Complexity Control of H.264 Based on a Bayesian Framework

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Abstract: A computational complexity control algorithm is proposed for an H.264 encoder running on a processor/power constrained platform. Computational savings are achieved by early prediction of skipped macroblocks prior to motion estimation. The early prediction is based on a Bayesian framework which accurately predicts skipped macroblocks using probability models. Complexity control is achieved by calculating a pre-skip decision threshold that corresponds to a given target complexity. Results show that the algorithm can effectively control the encoding complexity whilst maintaining good rate distortion performance.