Panel Title: Graphics in the Large

Panel Organizer: David J. Kasik, Boeing

Brief Description:
The world of display devices is expanding rapidly, both literally and figuratively. New commercial and research devices come in larger sizes (measured in meters, not inches) and different physical forms (e.g. rectangular surfaces, cylindrical segments, truncated spheres). Such expansion means that graphics and interactive techniques are becoming far more amenable to group activities and displaying more and more data at once. This panel will focus on graphics in the large. We will examine the impact of computer graphics across multiple devices, for groups of co-located and distributed users, and for display of more and more data. The primary point of discussion will be "Is Bigger Necessarily Better?"

Longer Description:
The motivation of the panel is recent work evaluating the impact of large display devices and interaction techniques (both single user and groups) for such devices.

Use of 3D has become commonplace in a number of different areas. Companies that build physical products (e.g. automobiles, appliances, aerospace vehicles, buildings) rely on 3D geometry as the master for their product data information. The gaming and entertainment industries generate huge amounts of 3D geometry and visual environments that millions view daily. 3D information visualization techniques have become valuable for people who try to understand and analyze vast quantities of data or derive relationships from seemingly unrelated sources.

There has been a significant increase in the variety of graphics display devices. Announcements of new devices seem to appear weekly. The advent of large amounts of memory, processors, and relatively inexpensive monitors has pushed the display device industry from vector to raster.

Since virtual reality started in earnest in the late 1980's, there has been a significant amount of work done to enhance the illusion of three dimensions through improved display technology. Work still is being done to develop display techniques to make three-dimensional images appear 'better'.

The advances in supporting computing technology increase the human problem of comprehending and interacting with complex displays. Communicating design relationships and analysis results relies on a person's ability to understand huge amounts of data. Pictures have become the preferred tool to summarize such data effectively. More people can look at the same image at the same time. As multiple screens become integrated into the workplace, a single user may have to work on different devices to accomplish a single task.

A new body of questions arises with the advent of larger and larger display surfaces. For example:

- In what situations are such devices beneficial?
- What techniques can be used to prevent graphic information overload?
- Are there new ways that an individual can interact more intuitively than with a mouse and keyboard? How do we transition from a WIMP interface paradigm?
- How do groups of users interact during an interactive or review session?
- How does an individual work with multiple large devices that have different characteristics?

Panel Format:
Default, although I would like to include all 5 confirmed panelists because of the breadth of the topic. I chose the five participants to minimize overlap.

Confirmed Panelists:

- Richard May (University of Washington HITLab) has implemented a method of doing gesture recognition for multiple users on a single devices call HiSpace (http://www.hitl.washington.edu/people/rmay/hispace.html).
- David Zeltzer (Fraunhofer CRCG) has developed a number of techniques use for groups in command and control environments.
- Brian Fisher (University of British Columbia) is cognitive psychologist who has worked on shrinking physically large display (e.g., power plant control systems) to small form factors and how groups of users can work collaboratively in different geographic locations.
- Loren Carpenter (Pixar) has developed Cinematrix that can accept and manage input from several thousand co-located users.
- Norbert Streitz, Fraunhofer IPSI (Germany) has developed Roomware. Roomware not only deals with people working with large devices but also working with a number of different devices in the same physical location. For more, see http://www.roomware.de.

Position Statements:
TBD

Panel History:
There have been no SIGGRAPH panels on this topic. The closest in spirit was Mickey Mantle's panel in 2001 that examined graphics (and lack thereof) on small devices.