A SLOPE INFORMATION BASED FAST MASK GENERATION TECHNIQUE FOR ROI CODING IN JPEG2000

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Abstract. *To support dynamic Region-of-Interest (ROI) in JPEG2000, a fast ROI mask generation is needed. In the existing methods of ROI coding, after scanning all the pixels in order and distinguishing ROI, an ROI mask has been generated. Our method scans 4 pixels of the corners in one code block, and then based on the information, scans the edges from the corners to get the boundaries of ROI and background. This information is consisted of distributed information of ROI and two coordinates of the pixels, which are the points the edges and the boundaries meet. This information is transmitted to encoder and supported for fast ROI mask generation. There were no great differences between the proposed method and the existing methods in quality, but the proposed method showed superiority in speed.*
Keywords: JPEG2000, Maxshift, ROI mask, ROI

1. **Introduction.** There is a lot of information in the world, and how speedy and precisely we analyze and aggregate the information and what we use the information for have been important. In addition, storing and transferring information have been important, too. Now, of the original data used in computers, the media with the largest volume is video, so how fast it transfers and how much it can be reduced have been important topics of study. Specifically video is used in different applications [1, 2, 3, 4], but it has some constraints because video has plenty of data. The most serious problem of the constraints is reducing the amount of data, and another is transferring the video quickly to a remote place without any errors. These issues have already been studied [5, 6], and currently, a requirement to make users quickly see a specific region in an image region has occurred.

ISO/IEC published a new still image compression standard, JPEG2000 [7, 8], which makes users satisfy different requirements. The typical characteristics of JPEG2000 are lossy and lossless compression, loss involved in lossless coding, progressive transmission by the precision and the resolution of pixel, bit errors and ROI (Region-of-Interest) [9, 10]. Especially, ROI coding transmits the object of interest in the image preferentially compared to the background and makes users see it, and means to store the object of interest with higher quality than the background in the image. In that case, users can get preferentially what they want to see and with a high-quality image. In communication environments with low bit rates, it makes users see only the region they want without receiving the whole image.