

# HOLE-FILLING TECHNIQUE FOR VIEW SYNTHESIS BY USING GAUSSIAN MIXTURE MODELLING

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## Abstract

- Existing view interpolation technique may concern poor rendering quality due to the occluded region (holes), low precision rounding error (cracks) and disparity discontinuity (ghost's).
- In this paper a new technique is proposed by using *Gaussian Mixture Modelling* (GMM) to recover missing pixels for generating better quality intermediate view.

## Proposed Technique

- We have taken two textures and their corresponding depths, intrinsic and extrinsic parameters as input.
- The textures and depths are warped to intermediate position based on intrinsic and extrinsic parameters.
- We used median filter for reducing cracks problem.
- Merging both warped views based on four conditions for reducing number of holes.
- We generated *most common frame in a scene* (McFIS) by using GMM technique. Then the foreground pixels are selected from the middle frame and the background pixels are selected from the McFIS.

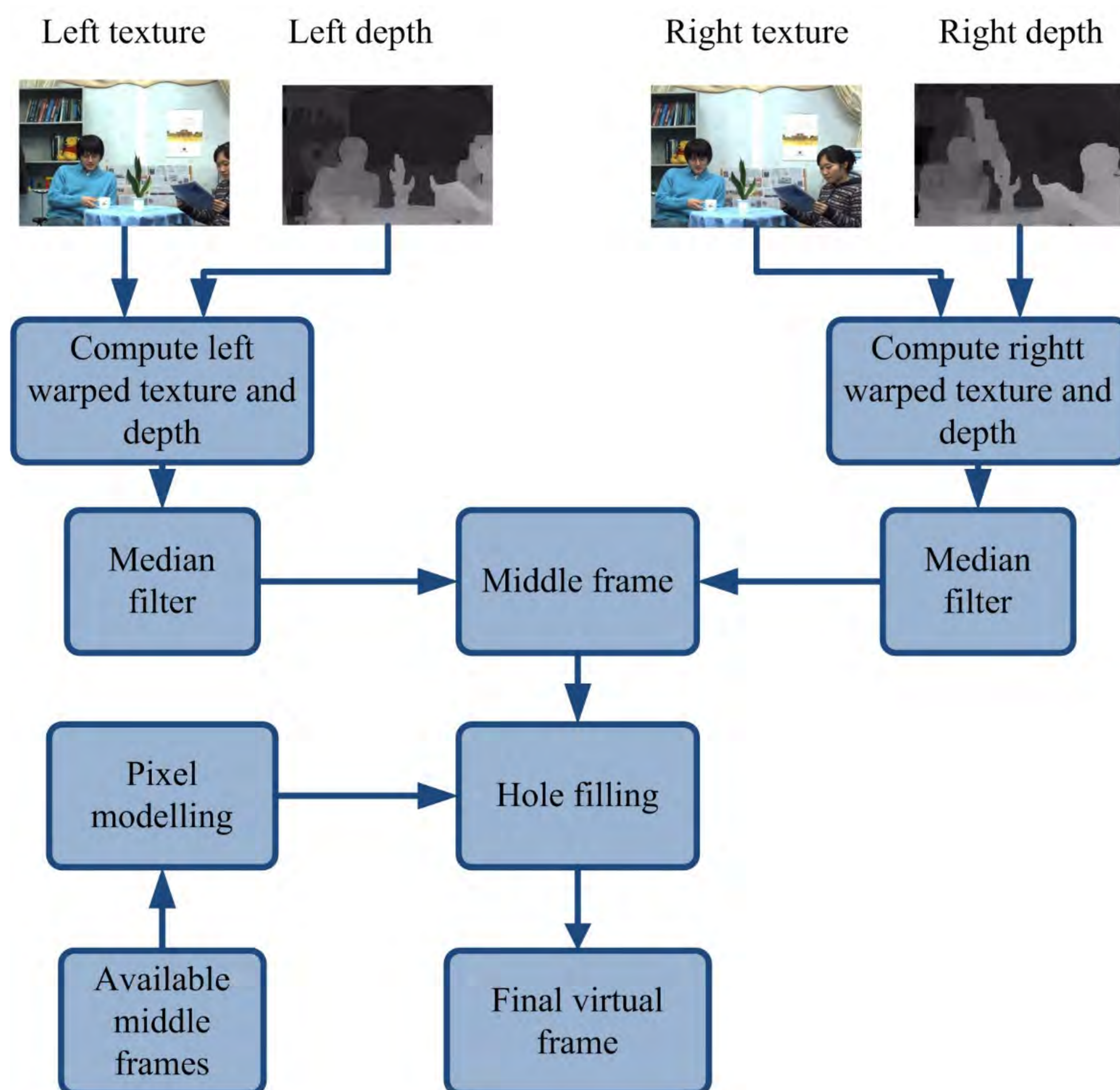


Fig. 1: Schematic diagram of the proposed technique.

## Experimental Results and Conclusions

Fig. 2 reveals that the proposed technique provides almost 7.0dB PSNR improvement on average. Moreover, the subjective quality of the proposed method for the Newspaper video sequence is also given in Fig.3. Some regions are enlarged to show the quality difference.

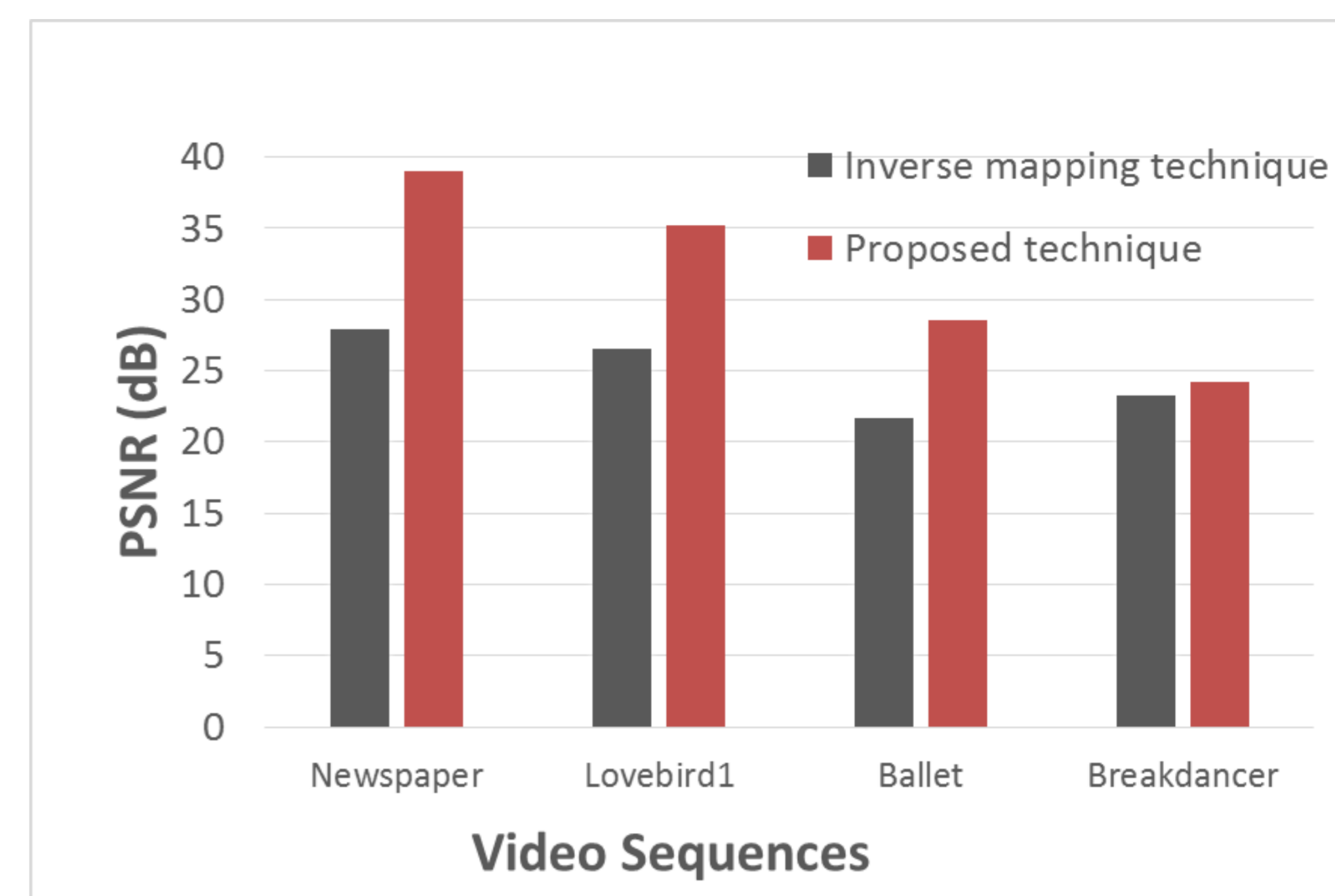
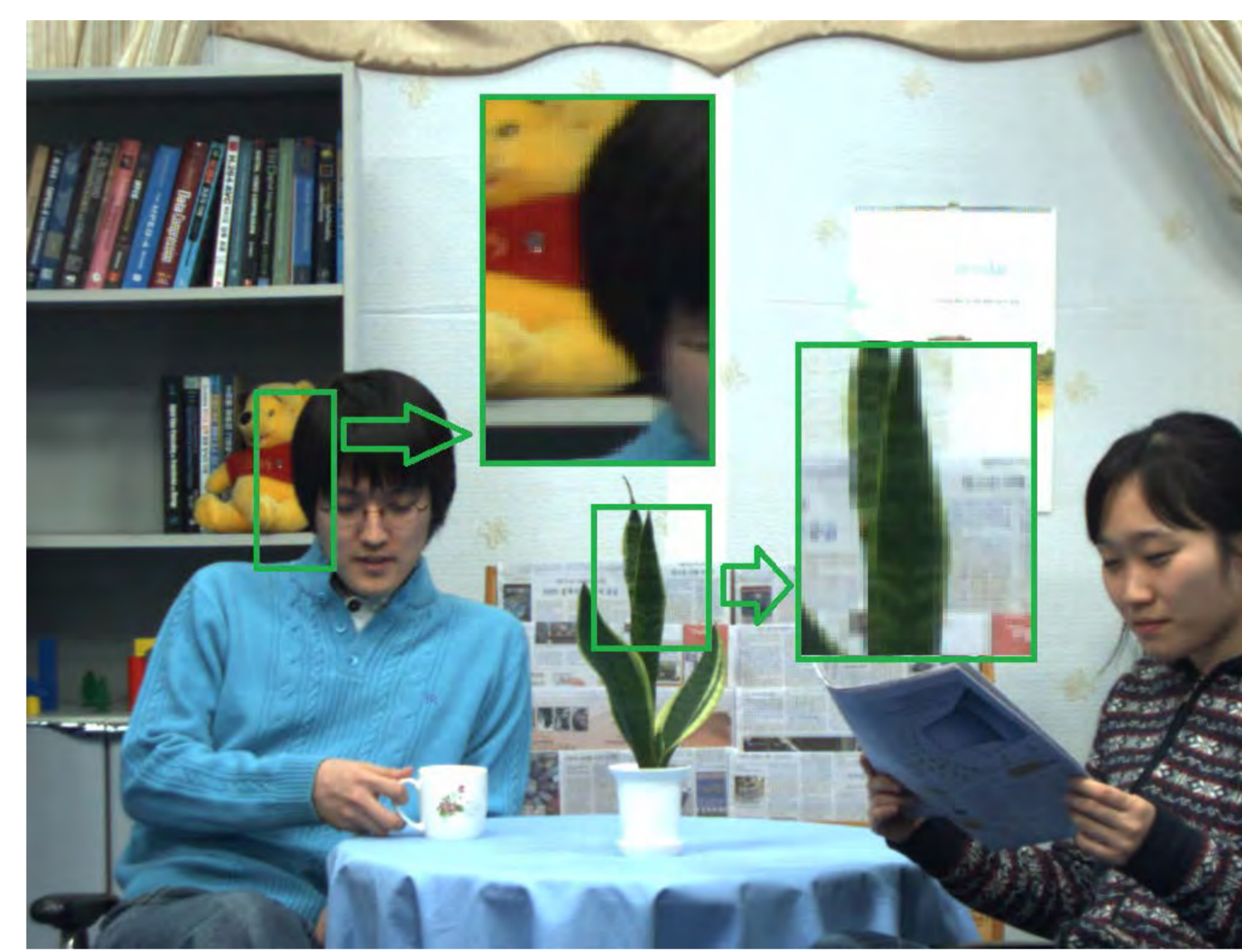
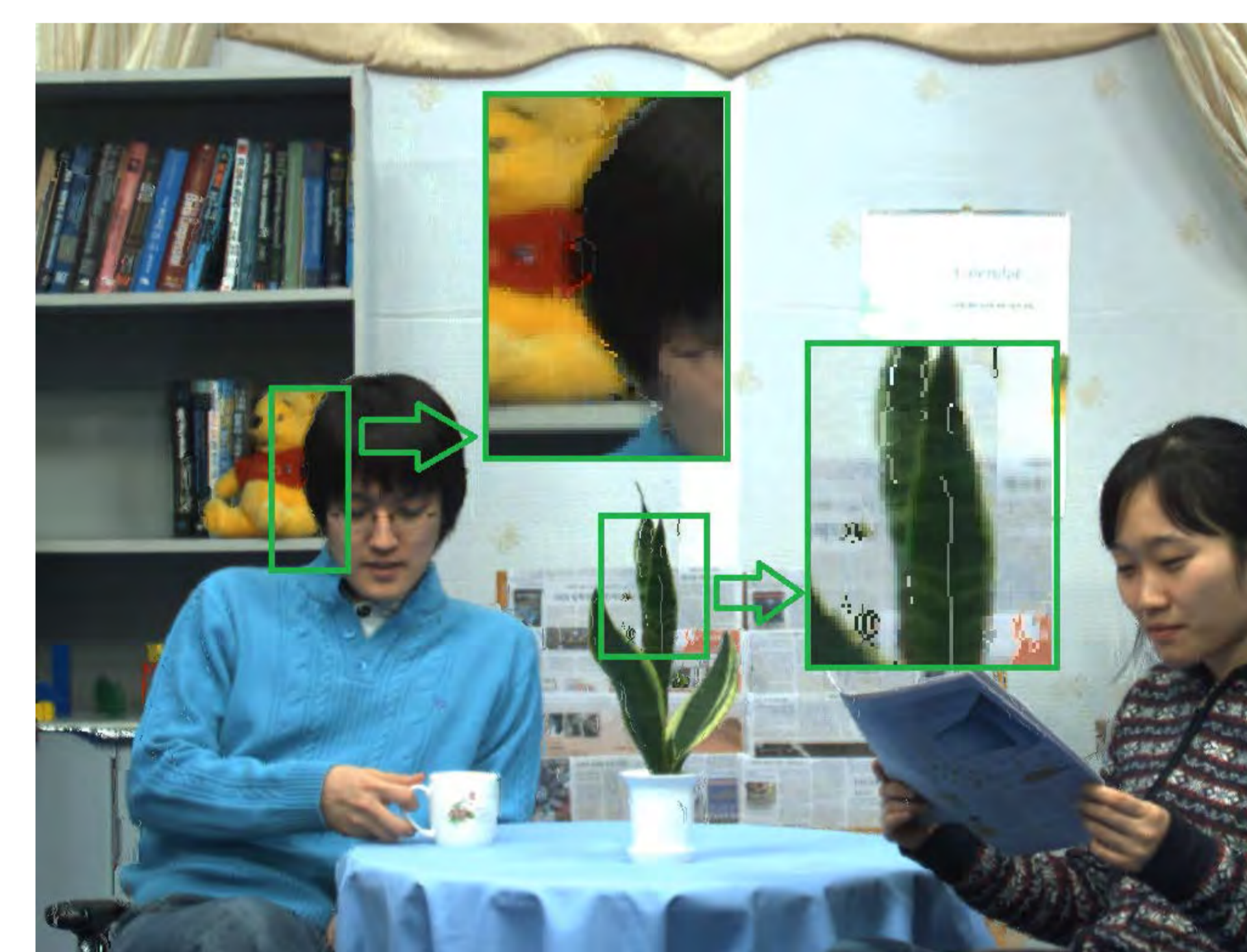


Fig. 2: Performance comparison.



(a) original image



(b) virtual image using inverse mapping method



(c) virtual image using the proposed method

Fig. 3: Subjective quality evaluation.

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