? Which standard supports this ?

## Questions for Lecture Notes Section

- 24 What is the common property of second generation wavelet-based compression schemes ?
- 25 Explain a concept how to exploit subband similarity by prediction techniques.
- 26 Formulate and discuss the zerotree hypothesis.
- 27 Which coding gain may we expect when assuming the zrotree hypothesis to be true ? How is this achieved ?
- 28 Explain the “Significance Pass” in EZW in detail.
- 29 Walk through the EZW Example.
- 30 Explain relation between bitplane encoding of coefficients and deadzone around zero quantisation.