

**Title:** Improved matching criterion for frame rate upconversion with trilateral filtering

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**Abstract:** Frame rate upconversion (FRUC) is an important post-processing technique to enhance the visual quality of low frame rate video. A major, recent advance in this area is FRUC based on trilateral filtering which novelty mainly derives from the combination of an edge-based motion estimation block matching criterion with the trilateral filter. However, there is still room for improvement, notably towards reducing the size of the uncovered regions in the initial estimated frame, this means the estimated frame before trilateral filtering. In this context, proposed is an improved motion estimation block matching criterion where a combined luminance and edge error metric is weighted according to the motion vector components, notably to regularise the motion field. Experimental results confirm that significant improvements are achieved for the final interpolated frames, reaching PSNR gains up to 2.73 dB, on average, regarding recent alternative solutions, for video content with varied motion characteristics.

**Author Keywords:** Trilateral filtering; Frame rate upconversion

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