Spatial and Temporal Interpolation of Multi-View Image Sequences

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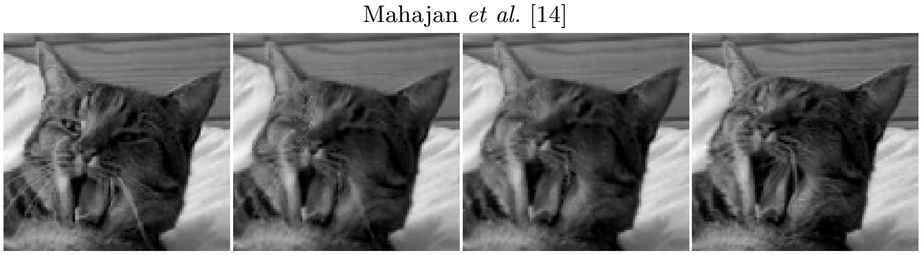
1 Further Results

In this supplementary material we present further experimental results of our proposed framework. Fig. 3 shows a qualitative comparison of the methods by

Mahajan *et al.* [14]



Werlberger *et al.* [25]

Proposed sparse approach

Fig. 1: Comparison of our sparse approach to two state-of-the-art temporal interpolation methods. *From left to right*: Input image, interpolation at $t = 1/3$, interpolation at $t = 2/3$, target image. Our approach yields comparable results.

Mahajan *et al.* [14], Werlberger *et al.* [25] and our proposed sparse approach.

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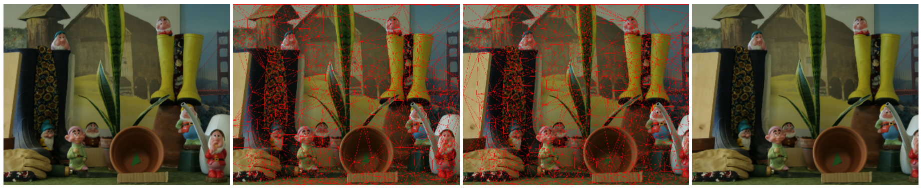
Note that these two state-of-the-art methods have mostly been tailored for and evaluated on small-baseline camera motion sequences, exhibiting small image deformations as typically found in temporal image interpolation problems of nearly static cameras.

In Fig. 2 we illustrate the performance of the proposed sparse approach on a sequence with very large camera rotations. The view interpolations are of high quality and the small distortions in the area of the lamp are barely noticeable. Please see the supplementary video for smooth interpolations and further results on a variety of sequences.

Fig. 2: Uniform transition on the Room dataset between two frames. *Highlighted*: Details of the two input images. Our framework can be applied to any sequence of temporally or spatially related images. The image quality is well preserved despite the large camera rotation except for slight distortions of the lamp.

In Fig. 3 we show an extended version of the 'Dwarves' sequence [18] of Fig. 7 in the paper. Here we further show the computed triangulation of features and the ground truth image along with our results for both dense and sparse approaches.

Fig. 4 illustrates the application of virtual avatars generated from a few images. Especially distortions on human faces are easily detected by human observers. However, our proposed approach yields convincing view interpolations also on this sequence. Please see supplementary video for an interactive illustration.



Source (left), target (right) images along with overlayed triangulated features (middle).

Fig. 3: Extended version of the 'Dwarves' sequence [18] evaluation in the paper (Fig. 7). *Top row:* input images with and without overlayed triangulation. *below, from left to right:* ground truth image, method output, difference to ground truth. *Middle row:* Dense, TV-L1 flow, $e_{RMSE} = 11.19$, *Bottom row:* Sparse, guided matching, $e_{RMSE} = 6.08$

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Fig. 4: Avatar scene. The graphic shows interpolations at $t = 0.5$. *From left to right*: Source image, simple cross-dissolve, Dual TV-L1 based interpolation, target image. Without warping, obvious ghosting artifacts are introduced. Our framework on the other hand produces smooth and plausible transitions.

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