CS498-SOCIAL VISUALIZATION

READING 12—ARTIFACTS OF THE PRESENCE ERA: USING INFORMATION VISUALIZATION TO CREATE AN EVOCATIVE SOUVENIR; PAINTERLY RENDERING WITH CURVED BRUSH STROKES OF MULTIPLE SIZES
PAINTERLY RENDERING FOR VIDEO AND INTERACTION; TELEMURALS: LINKING REMOTE SPACES WITH SOCIAL CATALYSTS; NONPHOTOREALISTIC RENDERING

SUBMITTED TO:
PROFESSOR KARAHALIOS

SUBMITTED BY:
MANI GOLPARVAR-FARD [~MGOLPAR2]
Painterly Rendering for Video and Interaction

by Aaron Hertzmann and Ken Perlin

Critiqued by: Mani Golparvar-Fard [-mgolpar2], CS498kgk

This paper presents a new painterly video processing technique which works on the source videos that are changing. Obviously the simplest method for generating painterly video is to apply a still image filter to each frame of the video independently; however such an approach creates significant flickers and makes it highly objectionable. Though the presented method in this research project dramatically changes the typical frame-by-frame output by creating a video that is less severely affected through flickers. Video noise and other image regions with minimal changes are also left alone using a simple difference masking technique. In order to make pleasant renderings, brush strokes may be warped between frames using optical flows. One of the interesting issues associated with this technique presented in the paper is that the methodology has been presented for the first time.

According to the paper, research that has led to this rendering techniques falls into two categories: (1) development of new representations for painted worlds (i.e., animations); and (2) painted representation of the world. I guess this is a very strong categorization for rendering techniques and the methodology introduced in this paper obviously fits into the second category. The most interesting idea that separates this work for the rest of the works that fit into the second category is the notion that the brush strokes are detached from the geometry both temporally and spatially. Obviously such an interesting approach helps in better visualization and emotional representations of physical media, as well as informal and compelling interfaces. It provides an option for artists to create persuasive, pleasing and expressive video and interfaces.

In order to validate the usability of the presented work, it has been demonstrated in an experiment that was immediately accessible to outside visitors. In my opinion although the frame rate was not the best possible for an aesthetic visualization, yet it was powerful that many observers enjoyed viewing renderings of their own faces and bodies. Since the difference masking was used, it ensured that the painting only changes where there is a motion happening within the scene.
Telemurals: Linking Remote Spaces with Social Catalysts

By Karrie Karabalios and Judith Donath

Critiqued by: Mani Golparvar-Fard [-mgolpar2], CS498kgk

This paper presents Telemurals, which is an abstract media (i.e., audio/video) installation that seeks to initiate and maintain the interactions between two remote social spaces. This work crosses over art and media spaces and creates a connected space for causal and social conversations. It is based on a very simple idea which was mentioned by William Whyte: “What attracts people most is people”. Based on such concepts both local and remote social interactions are facilitated. In my opinion, Telemurals provides an excellent communication means between spaces that are physically separate. In my opinion, one of the most powerful points of this work is that it does not create any substitute for the regular face-to-face interactions. Rather it generates new models of conversation as well as potential physical interactions within the space.

Telemurals, which was experimentally set up in dormitory hallways, was less well received – with many potential participants avoiding the space which was being projected into another location pending the projected images became more abstract and included both the local and remote users. I think another powerful point of this work was its abstraction, i.e., rendering the video in a cartoonish manner which in turn reduced the sense that the cameras were there for surveillance, which is the most common use of stationary and/or time-lapsed cameras in public settings. In general, I guess the major concern over whether a person could be monitored seems present throughout the field of social visualization, and in turn it presents major challenges for designers and developers who want their systems to attract wider acceptances and more audience.

I think one of the very interesting and favorite parts has been the visualization of participants based on their interactivity. I believe that this visualization directly corresponds to how the discussion might look if it had any sort of a “form”. At the start of a conversation, in Telemurals was only has silhouettes, there is nothing seen from a person, though eventually as the conversation continues, more parts of the person will be reveals and more cartoon-like visualization of the people will be seen. I think since the thesis was already studied and many part of this work was shown in the class, I was very familiar with this work and following the paper was quite easy. Though I guess this paper depicts a clearer and a more concrete picture of what is meant by social catalysts. In addition to all this, the suggestion of using scale as a rendering technique to depict the yells or loud audio conversations of people is really interesting.
Interactive Artistic Rendering

By Mathews Kaplan, Bruce Gooch, and Elaine Cohen

Critiqued by: Mani Golparvar-Fard [-mgolpar2], CS498kgk

This paper is another work that presents an algorithm for rendering parts of a complex scene in a variety of styles using editable particle systems. The presented algorithm is flexible enough that allows both automatic and semi-automatic (with manual interventions) artistic effects with complete frame-by-frame coherence at interactive rates. This in turn allows the user to completely be in control of particle placement, size, shape as well as orientation on a per object basis, to generate a variety of artistic effects with significant aesthetic, while allowing rendering to happen with ease.

This algorithm and its implemented system also allows different scenes to be rendered with a variety of artistic styles based on user-defined parameters such as shading models or texture and strokes styles. The interesting issue associated with this algorithm is that the particles in the particle system are associated with the geometry of the subdivision surface models wherein the particles are used to represent the hand drawn strokes. Furthermore, they can suggest specific geometric features that are not present in the original model and these features can be interactively modified by a user, in turn generating artistic effects.

I think one of the other interesting things about the implemented system and/or choosing geograftal systems is that it could be easily used to paint stroke an object. These types of systems unlike other painting systems that are based off of standard texture mapping, and therefore sidestep the problems associated with distortion and parametric overlays. This is due to that fact that only the geo-location of the geograftal is associated with an object and because of such constraints, size and shape that are geograftal features will not be vulnerable to distortion and/or cropping where ever the shape of the model is not regular or “where the parameter bounds of the texture map lie”. In addition, another interesting feature of the implemented system is the generalization of it and the fact that allows multilayer editing techniques. Yet I think if the concept of strokes are extended to user defined curves or bitmaps, that would be a valuable addition to the system.