Motion-Compensated Compression of Dynamic Voxelized Point Clouds

ABSTRACT

- Dynamic point clouds are a potential new frontier in visual communication systems. A few articles have addressed the compression of point clouds, but very few references exist on exploring temporal redundancies
- A novel motion-compensated approach to encoding dynamic voxelized point clouds at low bit rates. A simple coder breaks the voxelized point cloud at each frame into blocks of voxels.
- Each block is either encoded in intra-frame mode or is replaced by a motion-compensated version of a block in the previous frame

EXISTING SYSTEM

- The emergence of inexpensive consumer electronic systems for both 3D capture and 3D rendering, visual communication is on the threshold of advancing beyond traditional2D video to immersive 3D communication systems.
- Dynamic 3D scene capture can be implemented using color plus depth (RGBD) cameras, while 3D visualization can be implemented using stereoscopic monitors or near-eye displays to render the subject within a virtual or augmented reality.
- The processing for capture and display can be done in real time using powerful graphics processing units (GPUs)

PROPOSED SYSTEM

- The decision is optimized in a rate-distortion sense. In this way,both the geometry and the color are encoded with distortion,allowing for reduced bit-rates.
- In-loop filtering is employed to minimize compression artifacts caused by distortion in the geometry information.
- Simulations reveal that this simple motion compensated coder can efficiently extend the compression rangeof dynamic voxelized point clouds to rates below what intra-frame coding alone can accommodate, trading rate for geometry accuracy

HARDWARE REQUIRMENT

- Processor - Intel
- Speed - 1.1 Ghz
- RAM - 256 MB(min)
- Hard Disk - 20 GB
- Monitor - SVGA

SOFTWARE REQUIRMENT

- Tool - MATLAB R2012
- Operating system - Windows Xp, 7

REFERENCES

- Y. Altunbasak, J. Apostolopoulos, P. A. Chou, and B.-H. Juang, “Real-izing the vision of immersive communication,” IEEE Signal Processing Magazine, Jan. 2011.
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