

# Fast Color Quantization of JPEG Images

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## Abstract

The JPEG image compression scheme is the standard method for compressing true color images. Since most computer systems have a clut-oriented graphic device, a color quantization process is required for displaying true color images on such systems. Unfortunately, the general color quantization problem is NP-hard and is therefore solved by suboptimal heuristic approaches with reduced visual quality. In this paper, we present a new coding scheme which reduces the color quantization process for JPEG images to a linear-time mapping procedure. Our proposal is based on performing some of the required computations as a preprocessing step before the compression and storing their results as part of the compressed image data. By applying this new method, the time for the visualization process becomes independent of the chosen quantization quality.

**Keywords:** JPEG, Color Quantization, Image Compression, True Color Images.