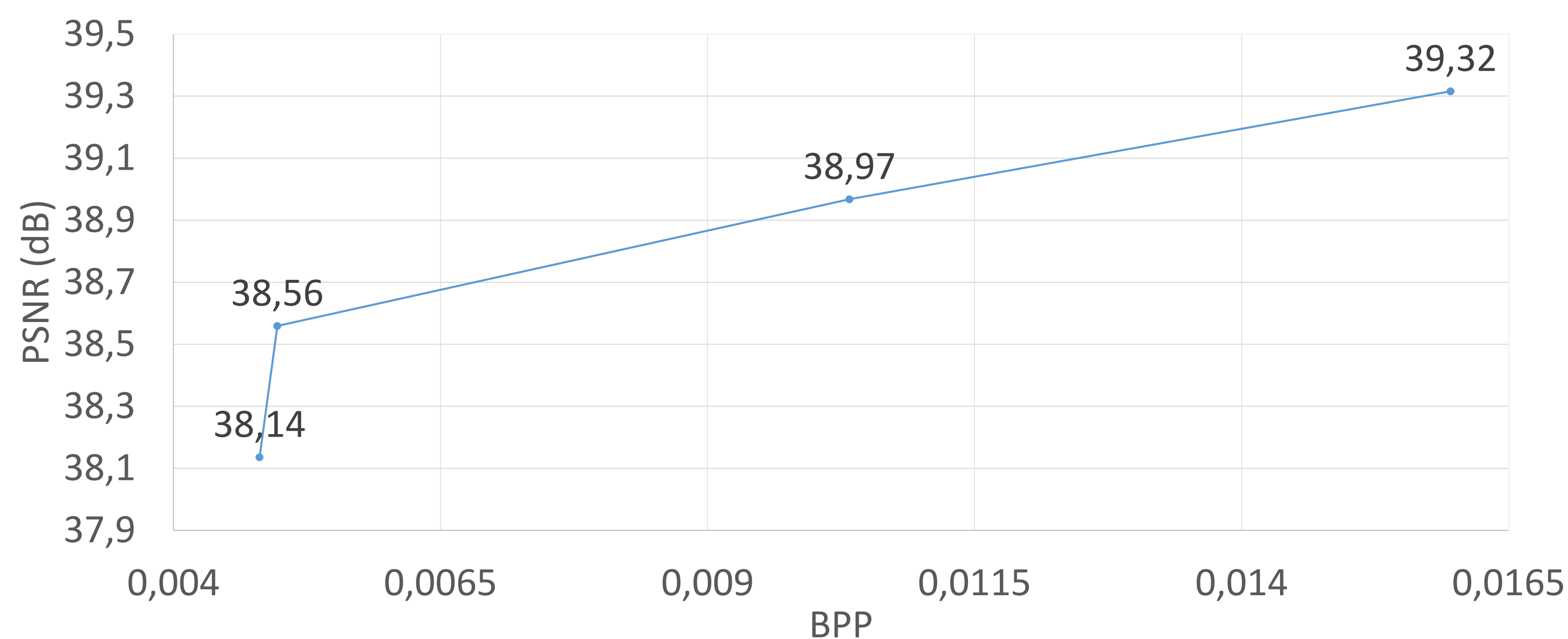


Entropy modeling in video compression based on machine learning

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General information

The article is devoted to the study of the entropy model of space-time characteristics in video compression using machine learning algorithms. The model allows you to effectively evaluate both spatial and temporal characteristics of compressed video data. In addition, the universality of the entropy model also allows you to set the quantization step over the spatial channel. This content-adapted quantization engine not only helps achieve smooth compression rate tuning, but also improves final performance by dynamically distributing quantization intervals. We are conducting computational experiments on a set of real video sequences to investigate the effectiveness of a video compression method using machine learning (ML) based on entropy modeling. We estimate the dependence of the peak signal-to-noise ratio (PSNR) on the volume of compressed data in bits per sample (bits per pixel, BPP). Computational experiments have proved the effectiveness of the ML video compression method based on entropy modeling on real data, and the prospects of using this method in video storage and transmission systems.



The dependence of decompressed video quality (PSNR) on the bits per sample (BPP) of compressed data

Architecture of method

