Reading Critiques

Painterly Rendering for Video and Interaction

We read the earlier work titled “Painterly Rendering with Curved Brush Strokes of Multiple Sizes” by Aaron Hertzmann last week. This paper signified the next step in “Painterly Rendering” series, this time instead of working with one still image, Aaron and Ken Perlin’s focus is to animate a video. The rendering will turn a realistic video into a moving painting. The two researchers are more focused on making the task possible—not easier, faster, or more accurate. But, the results are very beautiful.

The painted world is a world inhabited by brush strokes. Much of the basis for the video rendering is from rendering the still images. The researchers started off by applying the sill image filter to each frame independently. However, a constant challenge was that small changes in input causes dramatic changes in output, creating flickering in output video. This unnecessarily distracts from the action and doesn’t help create fluidity expected from brush motions. The problem was addressed on several levels: painting over, frame rate, and optical flow. The first frame was painted normally and then each successive frame was painted over the previous with unchanging regions of video frame left alone. Then, the frame rate was slowed to 10-15 frames per second to distinguish between the portrayal of an ordinary video with bad artifacts and what we wanted, a moving painting.

Applications of the video were twofold in the paper. First, the algorithms were applied to a music video. For the close-ups, the rendering of the image as paintings was believable. However, for the images with a lot of detail, the different strokes and colors got distracting. It no longer seemed to be painted in the same style. Second, they created a “Living Painting” where visitors can interact and be a part of the process of creating their own painting. Differences in output still seem to be an issue, especially since optical flow was not implemented. Namely, again, the style varies dramatically (smudges, blurry or very sharpened) depending on where the person is.

I only wish that there were some links to actual video footage of their work instead of just still samples. Although I could tell from the stills what the issues may have looked like, I believe showing the “flickering” challenges as well as the differences between applying the different techniques would have been shown best by video. I did do a search on painterly rendering videos and came across some examples that used GradientShop. The flickering seems to be mostly with color match and blending problems. It was somewhat different than what I imagined because I thought it would be with details changing.
Telemurals: Linking Remote Spaces with Social Catalysts

Another visualization by Professor Karahalios and also Judith Donath at the MIT Media Lab. Telemurals is an abstract audio-video installation with the purpose of initiating and sustaining interaction between two remote spaces. It is divergent from current approaches and focuses mainly on designing social catalysts. These catalysts initiate and create opportunities for people, who would not otherwise be communicating with each other, to engage in conversation.

Many previous, related works were discussed prior to presenting Telemurals and they helped formulate the motivation and background of the project. First, there was a discussion of William Whyte and the triangulation factor. This factor basically focuses the attention of diverse inhabitants to a common object and facilitate communication among otherwise disconnected strangers. It essentially is a catalyst that allows conversation to begin. In public settings, these were often street performances, sculptures, magicians, protests, etc. The challenge was to translate the triangulation factor into two separate physical spaces. Secondly, the Hole-in-Space project was introduced. This was a real-time audio and video connection between Lincoln Center in NYC and Broadway department store in LA. It displayed life-size screen that allowed participants to look and speak out across the country. Lastly, there are the typical media spaces that connect offices, conference rooms, and people between two sites.

Telemurals itself draws aspects from the previous works. It abstractly blends two remote spaces like Hole-in-space. Silhouettes of participants are rendered but without revealing too much about the identity of the participants. The catalysts used are the speech recognition system which returns the test of the closest matching words in its dictionary. Other social cues include gestures such as nodding of the head in agreement. Also, the space changes when the participants become more involved in interaction. With more involvement, more details are shown about the person.

The main challenges I could see coming from Telemurals include interaction and signage. The interaction with Telemurals or even people in the other space depends highly on whether it is set up in a high traffic area. Only during “events” or certain hours was the visualization must used. Also, signage was an issue because this blending of space is an uncommon concept. People thought it was just an abstracted mirror and confused when another silhouette appeared. The interface could not naturally guide the interaction.

Also, I hesitate to see the direct usage of the triangulation factor discussed in the previous works. Although Telemurals gives participants a commonality to share by blending the space this is not exactly a third-party object as those observed by Whyte. Instead, maybe create a third space that both the participants can watch and observe as well as each other’s reactions to that space. I think that would be an interesting direction to take this concept.