

# Art and Technology: Very Large Scale Integration

Chair

Tom Meyer, Brown University

Panelists

Sally Rosenthal, independent producer

Stephen R. Johnson, director

Mary Lou Jepsen, Brown University

Douglas Davis, artist, author

We must begin to create on the same scale as we can destroy, or else art, and more dangerously the human spirit and imagination, will be rendered decorative and impotent.

— Kit Galloway & Sherrie Rabinowitz

The panel is made up of artists who create large-scale works using technology. We discuss the future of artistic techniques which incorporate technology, in order to extend the possibilities of human interaction with the machine and with other people.

Technology and artistic creation have always been closely linked, from the invention of painting, through the development of printing, up through the present, which offers new possibilities for people to interact with the technology, with the work, and with each other.

However, much current artistic work is still based on traditional notions of electronic publication: one viewer/reader working with a work of art contained on one computer. Most VR systems are still walk-throughs, with little or no ability to interact with the created environment or with other people. The much-hyped CD-ROMs that are becoming the medium of choice for rock stars still do not provide even the level of intimacy and interaction which a relatively low-tech concert can provide. As social beings, we need shared experience, such as that generated by the spectacular.

But the networked festival, the “digital convergence,” is happening. The World Wide Web almost tripled in size between November and December 1993, and more information is being linked into it constantly. On-line communities, such as MUDs and their relations, have become an explosion of creative interaction, and are being used for real-time collaboration, including hypertext creative writing and other art projects — the development of “folk programming.” As communication bandwidth becomes cheaper, video conferencing and collaboration across cultural boundaries becomes a common occurrence. And the plummeting costs of hardware and networking allow the development of ubiquitous computing, augmenting reality and communication by making the surrounding environment become reactive to its participants.

The members of this panel are each exploring ways to extend human interaction both with technology and with other people, by using the technology as an integral part of their art. Where existing tools are not useful or appropriate, they have extended them or built their own. Their art is art on the large scale, using technology to create artistic endeavors beyond the scale of the individual, to the scale of human communities..

## Sally Rosenthal

Humans are social organisms. We naturally crave interaction with others, to be part of a community, to have fun. The onslaught of personal computers, CD-I, CD-ROM, virtual reality, remote workplaces, and expanded home television services have seen few technology-based experiences which are about leaving the couch and cooperating with other humans. Something magical happens when large groups of people engage in dynamic activities, as evidenced by the Wave, Michael Jackson’s Superbowl halftime, and

audience participation segments in the SIGGRAPH Electronic Theater. Interactive television has the potential to enable a new genre of group participation. In the same way that computers have given artists and designers new tools to use in new ways, they also give rise to new possibilities for groups of people to interact with each other and with their environment.

## Stephen R. Johnson

The nature of art at its most fundamental level is an attempt to clarify and/or intensify the human experience. Toward the end film art (and other related offsprings) seek to create “realities” that on a sensorial level replace our own. I believe that for the directors of the future being able to remember the taste of a home grown tomato or the smell of an ocean breeze or the look of trusting innocence of a young doe in a damp forest will be just as important as technical virtuosity. Unfortunately VR became a tired cliché that died from the bloated weight of its own PR before it even had time to mature into the marvelously truly immersive and interactive artform that it will no doubt one day become when gigabytes cost pennies.

On another note, the only commercially manufactured systems for showing films involve a relatively small screening room (I think there are five or so test sites now.) Each viewer has a joystick and thus can “vote” their opinion at critical plot points. (The old interruptible movie scam, ho hum.) Apparently audiences do really enjoy themselves and there’s a real party atmosphere.

The MoonTV project that Mary Lou Jepsen and myself have been attempting to pull off would not be interactive. It would, however, be a demonstration of massively powerful technology used for a planetary celebration of our shared human-ness. Twenty-five years ago we used out most advanced technology to put footprints on the moon. Today we have the capacity to light up the moon with playful, humanistic, anti-violent, and thought-provoking imagery. Our aim would be to affirm that we are all part of the same race — the human race. Since Mary Lou hold the world-wide patent, we would seek to insure that this is a one-time event. No-one wants out beloved lunar surface to become a billboard eyesore.

Right now, the Internet offers the most potential as the Universal Artistic Nervous system of the planet. If you play music with someone in a hostile country or make art with them or play video games with them, then conflicting belief system walls will rapidly crumble. When we reach the point where simulated environs approach a level of verisimilitude and speed of interactivity that provokes genuine suspension of disbelief, then we will have to face a great many issues regarding the whole nature of reality itself, who pays what to BE whom, and where, when and how such “alternate realities” should be used and what constitutes abuse. It’s gonna get fun; and it’s gonna get hairy. Control schemes will emerge that will

Permission to make digital or hard copies of part or all of this work or personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, to republish, to post on servers, or to redistribute to lists, requires prior specific permission and/or a fee.

SIGGRAPH ’94, July 24-29, Orlando, Florida

© ACM 1994 ISBN: 0-89791-667-0 ...\$5.00

make Machiavelli seem like Geppetto the puppeteer. We'll chat about these and a range of other issues that are soon to be pertinent to our potentially synthetic lives and our artificial interactions.

### **Mary Lou Jepsen**

Maybe it's a leftover modernist perspective in our so-called post-modern age; but there is a strong rift between art and (science&technology). I've been told that the big difference between art and science is that artists create their own problems to solve and that scientists solve the problems presented to them by others. I don't really buy this, but I suppose that the military-industrial-complex-theory does support the encouragement of even the most creative and technically competent to take well paying jobs where agendas are dictated by others. Yet, how does one invent without passion? I think that the scientists and technologists do solve their own problems; they find a way to dictate their own agendas within the structures in which they find themselves. It's just harder to see.

But today, a new generation of technologically savvy young people is growing up. Certainly this younger generation will show us that technical competence and artistic ability are not mutually exclusive, though that seems to be the current mode of thinking in contemporary Art. Some big big things can happen as we begin to realize that people can be good or even gifted in more than one area and encouraged to explore. It's going to be exciting.

Maybe artists can get away from this "science is bad" motif, and maybe branch into "what reality can I create to change things?" We can find new ways of experiencing the world and learning. High tech art doesn't have to be so boring.

I have recently designed a system (patent pending) which uses the Moon as a gigantic TV screen in the sky. Stephen R. Johnson is directing the *one-time* world-wide broadcast using this system. The system does no damage to the Moon, uses solar energy, and has great potential for raising awareness of global human rights. Yet, some people are scared of the invention; they fear that the Moon will turn into a permanent ad campaign in the sky. I agree about the possibility of even the best laid plans going awry, but we are being extremely careful to prevent any such abominable use of the Moon. The video broadcast system will only be used once.

Anything at all can be used for good or evil, if we want to divide the world like that. However, the option to choose knowledge and exploration over ignorance and staid methodologies is a most fundamental human right. One can not stop people from creating, but with creation comes responsibility. I don't think that we can talk enough about responsibility.

I'm also bored with current VR approaches. I believe that, ultimately, holography is the right way to create temporary group experiences of alternative realities. Holography allows the projection

of truly 3-D images into unencumbered immersive environments. No glasses, helmets, or tethers will be necessary.

We seem to be on the cusp of the mass production of such holographic experiences. Several research groups have now created prototype holographic video systems. Film-based holograms are filling larger and larger volumes, as big as even a city block. In fact, holographic images are being projected in all sorts of novel ways in order to move the hologram itself (usually a piece of film) out of the way. The viewers can then interact directly with the 3-D holographic images, which are projected into the "thin air" directly in front of their eyes. In addition, the burgeoning field of digital holographic lens design (so-called "binary optics") is taking off, offering further promise and affordability for some hybrid computer graphic & 3-D imaging techniques. And, I hardly need to say it, but without the maniacal growth of computer graphics in the last decade we would not be creating these new media, which will surely help us to communicate with one another in more ethereal and powerful ways in the future.

### **Douglas Davis**

I am far more interested in the state of the art of the intelligence that demands Internet (and all related tools) than the Internet itself. Intelligence is spreading and intensifying at an exponential rate (we need only compare the vast difference in the literacy and education rates in various societies, beginning with Russia and Japan, feudal as this century began, now first and second in literacy). As it does so, as the mind discovers itself, we reach out for delights and means and results rarely available before, at least not in the quality and quantity now available.

Take the sexual dimension of Internet. Perhaps the mind has always been the central agent in coupling, but now it both requires and develops a signifier to represent this truth. The flirting rooms on America On-Line are simply the most banal representation of this point. Then there is the drive for spontaneity in the development of imagery and of ideas. Why does this word and its allies ("intuitive," for example) occur over and over in user interface work, and elsewhere?

The more the mind becomes aware of itself, the more we insist on taking control of nature and ourselves, and the more we learn that our intelligence insists on unplanned, illogical, and essential irrational conclusions. Anecdotal and personal experience teaches us that solutions spring full-figured into the mind, over and over. Desire is often indeed a prompt to these solutions (here chemical tests support anecdotal evidence). Human/artificial/cyborg intelligence is moving us all towards Unreason as a means of coping with the complex and contradictory universe surrounding us.