

Prof. Laksen

exam



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Video Compression, SGN 3156, 4cu – Fall/Winter 2008

Exam: 26.01.2009

*Please answer the exam questions in a short and concise manner.
It should be possible to answer each part of a question with one or two sentences.*

1. Explain how the combination of transform and quantization is used for compressing video data? Describe how quantization is used to control the rate-distortion trade-off?
2. Name and describe 3 different error resilience tools. Explain the difference between source coding based and channel coding based error resilience tools?
3. What is the difference between objective and subjective video quality metrics? Which class of metrics accurately measures the video quality and why?
4. Describe the difference between Intra-prediction and Inter-prediction? How is block matching used in Inter-prediction?
5. Explain the role of entropy coding? How does context adaptiveness improve the efficiency of entropy coding algorithms?
6. How does reference picture selection in H.264/AVC improve the video compression efficiency?
7. Describe the additional prediction mode that is introduced by Multi-view Video Coding (MVC)?
8. Explain the meaning of a rate-distortion curve? Draw a typical example of a rate-distortion curve? Name two different approaches of estimating the rate-distortion curve of a video sequence? Which approach is typically used in video coding?
9. Name and explain the tools for inter-layer prediction in scalable video coding (SVC)?
10. Explain the role of profiles and levels in video coding standards?