Readme

Supplemental multimedia materials for Ph.D thesis of

"A Cluster-based Free Viewpoint Video System using Region-tree based Scene Reconstruction"

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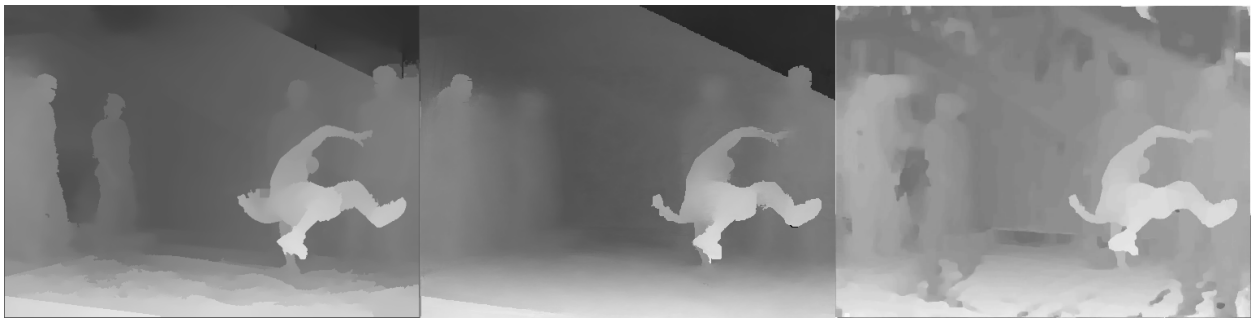
Enclosed with our supplemental material package are Quicktime video files of

(a) "Depth-BreakDance.mov" and "Depth-Lab.mov" under the sub-folder of "Depth"
(b) "Rendering-BreakDance.mov" and "Rendering-Lab.mov" under the sub-folder of "Rendering"

In particular,

- Video "Depth-BreakDance.mov" shows depth result comparison with paper [1] **(left)** and [2] (**Right**) for MS research breakdance dataset (View 3). Since the result of [2] is obtained from their compressed demo video, its quality may deviate a little bit from the original one. Also since the demo video misses 2 last frame result, our video length is of 98 frames.

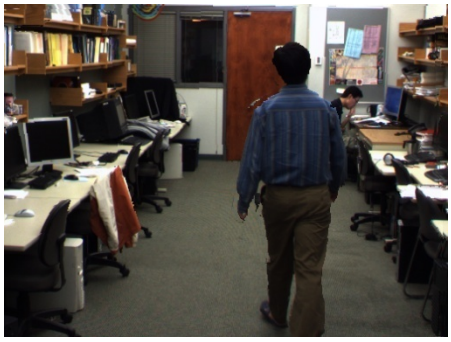


Result from [1] Our result Result from [2]

- Video "Depth-Lab.mov" shows our depth results for lab dataset. Totally 3 views are shown.

- Video “Rendering-BreakDance.mov” shows a free viewpoint rendering of the breakdancing dataset using our depth result.

- Video “Rendering-Lab.mov” shows a free viewpoint rendering of our lab dataset. In addition to the virtual view color image rendering, the corresponding synthesized depth maps for some frames are inserted.



Rendered color image (virtual view)

Rendered depth image (virtual view)

Remark:

We want to emphasize that the main purpose of our thesis project is in depth based free viewpoint video scene reconstruction, not rendering. The rendering videos are mainly for illustration. Our current free viewpoint video renderer is very preliminary and based on direct forward wrapping and blending. By implementing a more advanced renderer such as the boundary layer based one [1], the rendering quality could be improved.

References

[1] C. L. Zitnick, S. B. Kang, M. Uyttendaele, S. A. J. Winder, R. Szeliski. High-quality video view interpolation using a layered representation. ACM Trans. Graph. 23(3): 600-608 (2004)

[2] E. S. Larsen, P. Mordohai, M. Pollefeys, H. Fuchs. Temporally Consistent Reconstruction from Multiple Video Streams Using Enhanced Belief Propagation. ICCV 2007: 1-8