

[0007]

However, the quantization matrix adapted to quantization and inverse quantization differs according to the characteristics of each image included in a video. For this reason, the frequency of quantization matrix updates will rise if one attempts to encode video whose image characteristics change from moment to moment with optimal quantization matrices. In H.264/AVC, the quantization matrix is defined in the sequence parameter set (SPS) or the picture parameter set (PPS). Consequently, if the frequency of quantization matrix updates rises, the proportion of the encoded stream occupied by the SPS or the PPS will increase. This means that the encoding efficiency will decrease because of increased overhead. For HEVC, in which the quantization matrix size is further increased and in which several different quantization matrices may be defined for each picture, there is a risk that such decreases in the encoding efficiency accompanying the update of the quantization matrix may become even more significant.

[0008]

Consequently, it is desirable to provide a mechanism enabling moderation of the decrease in encoding efficiency accompanying the update of the quantization matrix.

Solution to Problem

[0008a]

In a first aspect, there is provided an image processing device comprising:
circuitry configured to

set a parameter indicating whether to use a reference quantization matrix which is selected according to a type of the reference quantization matrix that includes a prediction mode and a size of the reference quantization matrix as a current quantization matrix;

quantize image data using the current quantization matrix to generate quantized data; and
encode the quantized data to generate an encoded stream including the parameter.

[0008b]

In a second aspect, there is provided an image processing method comprising:

setting a parameter indicating whether to use a reference quantization matrix which is selected according to a type of the reference quantization matrix that includes a prediction mode and a size of the reference quantization matrix as a current quantization matrix;

quantizing image data using the current quantization matrix to generate quantized data; and
encoding the quantized data to generate an encoded stream including the parameter.

[0008c]

In a third aspect, there is provided a non-transitory computer-readable storage medium storing computer-readable instructions thereon, which, when executed by a computer, cause the computer to perform an image processing method comprising:

setting a parameter indicating whether to use a reference quantization matrix which is selected according to a type of the reference quantization matrix that includes a prediction mode and a size of the reference quantization matrix as a current quantization matrix;

quantizing image data using the current quantization matrix to generate quantized data; and
encoding the quantized data to generate an encoded stream including the parameter.

[0009]

According to an embodiment of the present disclosure, there is provided an image processing device including an acquiring section configured to acquire quantization matrix parameters from an encoded stream in which the quantization matrix parameters defining a quantization matrix are set within a parameter set which is different from a sequence parameter set and a picture parameter set, a setting section configured to set, based on the quantization matrix parameters acquired by the acquiring section, a quantization matrix which is used when inversely quantizing data decoded from the encoded stream, and an inverse quantization section configured to inversely quantize the data decoded from the encoded stream using the quantization matrix set by the setting section.