Painterly Rendering for Video and Interaction

This article is a continuation of the painterly rendering of still images article from last week. The same process that was discussed in the previous paper for rendering single images is again used here. A rather novel (at least when compared with the problem of using the painterly rendering algorithm to render still images) problem arises, however, when using the painterly rendering algorithm in video. Because slight variations in source images can cause rather drastic differences in the output painterly images, two consecutive frames that look almost identical in the original video can look significantly different in the painterly video. This fact along with the presence of ‘noise’ in some of the video frames can lead to a phenomenon called flickering in the painterly frames. This flickering looks quite bad (apparently—I have not seen it myself) and shatters the viewer’s belief in the video as being fluidly created by a painter as it moves and changes on the viewing screen. In order to solve this issue, the creators, rather than rendering each frame in a way that works independently of the way the previous frame was rendered, instead takes into account the colors and the strokes used to create the previous frame. The control points of the brush strokes of the previous frame are actually stored for use in the following frame. Doing this makes it look as though the strokes are shifting around the screen as the video progresses.

In order to test out the visualization, the creators put the painterly rendering of video algorithm to real-time work. A camera was set to record a group of people in a room. Viewable from this room was a screen that took the video captured by the video camera and converted it (in quasi real-time—4 fps) to the painterly form. The audience apparently found it very intuitive (how could you not?) and enjoyed it very much.

I do like this visualization quite a bit, although I have not had the chance to actually see the result. I concept, however, I believe the idea of taking a video and making it into a moving picture is a good one and one that could not otherwise (i.e. without the use of a computer) be easily realized.
**Telamurals**

This article discusses Telamurals, which is a social visualization of video that was previously discussed (although discussed outside the realm of visualization of video). As did the related article before it, this article explains that Telamurals is a visualization whose purpose is to connect two otherwise unrelated social spaces. In order to do this, a separate camera is placed in each of the two social spaces. Additionally (so that video as well as audio may travel from one social space to the other), a microphone is used. In the first iteration of Telamurals, the cameras that ‘connected’ the two rooms were simply regular cameras that recorded and sent a simple (sharp) colored image to its partner camera. Because the recorded and shared images were so clear (i.e. had not been distorted in any way), many people who used the application found it to be intrusive. In order to alleviate (at least somewhat) this problem of privacy invasion, it was decided that, rather than display a ‘perfect’ image of the social space viewed by one camera to the viewers at the opposite display, the image should be somehow converted. Following this design decision, the second iteration of Telamurals was designed using image capturing and line-drawing techniques that allowed the creators to produce an image comprised of a series of thin lines (much like the image a pencil artist might create when sketching a scene). Taking the distortion idea a bit further, the third and final iteration of telamurals displayed both sets of viewers on the same screen, one image overlaying the other. Each viewer was represented as a colored outline of himself that would become more apparent and easier to see with greater interaction. This encouraged users in the different physical social spaces to interact in order to be able to see one another better.

While an interesting concept, I believe that, without cause to do so, people, provided they were complete strangers, simply would not speak with one another. Had the two strangers been in the same room, I very much doubt that they would have communicated. Putting the two strangers in different rooms that are connected only by an odd-colored monitor seems to only decrease the likelihood that the strangers will interact. It seems like, in order to get two strangers to interact in an at least somewhat natural manner, some sort of focus or common desire has to be present. That is, the two need to have a common goal such as completing a quest in a game in order to interact in a natural manner.