Fast adaptive motion estimation for H.264

ABSTRACT

H.264 motion estimation achieves better compression efficiency of video coding than previous video standards (e.g. MPEG-2, H.263, and JPEG). But it leads to higher computational cost and complexity in coding. In this study we propose an efficient early termination searching method to reduce the computational complexity and achieve better compression ratio. Adaptive search strategy is applied to reduce the search point in a search range. Furthermore this study presents an analysis of the performance of the proposed algorithm in terms of motion estimation time, total encoding time, and video quality (PSNR). Simulation result shows that compared to Full Search (FS), this algorithm achieves up to 60% reduction in motion estimation time without degrading the video quality.

Keyword: Adaptive search; Motion estimation