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Title: **CE4-related: Motion estimation improvements**

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Abstract

In this contribution, two encoder improvements are proposed to enhance the motion estimation (ME) efficiency of the VTM-5.0 encoder, including 1) adding the motion vector (MV) candidates from previously inter coding units (CUs) for the starting point selection of integer-pel ME; 2) local refinement of the control-point motion vectors (CPMVs) for affine ME. Compared to the VTM-5.0 anchors, the proposed encoder improvements reportedly provides average {Y, U, V} BD-rate savings of {0.31%, 0.52%, 0.53%} and {0.16%, 0.16%, 0.10%} for RA and LD configurations, respectively, with 1% encoding time increase.

Introduction

Like the HEVC test model (HM), block-matching based motion estimation (ME) is used at the VTM-5.0 encoder [1] to derive the optimal motion vectors (MVs) for regular inter coding units (CUs). Instead of searching all the MV candidates at fractional positions, one test zone (TZ) algorithm is firstly applied to find the best MV at integer-pel accuracy followed by half-pel and quarter-pel motion refinements around the best integer MV when the adaptive motion vector resolution (AMVR) is disabled for the current CU. Figure 1 illustrates the flowchart of the TZ algorithm in the VTM-5.0, which mainly contains the following steps:

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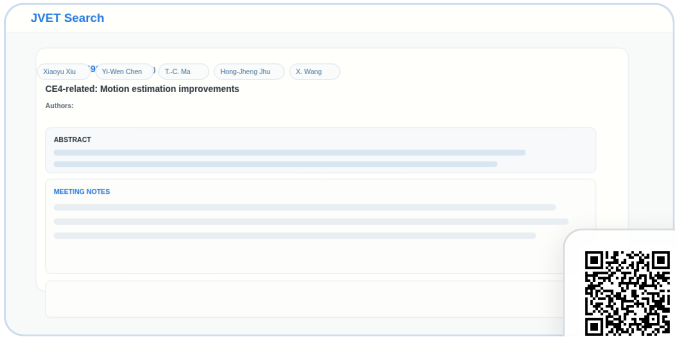

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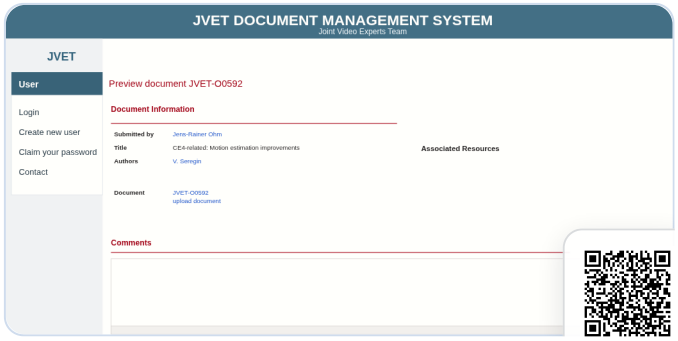

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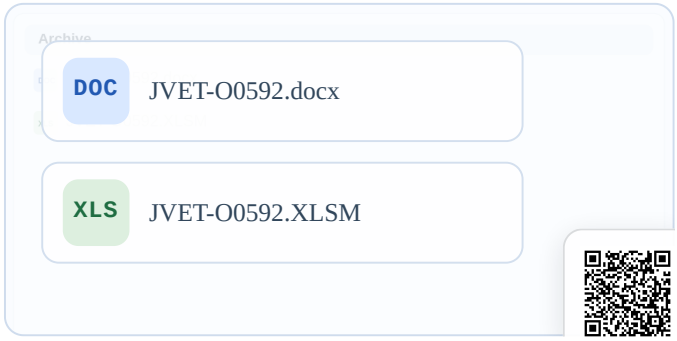

MEETING NOTES

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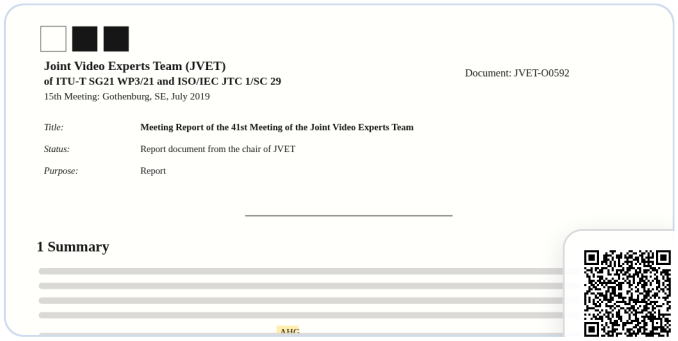

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