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Image quantization and visually improved gray-scale

Abstract

Image quantization is the process of reducing the image data and removing some of the detail information by reducing pixel values themselves. Quantization is the process of decreasing the number of bits needed to store pixel values. The gray scale image uses 8 bits to store one pixel; if we use fewer bits such as 2 bits to save pixel, then the storage quantity will be reduced, and the image can be compressed. As the number of gray levels decreases, we can see increase in a phenomenon called contouring. Contouring appears in the image as false edges, or lines as a result of the gray_level quantization method. This false contouring effect can be visually improved upon by using an IGS (improved gray-scale) quantization method. In this method (IGS) the improvement will be by adding a small random number to each pixel before quantization, which results in a more visually pleasing appearance.