An Image Based Human Modeling System for Video Coding

Abstract

We describe an image based approach to model a human upper body achieving very large
bit-rate reductions for 2D video images. The bits ranging from 35 kbps based on MPEG
compression for resolution of 160x120 down to about 16 bps for arbitrary resolution video
images. Our human model to be encoded is represented by an animated sequence of image
frames taken from a short video sequence. A very small size of encoding data is sent and
to be decoded to reconstruct the model based on live analysis on shape, color and motion
information. Our model is able to support the real time interactive communication under
low bandwidth network on common hardware with low computational complexity.