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(54) Title: METHOD AND APPARATUS FOR WATERMARK DETECTION FOR SPECIFIC SCALES AND ARBITRARY SHIFTS

(57) Abstract

Methods and devices for detecting a watermark in a watermarked video stream, the watermark having been scaled by an unknown scale among a predetermined finite number of scales and shifted by an unknown number of pixels. For each of the predetermined number of scales, the video stream is divided into a plurality of equally sized scaled watermark blocks; and the plurality of scaled watermark blocks are read into a plurality of read blocks. Each of the read blocks are accumulated into one of a predetermined number of read block bins. The accumulated read blocks are then re-scaled and combined into a single video accumulated block. A predetermined quantity, such as the power of a DCT, is then evaluated within the video accumulated block. This evaluation yields information relative to presence of the watermark in the video stream, the scale applied to the watermarked video and the shift of the watermark, if any, within the watermark blocks. A fractional remainder operation is used to determine the number of read block bins for each scale under consideration as well as to determine the bin into which each read block is to be accumulated.

