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Shape the Direction and Future of SIGGRAPH

Patricia Galvis-Assmus
University of Massachusetts

There are many times when we choose not to participate in a given event. Sometimes it is due to lack of time and sometimes it is due to lack of interest. Beyond this, apathy often takes over. The problem with allowing this to be the case is that we may later encounter a situation which we disagree with or plainly do not care for.

So, where am I going with this? It is my way of reminding all of us about the importance of participating in the upcoming elections. A true majority may not choose the governing body if all do not participate in the decision making at the onset.

SIGGRAPH is, among many things, an organization largely run and coordinated by volunteers. It includes all of us, whether just as members or serving in office. In the upcoming election, we have a varied and promising slate of candidates. We will be voting for the offices of President, Vice President, Director for Communications, Director for Chapters, Director for Education and Director at Large. The candidates presented in this issue bring a wealth of international and broad-based experience within their disciplines, as well as within ACM and SIGGRAPH. Their track records are both commendable and impressive. I am particularly encouraged by the range of personal interests and backgrounds along with their common goal toward future and continued development within SIGGRAPH.

We all have an opportunity to help shape the direction and future of SIGGRAPH.
Adaptively Sampled Distance Fields

Karen Sullivan  
Cover Editor

Any computer-based representation of 3D objects – as required by a broad range of applications including scientific visualization, animation, entertainment, interior design and computer-aided machining – must trade off detail and accuracy available in the representation with requirements for memory and time for processing and rendering.

Researchers Ronald Perry and Sarah Frisken at Mitsubishi Electric Research Laboratories (MERL) in Cambridge, MA have developed a new shape representation called Adaptively Sampled Distance Fields (ADFs) which has several advantages over existing representations. ADFs can represent both surface-based and volumetric objects; in addition, ADFs represent fine detail and sharp edges accurately and efficiently, provide a data structure for efficient rendering and processing and can be intuitively edited and sculpted.

The use of distance fields for representing shape has been gaining momentum in the computer graphics community during the last few years. A shape’s distance field measures, for any point in space, the scalar distance from the point to the surface of the shape. The distance field is continuous and is defined throughout space and hence has advantages over surface-based representations which use polygons and NURBs. For example, querying the sign of the distance field at any point in space can be used as a trivial inside/outside test. In addition, the distance field can be used for special rendering effects such as distance-based turbulence, for trivial collision detection, for surface offsetting and for efficient surface localization.

Most computer-based representations of distance fields sample the field at regular intervals and store these samples in a 3D volume. However, if a shape has sharp corners or other fine detail, its distance field must be sampled at very high rates so that detail can be accurately reconstructed from the sampled data for rendering and processing. This regular sampling results in large memory requirements, long times to generate the sampled distance field and long processing and rendering times.

ADFs address these problems using detail directed sampling, which samples the distance field adaptively with high sampling rates where there is fine detail present and low sampling rates where the distance field is smooth. The sampled distance values are then stored in a spatial hierarchy (such as an octree) for efficient localization and processing. Adaptive sampling provides an efficient representation of objects with large dynamic ranges – a level 11 ADF (equivalent to a 20483 regularly sampled volume) can typically be represented by a few hundred megabytes of data. The use of adaptive sampling also reduces the times required to generate sampled distance fields from the hours or days reported in the literature to a matter of seconds. The use of the ADF spatial data structure allows fast processing, enabling interactive sculpting of a level 10 ADF (equivalent to a 10243 regularly sampled volume) and real-time surface rendering of the ADF via adaptive ray casting.

Perry and Frisken have been investigating several aspects of ADFs ranging from fundamental algorithms for generating, editing and rendering ADFs to applications in fields as diverse as 3D sculpting, molecular modeling, creating geometry from range data, physically based modeling, simulation and verification for CAD/CAM, representing color gamuts and non-photorealistic rendering. Some of this work has been published in papers and sketches presented at SIGGRAPH 2000 and 2001. Recently, ADFs have gained the interest of the film industry – ADFs were used to generate and render molecules of nicotine and other carcinogens in a recent NOVA special, The Search for a Safe Cigarette, and they are being considered as a modeling tool for creating detailed terrain models in an upcoming major production.

The covers depict volumetric renderings of three different ADF-based molecules. Because ADFs represent the surface, interior and exterior of an object, each of these can be treated differently during volume rendering to achieve stunning visual effects. The ADF-based molecules were volume rendered with special shaders to reveal transparent interiors within thick, translucent surfaces, surrounded by a distance-based turbulence that adds a glowing haze to the molecular surfaces.

The front cover, a stereo pair of a cocaine molecule, clearly shows the advantages of ADFs in visualizing organic forms. The thick, translucent surfaces are enhanced with volume textures and artistically chosen colors that reveal the complex structure of the molecule.

The back cover depicts two other “beautiful vices” - alcohol (top) and nicotine (bottom) molecules. These images were created for an artistic piece, Desiderata (by Perry, Rockwood, Frisken and Jones), that depicts the dichotomy between the aesthetic beauty of the molecules and their destructive, addictive qualities.

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About the Columnist

Karen Sullivan  
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February 2002
Building 3D User Interface Components Using a Visualization Library

Bill Hibbard
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We usually think of visualization libraries and graphical user interface (GUI) libraries as two different things. GUI components have very stylized appearances, represent simple data as opposed to the complex data in typical visualizations and emphasize information flow from user to computer as opposed to the flow from computer to user in visualizations. However, both GUI and visualization libraries are about visual communication between user and computer, and we can think of GUI components as visualizations of simple data that emphasize user interaction. For example, the slider in Figure 1 is a visualization of a real number, and the color table editor in Figure 2 is a visualization of three real functions (mapping pixel values to red, green and blue color components). This column describes an approach to building 3D user interface components using the VisAD interactive visualization library. This is an open source system freely available from http://www.ssec.wisc.edu/~billh/visad.html.

Procedural versus Descriptive Visualization Libraries

VisAD is different from other visualization libraries. Most libraries define method or function calls that applications embed in procedures for explicitly constructing visual depictions of data. These library functions typically implement algorithms that compute isosurfaces and other geometry from data arrays, and algorithms for rendering such geometry into display frames. In contrast, VisAD defines Java class constructors and methods for describing data and display components via metadata that document their relation to world. Application procedures construct data and display components but do not explicitly construct data depictions. Generation of data depictions is done implicitly by the system when data components are linked to display components, based on analyses of descriptive metadata. The primary metadata of data are data schemas that define primitive type names (e.g., time, temperature, latitude) and units (e.g., seconds since January 1, 1970, degrees Kelvin, meters) for all numerical and text values in data components, plus the way that primitive values are grouped (e.g., latitude, longitude and altitude may be grouped as a 3D vector) and functional dependencies between primitive types (e.g., temperature as a function of 3D earth location). The primary metadata of displays are mappings from primitive data types to primitive display types such as animation, display spatial coordinates, display color coordinates and isocontouring. The combination of data schemas and display mappings of primitive types is sufficient for display components to automate the generation of data depictions.

Invertibility of Visualization Operations

In procedural visualization libraries where application programmers are free to specify arbitrary sequences or networks of operations transforming data into displays, it is difficult for the system to invert the sequence or network of operations in order to translate user gestures in displays back into operations on data. This problem is well known among the developers of data flow visualization systems. However, in a system where display generation is based on an analysis of data and display metadata, the system can use that same analysis to define inverse generation of data changes from user gestures in data depictions. This is the basis for using VisAD to define 3D GUI components.

One important element of GUI libraries is their ability to asynchronously notify applications of user gestures via callback methods. VisAD fills this need by providing a way to define methods that are invoked whenever selected data components are modified, as they may be in response to user gestures in data depictions.

Basic Component Types

A description of how to build GUI components as visualizations will require a more detailed understanding of VisAD. The system defines five basic kinds of components:

1. Data components: these may be simple real numbers, may be text strings, vectors of reals or other values, sets in real vector spaces, functions from real vector spaces to other data spaces or complex combinations of these. They are mostly immutable in order to promote thread-safeness.

2. Display components: these contain visual depictions of one or more linked Data components. These may be 2D or 3D, a window on the screen or in a browser or in an immersive virtual reality system. Display components update data depictions in response to changes in linked Data components.

3. Computational components: these execute user-defined methods in response to changes in linked Data components.

4. DataReference components: these are mutable components used to connect Display and Computational components to Data components, which are often immutable. In “X = 3” the number 3 is immutable and plays the Data role, whereas X is
facilitates collaborative visualization, in which geographically distributed machines, via Java RMI (Remote Method Invocation) distributed object technology. This enables applications to link groups of multiple users. RMI is also used to enable linked object components on other machines, so changes in any components on different machines, so changes in any component (and hence with data) components on other machines, via Java RMI (Remote Method Invocation) distributed object technology. This facilitates collaborative visualization, in which a DataReference component on one machine is linked to Display components on the geographically distributed machines of multiple users. RMI is also used to enable applications to link groups of Display components on different machines, so changes in any are reflected in all.

**Metadata for Data Components**

Data components contain numerical and text values, plus metadata. The primary metadata is a data schema that defines names for primitive numerical and text values occurring in data, the way values are grouped into vectors and functional dependencies among values. For example, a satellite image of Earth may be described as a functional dependence of radiance on pixel line and element coordinates, via the schema:

\[
(line, element) \rightarrow \text{radiance}
\]

This function is approximated by a finite sampling at discrete pixels. The sampling metadata of a function may be a regular or irregular set in a real vector space. This function may also include metadata describing the Earth locations of pixels via an invertible coordinate transform:

\[
(line, element) \longleftrightarrow (\text{latitude}, \text{longitude})
\]

Any real values may include units. For example, latitude and longitude values may have units of degrees or radians. Function range values such as radiance may include metadata indicating missing values (caused by instrument or computational failures), or metadata defining estimates of errors.

A time sequence of images may have the schema:

\[
(time) \rightarrow (\text{line}, \text{element}) \rightarrow \text{radiance}
\]

This function will define some finite sampling of time values, and may define units for time such as seconds since 1 January 1970.

A set of map boundaries may be described using the schema:

\[
\text{set}(\text{latitude}, \text{longitude})
\]

VisAD defines many different classes for maps in real vector spaces, for regular and irregular topologies, for different domain dimensions and for sets restricted to submanifolds with smaller dimension than their domains. For example, a set of map outline samples lie in a one-dimensional submanifold of a two-dimensional domain.

**Metadata for Display Components**

The depictions of Data components linked to a Display component are defined by a set of ScalarMap objects linked to the Display. These are mappings from primitive real and text types to what are called DisplayRealTypes. For example, the depiction of a time sequence of images and a map boundary overlay in Figure 3 is determined by the ScalarMaps:

- time \rightarrow \text{Animation}
- latitude \rightarrow \text{YAxis}
- longitude \rightarrow \text{XAxis}
- radiance \rightarrow \text{RGB}

Note the conventional GUI widgets in Figure 3 that allow the user to control time animation and the RGB color lookup table for radiance values. Each ScalarMap object has an associated Control object that provides a means to specify animation, color tables, contouring, flow rendering, 3D to 2D projection, etc. These Control objects can be linked to GUI widgets as in Figure 3, or may be manipulated by computations.

ScalarMaps for some DisplayRealTypes (e.g., XAxis, RGB) allow applications to control the linear mapping from primitive real data values to DisplayRealType values. If applications don’t specify this mapping, then a system autoscaling algorithm determines an optimal default mapping to keep data depictions visible (e.g., to ensure that longitude and latitude values are mapped to XAxis and YAxis values that are within the display screen).

ConstantMaps, which bind constant values to DisplayRealTypes, may be linked to Display components in just the way that ScalarMaps are. These allow applications to override default values for DisplayRealTypes, for example to control locations and colors of data depictions when they are not determined by ScalarMaps of any primitive data values.

**A Simple 3D GUI Component**

Although the generation of data depictions is automated based on an analysis of data and display metadata, the system provides a way for applications to redefine that analysis and display generation. When a Data component is linked to a Display component, an object of a subclass of DataRenderer is used to analyze metadata and generate the depiction. There is a default subclass for each supported graphics API (e.g., Java3D and Java2D) but applications have the option of defining and using non-default subclasses. The default DataRenderer subclasses do not translate user gestures into data changes, because in the general case of data schemas and display ScalarMaps there may be no reasonable way to interpret user gestures as data changes.

The system includes a number of non-default DataRenderer subclasses that do translate user gestures into data changes. These first analyze a data schema and a set of ScalarMaps to make sure they are consistent.
with an interpretation of user gestures as data changes, and then implement that interpretation. For example, a Data component with schema:

(latitude, longitude, altitude)

and a Display component with linked ScalarMaps:

latitude -> YAxis
longitude -> XAxis
altitude -> ZAxis

will generate a data depiction as a simple point in 3D display space where the user can modify data values by dragging the point. An analysis by an object of the DirectManipulationRendererJ3D class verifies and implements this way of interpreting gestures.

Figure 4 shows a display of a simple conical terrain surface in a 3D box, with two large yellow points at opposite corners of the box. The yellow points are depictions of two 3-vector Data components linked to the Display component via objects of class DirectManipulationRendererJ3D, as described in the previous paragraph. These 3 vectors are linked to trigger a Computational component that modifies the linear mappings associated with the ScalarMaps for display spatial coordinates in order to keep the depictions of the two 3 vectors at the corners of the display box. This little network of Data, Display and Computational components and DirectManipulationRendererJ3D objects defines an embedded 3D GUI component for rescaling 3D display space. Adding a ScalarMap:

latitude -> Shape

enables the application to define arbitrary shapes (via the Control associated with this ScalarMap) for the depictions of the two draggable points, in order to create custom cursors at the 3D display box corners as illustrated in Figure 5. Note that although some primitive data type such as latitude had to be chosen for this ScalarMap, its Control is set in such a way that shape does not vary with latitude.

**A More Complex 3D GUI Component**

In spatial data analysis applications it is often useful to apply analysis operations to restricted spatial regions. These regions may be defined in the data, for example within a political boundary, or may be defined by users based on their judgment. For this we need a GUI component that enables users to draw the outlines of regions as freehand curves. In VisAD, the CurveManipulationRendererJ3D class serves this purpose. It is a subclass of DataRenderer that requires a Data component with schema with the form:

Set(x, y)

It also requires ScalarMaps of x and y to spatial DisplayRealTypes. These may be two of XAxis, Yaxis and Zaxis, or they may be two coordinates in a non-Cartesian spatial coordinate system. The Data component will lie on a one-dimensional manifold embedded in the two-dimensional domain with coordinates x and y. User mouse movements are interpreted as samples along one-dimensional
curves in \((x, y)\) space. According to the ScalarMaps, the curve is embedded on a two-dimensional manifold in 3D display space. Figure 6 is a snapshot of a curve being drawn on the two-dimensional manifold on the surface of a sphere. In this case, the ScalarMaps are:

\[
\begin{align*}
  x & \rightarrow \text{Longitude} \\
  y & \rightarrow \text{Latitude}
\end{align*}
\]

Along with Radius these DisplayRealTypes define a 3D spherical display coordinate system:

\((\text{Latitude}, \text{Longitude}, \text{Radius})\)

When a DataReference object is linked to a Display component, a number of ConstantMaps may be included which are applied only to the depiction of referenced Data component. In the example in Figure 6, a ConstantMap to Radius is used to specify which sphere defines the 2D manifold where curves are drawn.

Applications can use CurveManipulationRenderer3D for drawing on a nearly arbitrary 2D submanifold of 3D display space, by defining three DisplayRealTypes for a new coordinate system and defining a coordinate transform between these and Cartesian display coordinates. The 2D submanifold is defined by a ConstantMap that fixes the value of one of these DisplayRealTypes, and by ScalarMaps of \(x\) and \(y\) to the other two. This 3D GUI component can be used for freehand drawing in a wide variety of different applications.

**Conclusion**

The point of this column is that a visualization library can be as much about the flow of information from user to computer as the flow from computer to user, and hence can be used for defining 3D GUI components. The key is that the library be a descriptive rather than procedural definition of visualization operations. In a descriptive library, the system derives the procedure for generating data depictions from an analysis of the description supplied by the application. It can just as easily derive a procedure for modifying data from user gestures on data depictions.
Artists Against Anatomists

For the last 20 years, computer game developers have been on a perpetual quest for ever greater realism in the graphics of their games. These days, any real-time 3D, character-based game using human characters that does not include moving mouths, fully articulated hands and physics-based cloth and hair will be laughed off the shelves of the local software store. But does that heightened realism necessarily lead to a better gameplay experience for the player? In some cases, yes. Characters with moving mouths look much better than those without when they’re delivering lines of dialog, and almost all players will remark on this. But only some players will notice that all the digits of the characters’ hands are individually modeled, while some wouldn’t notice or care if the players had simplified “mittens” for hands instead. On the other hand, procedural hair may produce effects so subtle that most players couldn’t tell the difference if asked. Computer games are just reaching the point visually where developers are starting to question whether they need to employ more polygons and more complex animation techniques, or if they just need to more creatively exploit the assets they already have.

More and more games are attempting to move away from the hyper-realistic look games have attempted for years, resulting in some titles opting for an entirely more cartoony look. One needs only look at the games that exploit cell-renderers to see how this can work to a title’s benefit: Jet Grind Radio for the Sega Dreamcast, the forthcoming Herdy Gerdy for the Sony PlayStation 2, or Cel Damage for the Microsoft X-Box are all great looking games where realism is not even attempted. The recent Batman: Vengeance for the Nintendo was employed an extremely cartoony, cell animation style, prompting concerns from within the industry that revered Zelda designer Shigeru Miyamoto may have finally lost his golden touch. More likely, Miyamoto realizes that making a more high-polygon and hyper-realistic Zelda game might impress the techies, but an extremely stylized yet beautiful cartoon look can be the darling of a much larger audience.

What is it about cartoon style graphics that can be so compelling to the general public? They certainly look far less “real” than photographs or live-action films, yet well-made cartoons can evoke as much emotional response from an audience as their photographic equivalents. Perhaps cartoonists know something about drawing the human form in a reductive and exaggerated way that has the power to move people in a way highly realistic drawings cannot? Veteran game designer and interactive storytelling specialist Chris Crawford tackles that very issue in this month’s column.

Chris Crawford

The human nose is significantly cooler than body temperature; for this reason, it appears darker in infrared images of the face. Therefore, should not graphics displays of human faces draw the nose a bit darker than the rest of the face? The suggestion is absurd on its face because, as we all know, the human eye cannot perceive infrared radiation. To include visual information that the eye cannot perceive is a waste of time.

The significance of my silly suggestion is to highlight the difference between optical reality and perceptual reality. The human eye is not a video camera; it does not perceive the world as it really is. Through millions of years of evolution it has been finely tuned to home in on those components of the visual field that are significant to the individual’s survival, and to ignore all else. If my genes don’t care about it, I simply don’t see it.

This little lesson has value to designers of graphics algorithms, for it seems to me that the greatest shortcoming in computer graphics — at least as used in entertainment products — is a cold, mechanical air. The images are excellent representations of optical reality, but they just don’t cut the mustard in terms of perceptual reality.

A simple example of the power of perceptual reality can be found in a phenomenon I refer to as “visual vibrato.” In music, vibrato is the deliberate oscillation of a performed note around the specified frequency. A violinist can produce the effect by rapidly quivering the finger on the string as the note is played. The effect is pleasing because it triggers within the human auditory system some discriminators that are keyed to changes in frequency rather than frequency itself, thereby heightening the intensity of the auditory experience.

Much the same thing happens in the human visual system. It’s a difficult phenomenon to notice, because its direct effects are later subtracted out of the perceived visual experience by higher-level processing. The human eye is never at rest; it is constantly darts about, sampling different sectors of the visual field. Any given object is sampled dozens of times per second, with each sampling yielding slightly different results. If we could somehow translate that visual experience at the retinal level into a movie, the object under inspection would have a shimmering quality. Higher up in the visual processing system, that shimmering is filtered out, but much of the resolution and depth that we perceive in an object is derived from this “visual vibrato.”

I first encountered this effect 20 years ago while working on a primitive graphical display on the Atari 800 home computer. I wanted to show the face of a character, but my digitized source image had more resolution and...
pixel depth than my display. Rather than settling for a conventional bit-blit, I tried a dynamic scheme in which each output pixel's value was determined by a semi-randomly weighted sum of the associated pixels in the source image. In effect, I used time depth as a substitute for pixel depth. I had serendipitously triggered the human visual system’s “visual vibrato,” and the result struck viewers powerfully. The image had a much greater subjective power than any objective calculation would have awarded it.

A particularly revealing example of the difference between optical reality and perceptual reality is the depiction of the human face. I am flabbergasted by the brilliant wrongheadedness of the graphics researchers who have captured in algorithmic form the detailed anatomy of the human face, including all the tiny muscles, the effects of skin tone, even pore structure. It is truly impressive work, but it strikes me as rather like a bridge built with titanium rivets and pig iron girders.

The human visual system boasts a great deal of neural circuitry for facial recognition. It’s hardwired in; infants a few days old can recognize faces. Those recognition algorithms utilize filtering algorithms that ruthlessly discard some visual information and amplify certain other facial features. Eyebrows, eyes and mouth are heavily processed, while noses, ears, cheeks and chins get short shrift. Ideally, the graphics algorithms we use should mirror the internal perceptual algorithms in the human visual system.

At this point, some readers would agree with the ideal, but object that it is unrealizable, given that we have no data on those internal perceptual algorithms. Surely such data will become available with the progress of neurophysiological research, they might say, at which time we can incorporate the results into our algorithms.

This argument overlooks a major source of data: the art of facial enhancement. We have thousands of years worth of expertise in the decoration and enhancement of the human face. Women don’t use liner pencils to trace the outlines of their noses — they trace their eyes. The three primary places of application of cosmetics are the eye region, the eyebrows and the lips. That’s because they’re the places that human internal facial algorithms are keyed on.

An even more useful source of information about those algorithms is the artistic representation of the human face. Artists mastered the photo realistic representation of the human face hundreds of years ago. Ever since then they have expanded their expressive frontiers by experimenting with new and different means of communicating the human face. They freely violate anatomical principles if it enhances the expressive power of their
For example, the hands and feet on Michelangelo's statue of David are abnormally large, not because Michelangelo was an igno-
rant klutz, but because the statue was more beautiful — expressed deeper truths — with
overlarge hands and feet. All good portraitists learn a variety of tricks for subtly altering
the optical reality of a face to obtain better expressive value.

The eyes of most characters in computer
games are too small. Enhancing the eyes is the
first task of the cosmetician and the first
resort of the painter; yet computer-game
images of faces show boringly realistic faces.
It's time for the computer graphics field to
include eye-enhancement in its standard
display algorithms.

So where are we to learn the tricks of the
portraitist's trade? It might be worthwhile
to consult with professional artists to learn directly
from them, but I fear that their craft is so
specialized that a computer scientist attempting
a conversation would throw up his/her hands in
frustration. Better to start at a simple level.

Much good work in this direction has
already been done. In the early 1980s, Dr.
Susan Brennan published work on algorithmic
morphing of facial features. Her work opened
up a wide variety of possibilities, but I fear
that most attention was devoted to morphing
from one face to another. A more important
pursuit, the morphing of a face from one
expression to another, received less attention
in the entertainment software field.

I believe that the outside field most likely
to yield useful results for entertainment soft-
ware is that of comics. Comics artists are
past masters at the art of representing the
human face cleanly and well. Every computer
graphics researcher working in the field of
face generation should be familiar with this
illustration from Scott McCloud's wondrous
book, Understanding Comics (see Figure 1).

As McCloud notes, "When we abstract an
image through cartooning, we're not so much
eliminating details as we are focusing on
specific details. By stripping down an image to
its essential 'meaning,' an artist can amplify
that meaning in a way that realistic art can't."

Ten years ago I dabbled with these prob-
lms as part of my work on interactive story-
telling. I believed that human facial expressions
are the most important dramatic feedback
that a player can receive. I was able to come
up with some interesting results. I'm sure that
others have done much better, but perhaps by
working on overly powerful machines they
have underestimated what can be done on a
home computer. Here are my results as of
five years ago, when I stopped working on
this line of development (see Figure 2).

By conventional standards, these are crude
illustrations. However, if we could measure the
"facial-expressional resolution" of these
faces, I think we might have something worthy
of further investigation. Suppose, for example,
that we wished to measure the information
content of one of these images. We could
readily do so by measuring the size of their
representations in one of the compressed
image file formats. This, however, represents
the optical reality, not the perceptual reality.
From the point of view of a human observer,
the pixels making up the man's shirt commu-
nicate very little information. Those pixels
presenting his hair, nose and ears convey a bit
more information, but the bulk of the
perceived information content of these
images lie in the eyebrows, facial lines, eyes,
lips and mouth. Thus, the images in Figure 3
convey a significant fraction of the informa-
tion in the corresponding images in Figure 2 —
using a perceptual measurement.

The two recent computer graphics movies,
Shrek and Final Fantasy provide us with excel-
 lent examples of the difference between
perceptual reality and optical reality. Shrek
places all its marbles on perceptual reality,
while Final Fantasy gives higher priority to
optical reality. The consequences of these
fundamental editorial decisions are evident in
the reviews and box office results. While
reviewers gushed over Shrek ("not just a brilli-
ant animated feature, but a superb film on any
level") they excoriated Final Fantasy ("...[its]
dreamscape images almost make up for its card-
board characters and B-movie dialogue" "What
do you call a video game you can't control? A
tedious cartoon, that's what.")
The box office results match the reviews.

Shrek's net box office receipts of $267 million
exceed those of Final Fantasy by a factor of 10. We have here a perfect confronta-
tion between the two design approaches and the
results are clear: perceptual realism blows
optical realism out of the water.

The overall conclusion should be clear: we
should relax our obsession with optical reality
and concentrate more attention on
perceptual reality, at least in images
concerned in any way with human emotions.
If we want to communicate emotionally
meaningful images, we need to listen more to
the artists and less to the anatomists.

About the Guest Columnist

Chris Crawford has designed and
programmed more than a dozen published
computer games. He wrote several books
on game design and a great many articles
in a wide variety of periodicals. He has
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About the Columnist

Richard Rouse III is currently the Lead
Designer on an unannounced PlayStation 2
title at Surreal Software, where he has also
contributed to the forthcoming Drakan:
The Ancients' Gates. His past credits include
games for both the console (Centipede
3D), and the PC (Odyssey: The Legend of
Nemesis and Damage Incorporated). His
hefty book Game Design: Theory & Practice
is now available from Wordware Publishing,
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February 2002
Public Policy Issues Heat Up; Attract Audience

“Beyond Copyright: The Brave New World of Digital Rights Management”

Ben Wyrick

Dan Burk summed it up: “The Internet is the biggest copy machine in the world.” Digital technology catalyzed by the Internet is allowing a greater dissemination and propagation of knowledge than ever before. And much of that information is intellectual property, some of which is protected by U.S. copyright law.

Copyright law is currently in a state of flux, due to recent legislation such as the Digital Millennium Copyright Act (DMCA), passed in 1998.

What are the rights of creators, distributors and end users of material under the DMCA and how have those rights changed since the U.S. Constitution was penned? Do we have a reasonable system for protecting everyone’s rights under current law?

These were the questions discussed in a panel titled “Beyond Copyright: The Brave New World of Digital Rights Management,” chaired by Robert Ellis, SIGGRAPH Public Policy Program Chair.

Also on the panel were Dan Burk, a University of Minnesota law professor; Deborah Neville, an attorney who has represented authors and Hollywood studios; Barbara Simons, ACM Past President and ACM U.S. Public Policy Committee Co-Chair; and Sarah Stein, a media professor at North Carolina State University with a background in documentary film.

The Constitution calls for copyright protection to “promote the progress of science and useful arts.” It states that copyrights are to be of a limited term, after which time they revert to the public domain. According to Burk, the idea is for the public to benefit from ideas, but under DMCA, distribution middlemen, record companies and publishers are reaping the benefits.

For example, DVDs are protected against duplication by the Content Scrambling System (CSS), a weak method of encryption. A consumer purchasing a DVD remains unable to copy that DVD even after the copyright has run out, in essence keeping the DVD out of the public domain forever, a violation of original copyright law.

Enter DeCSS. DeCSS is a computer program which circumvents the encryption on DVDs and allows them to be copied or viewed on alternate operating systems such as Linux. It could be argued that DeCSS restores the spirit of early copyright law, returning the legal concept of “fair use” to DVDs.

The purpose of fair use, according to Burk, is to allow “enough play in the joints” between the needs of the creator and the needs of the user. Fair use allows the duplication of copyrighted material for academic or research purposes, reviews of a product by critics and other rights. Fair use walks the thin line between protecting the rights of the artist and allowing legitimate uses of a purchased product by the consumer.

“We wouldn’t have academic institutions the way we know them without fair use,” Stein says, referring to the heavy reliance universities and libraries place on fair use. The panelists argued that DMCA seriously erodes the doctrine of fair use and encouraged audience members to become politically active in issues of intellectual property.

Another change DMCA has brought in copyright law is the introduction of criminal penalties for reverse engineering and other forms of infringement. Formerly the penalties were civil only, involving fines. Now you can go to jail. And supplying someone with the ability to circumvent encryption is illegal, even if the protected material is not copyrighted.

According to Stein, such provisions benefit distributors such as record companies, as opposed to the musicians themselves. Burk believes the erosion of fair use under DMCA may be unconstitutional due to conflicts with freedom of speech.

In this column, we follow-up on the panel and course presented by the Public Policy Program at SIGGRAPH 2001. A reminder: David Nelson has made the complete SIGGRAPH 2001 policy tutorial course notes and, separately, the references available at http://www.siggraph.org/pub-policy/pdf/PPCourseNotes-S2001.pdf (course notes) and http://www.siggraph.org/pub-policy/S2001CourseNoteURLS.html (references).

A report on the panel was written by Ben Wyrick and is on the reports website, http://www.siggraph.org/conferences/reports/s2001/tech/panels13.html maintained by YON - Jan C. Hardenbergh. That report is reprinted here with permission of the author.

As mentioned in the November 2001 column we are proposing more course material on policy issues for SIGGRAPH 2002 and a follow-on to the S2001 panel. Excerpts from the proposals are presented below.

Next Myles Losch reports that the financial problems of DSL broadband providers have spread to cable Internet providers. This is not likely to improve the rate of adoption of broadband services.

Finally, Myles Losch comments on recent activities by computer-law professor Lawrence Lessig in the area of copyright, including a debate at USC with Jack Valenti, chief spokesman for the U.S. motion picture industry.

— Laurie Reinhart
"The system is out of control," warns Burk, who believes the spirit of the DMCA is out of line with what the public thinks is fair. Neville points to profit as a motive for restricting fair use, and attributes the rise of illegal copying and hacking to unfair prices for media.

Simons spoke of the positive side of peer-to-peer file sharing networks. She views them as empowering the artist, who would then rely less on record companies for distribution; hence the record companies’ aversion to such networks.

"DMCA is the best legislation money can buy," said Burk, who called attendees to become the Rosa Parks of the copyright movement and take back control of intellectual property from Bill Gates and Jack Valenti. Simons echoed the call for civil disobedience, but warned that violating the DMCA could have serious repercussions. She added that professional societies like the ACM can help lead the way to workable legislation.

The panelists agreed that a positive change in current law needs to take place: "People should not be thrown in jail for writing code," said Simons.

SIGGRAPH 2002 Course and Panel Proposals

Bob Ellis

Again we are proposing policy-oriented courses and a panel for this year’s annual conference. Responding to the call for more policy material and the Courses Chair’s interest, we are proposing a sequence of three tutorial courses. As I write this, final proposals have just been submitted. The titles, speakers and statements for each of the courses are:

Course Title: Intellectual Property, Copyright and Digital Rights Management for Computer Graphics (Course 2 in Policy Sequence)

Names of Speakers: Dan Burk and Barbara Simons

Expanded Statement: The history and legal precedents of copyright will be reviewed and implications of recent treaties and laws such as those developed and administered by the World Intellectual Property Organization (WIPO) and the Digital Millennium Copyright Act (DMCA) in the U.S. will be presented. Implications of digital rights management systems such as the Secure Digital Music Initiative (SDMI), the DVD Content Scrambling System (CSS) and the Content Protection for Recordable Media (CPRM) will be discussed.

Course Title: Broadband Internet Services, Digital Television and their Impact on Computer Graphics (Course 3 in Policy Sequence)

Names of Speakers: Robert Ellis and Myles Losch

Expanded Statement: Why has the rate of adoption of broadband Internet access by the general public slowed? Why have alternative Digital Subscriber Line (DSL) providers been going out of business at alarming rates? Why hasn’t digital television had much of an impact? What happened between the time a few years ago when the future of high definition television was rescued from the analog world with considerable fanfare and now? This third course in the policy sequence describes why these much anticipated advances have been slow in coming, what the near term future looks like and the negative impact on computer graphics.

We are also developing a panel proposal. Jean Camp from the Kennedy School of Government at Harvard and I have been putting together a proposal for follow-on to the highly successful SIGGRAPH 2001 panel. The panel continues to explore the theme of intellectual property. The panel is tentatively titled "Copyright and the Single Author:"

Extracting from the panel statement: At SIGGRAPH 2001 the first panel session organized by the SIGGRAPH Public Policy Program, “Beyond Copyright: The New World of Digital Rights Management,” presented a first look for the SIGGRAPH conference audience at the changing world of intellectual property in the digital age. The panel explored issues surrounding the use of MP3, the Secure Digital Music Initiative (SDMI) and the DVD Content Scrambling System (CSS) and the implications of the Digital Millennium Copyright Act (DMCA). Panelists represented the fields of technology, law and content development.

Digital Rights Management standards and systems are being developed for a ubiquitous global market for digital content. What models of copyright and information ownership are embedded in Digital Rights Management systems? What are the implications for the single independent author? Imagine creating the perfect back arrow that becomes universally used. Imagine the issue in protecting the digital copies of Harry Potter and the Sorcerer’s Stone. How can the same mechanism protect small creators and blockbusters?

The moderator will present copyright as a function of technology, by tracking its creation and major changes. Then an overview of copyright as it stands today, including introduction to the major legal laws and court challenges.

Given this overview a series of speakers will introduce different perspectives on the current copyright debates. Two legal scholars and two people with backgrounds in engineering and technology will debate. The questions to be answered include: how can the combination of law and technology lead to an environment ideal for the individual creator; how might the protections for the small creator and the institutional investor in content differ; and what is the role of independent creator in the current debate over copyright? While much of the discussion about copyright is based on the ideas of author or inventor, in fact much of the legislation and action depends on the rights of the owner.

Publishers and employers are rarely mentioned in the debate about content ownership and management. Yet the Internet not only allows everyone to become a publisher, it compels those in the graphics profession to be publishers. How well will the interests of the individual creator who is self-published but does not own his or her own domain and site be served by the various proposals embodied in differing laws and differing digital rights management systems?

DSL Woes Spread to Cable Modems: Bankruptcy Cuts Service to Half-Million Homes

Myles Losch

In August 2001 this column noted how business failures among broadband Internet providers had disrupted, and raised the price of, DSL service over phone lines. Residential and small business users of fast Internet access (so useful for transmitting digital imagery) suffered a greater setback in December 2001 from the bankruptcy of Excite@Home, the largest U.S. provider of Internet access over cable television lines.

Several major North American cable TV companies had long relied on Excite@Home for their subscribers’ Internet service. But the
impact fell most abruptly on some half-million AT&T Broadband cable modem customers, whose only immediate alternative was to use far slower dial-up modems over phone lines.

They, along with millions of other users, had to cope with sudden changes in their email addresses, as well as the loss of information storage and other supporting services from Excite@Home.

This episode followed other setbacks for broadband Internet service. While continuing to grow at a pace that mature industries would envy, the subscriber population expanded in 2001 (albeit from a larger installed base) at a significantly slower rate than earlier predicted. Factors contributing to this included:

(1) Higher monthly fees, which (as we noted last August) followed a decline in competition among broadband Internet providers.

(2) Deteriorating economic conditions in many developed nations, causing some consumers to see fast data service as a luxury to be deferred, or even abandoned.

(3) The failure of many Internet-related companies, whose employees were natural users of (and word-of-mouth marketers for) high-speed Internet access.

(4) A lack of “killer applications”: compelling uses to drive consumers’ migration to the broadband Internet.

On this last point, entertainment industry officials have argued (somewhat self-servingly) that greater on-line availability of their broadband content would spark mass adoption of high-speed digital access. This assertion is typically offered as justification for ever-stronger copyright laws (so that copyright holders would open more of their film and tape vaults to remote audiences).

Much of the thinking by many broadband Internet applications providers sees the public mostly as passive recipients of packaged works. The Internet, though, has always been a vehicle for interaction, both among users and with content. Some analysts question whether a 1950-style “couch-potato model” will lure empowered 21st-century audiences. And this issue (as we’ve noted in past columns) has policy implications well beyond the market for fast Internet access.

As we went to press, the U.S. National Research Council was preparing to release a book-length study of that market, entitled Broadband: Bringing Home the Bits (ISBN 0-309-08273-0; see www.nap.edu/books/). We hope to review the NRC study in a future column.

Lessig on Copyright

Myles Losch

Stanford computer-law professor Lawrence Lessig has until recent years been best known for work outside the intellectual property field. But of late his attention has increasingly turned to problems of copyright in cyberspace, which (due to its significance for digital imagery) has also been a continuing theme of this column.

In October 2000 he launched what is evolving into an annual autumn event: a series of public debates on digital copyright against Jack Valenti, who for 35 years has been the U.S. motion picture studios’ chief lobbyist. The first such debate was at Harvard Law School (where Lessig formerly taught; see http://cyber.law.harvard.edu).

The Annenberg School for Communication at the University of Southern California hosted the second debate, in November 2001 (see http://ascweb.usc.edu), which this observer was fortunately able to attend. It was, as noted below in more detail, a spirited and informative exchange between formidable advocates, on an important subject that has drawn growing public attention.

Enhancing the timeliness of last November’s debate was a series of judicial and legislative events that autumn, related to digital copyright. In the U.S. Senate, pressure from the computer industry had derailed efforts (by Valenti and his allies) to force architectural constraints on computers and software, the better to protect against copyright infringement. This initiative was accurately described (by Harvard professor Jean Camp et al) as the “Turing Machine Prohibition Act,” and European analysts warned that it could yet resurface in the EU or elsewhere.

On the judicial front, several decisions emerged from U.S. lawsuits over the limits of digital copyright. Although far from unanimous, the courts more often than not sided with copyright holders against the free-expression rights of software authors, publishers, researchers et al.

Because these decisions are appealable (and most if not all of them seemed certain to be appealed), their ultimate significance was unclear. But as this column noted in August 2001, governmental claims of power to control the writing and publishing of software are very broad, extending far beyond copyright issues. Thus all authors of software would be wise to follow closely the further stages of this litigation.

During the USC debate, Valenti often proved himself an unyielding proponent of his industry’s economic interests. For example, the duration of copyrights (which Lessig is litigation to shorten) was a major point of contention, and Valenti’s preference that copyrights never expire was clear, notwithstanding an explicit prohibition on this in the U.S. Constitution (Art. I, Sect. 8).

Lessig, on this and other points, appealed (as do many conservative jurists) to the “original intent” of the Constitution’s framers as a guide to interpreting that document. But Valenti (a professional publicist and non-lawyer) assailed ‘originalism,’ as judicial liberals often have.

One of the debate’s more entertaining episodes addressed the videocassette recorder, which Lessig saw as a model for technologies that influence copyright policy. He quoted Valenti’s decades-ago congressional testimony, analogizing home VCRs to the Boston Strangler, and noted that Valenti’s industry now relies on VCR tapes for a significant part of its revenue.

Valenti replied that when the U.S. Supreme Court legalized such machines, it considered their use only for time-shifting of broadcast (not cable TV) programs, which would be erased after viewing. He added that infringing VCR tapes cost his industry billions of U.S. dollars annually.

Prof. Lessig’s new book is The Future of Ideas (published 2001 by Random House; ISBN 0-375-50578-5). Readers are encouraged to seek out examples of Lessig’s and Valenti’s writings, speeches, etc. for further guidance.

About the Columnist

Bob Ellis is Chair of SIGGRAPH’s Public Policy Committee. When last gainfully employed (1993), he was Sun Microsystems’ representative on the Computer Systems Policy Project’s (CSPP) Technology Committee and also co-managed Sun’s external research program. Before that, Ellis held computer graphics software development and management positions at Sun, GE-Calma, Atari, Boeing and Washington University (St. Louis).

Bob Ellis
Email: bob_ellis@siggraph.org
ACM to place
House Ad Here
This year ACM SIGGRAPH members will elect seven members of the ACM SIGGRAPH Executive Committee for terms beginning July 1, 2002. The Nominating Committee sought colleagues whom we believe can successfully lead ACM SIGGRAPH in the changing and exciting world of computer graphics and interactive techniques. We are pleased to present you with a group of persons with experience within ACM SIGGRAPH and with solid achievements in industry, in academia and as volunteers.

The Nominating Committee has selected two nominees for each position. The statements from the candidates will appear in this issue of Computer Graphics and will be in the ballot materials. Any questions about nominations or elections can be directed to Steve Cunningham, cunningham@siggraph.org.

As specified in the transition plan to the new three-year term structure that was part of the 2001 Bylaws revision, the terms for these members varies from one year to three years. Anyone who is elected to a one-year term and is not an incumbent is eligible for reelection to that office in 2003; anyone elected to a two-year or three-year term will not be eligible for reelection. The terms of office are indicated with each position.

Ballots, including copies of the candidate statements, will be mailed to ACM SIGGRAPH members in a first class mailing in the spring of 2002, and we hope you will make the effort to read the candidates' statements and vote carefully. Ballots are NOT included in this issue of the newsletter.

The ACM SIGGRAPH Nominating Committee
Steve Cunningham, Chair
Oscar Garcia
Valerie Miller

Slate for 2002 ACM SIGGRAPH Elections

President (three years)
Alain Chesnais, TrueSpectra, Toronto, Canada
Leo Hourvitz, Maxis/Electronic Arts, Walnut Creek, CA, USA

Vice President (three years)
David Arnold, University of East Anglia, Norwich, UK
Barb Helfer, The Ohio State University, Columbus, OH, USA

Director for Communications (two years)
Gudrun Enger, Consultant, Menlo Park, CA, USA
Ann Eakes, University of Texas Health Science Center, San Antonio, TX, USA

Director for Chapters (two years)
Thierry Frey, Enition S.A., Paris, France
Fran McAfee, Florida Atlantic University, Boca Raton, FL, USA

Director for Education (one year)
Werner Hansmann, University of Hamburg, Hamburg, Germany
Tony Longson, California State University Los Angeles, Los Angeles, CA, USA

Director at Large (two years)
David Ebert, Purdue University, West Lafayette, IN, USA
Jacki Morie, University of Southern California, Los Angeles, CA, USA

Director at Large (one year)
Masa Inakage, Keio University/The Media Studio, Inc., Japan
Jiaoying Shi, Zhejiang University, Hangzhou, China
Alain Chesnais
Candidate for President

Objectives/Priorities
I was first attracted to SIGGRAPH by the annual conference. There I found a diverse community of individuals that would come together for a conference where they shared a multitude of experiences. I joined the Paris chapter in 1987 because I wanted the excitement that I had felt when attending the annual conference to go on throughout the year. As I became more involved, I volunteered first at the local level to aid in the organization of the Paris chapter, then later on continued at the global association level.

I have been very closely involved in all aspects of ACM SIGGRAPH - in the conference: serving as International Committee Chair for the 1997 and 2001 conferences; at the Executive Committee level: serving as Vice Chair between 1995 and 1999; and finally at ACM: where I currently sit on the ACM Executive Committee in my role as the SIG Governing Board Chair, overseeing SIG activities. Through all of these activities I have continued playing an active role in my local chapter.

ACM SIGGRAPH has focused on better serving its members and has recently initiated meetings to determine the right strategy to make us into a more valuable organization for our members. Several key directions include:

• Expanding the ACM SIGGRAPH web presence to develop the SIGGRAPH hub: a personalized portal to all computer graphics activities worldwide
• Expanding the conference excitement in time and space by putting conference material on-line and developing traveling shows based on conference content
• Expanding our international activity through the development of chapters and working with local organizations worldwide sharing our goals to promote and develop computer graphics

If elected president, I would work on all three directions to make ACM SIGGRAPH an organization that meets our members’ needs and that they are proud to be a part of. I would also bring my business management experience to bear by developing the volunteer structure of the organization to make it more efficient and operational. In times where budgets are of major concern, we need to manage our organization in a cost conscious manner while maintaining a level of activity that makes us grow and improve member satisfaction. We need to ask tough questions concerning how we manage our efforts. We need to look at the activities that we support and ascertain that they are proceeding effectively. We also need to be able to curtail activities when they don’t achieve their goals.

Given my recent experience at the ACM level, I would also strive to make ACM SIGGRAPH as active a participant in the ACM organization as possible. We are the largest special interest group and hold the most successful conference of all of ACM. We have learned a lot in developing this organization and I believe that we have a duty to work with the rest of ACM to share what we have learned. The level of excitement that ACM SIGGRAPH generates is something that I would like to spread throughout the whole ACM organization. The efforts that we are developing to make ACM SIGGRAPH a better member focused organization can be shared with the other ACM Special Interest Groups. By pooling our efforts we can become a much more effective organization as a whole and reach economies of scale that each individual SIG could not. Given our initiatives, SIGGRAPH can lead in this direction.

ACM and SIGGRAPH Activities
Since July 2000 – Chair ACM SIG Governing Board
2001 – SIGGRAPH Conference International Resources Chair
1999-2000 – ACM SIG Governing Board Vice Chair for Operations
1999 - Member of ACM EC Nominating Committee
1998 - Member of ACM Executive Search Committee
1998 – Member of ACM SIGGRAPH Nominating Committee
1997 – Member of ACM SIGGRAPH Nominating Committee
1997 - SIGGRAPH Conference International Chair
1995-1999 – ACM SIGGRAPH Vice Chair
1993-1995 - Member at Large ACM SIGGRAPH Professional Chapters Steering Committee
1993-1995 - ACM Director of Professional Chapters

Professional Experience
Since May 2000 – Vice President, Engineering at TrueSpectra
1996-2000 - Director of Engineering and Design Visualization Solutions Business Manager, Alias|Wavefront
1993-1996 - Rendering and Interactive Photorealistic Rendering Project Manager, Wavefront Technologies Inc. (now Alias|Wavefront)
1987-1992 - Co-founder and CTO, Studio Base 2
1983-1987 - Research Scientist, later Director of Software Development, Centre Mondial Informatique
1982-1985 - Research Assistant, Centre National de Recherche Scientifique

Education
1981 - l’Ecole Normale Supérieure de l’Enseignement Technique
1980 - Diplome d’Etudes Approfondies, Université de Paris XI
1979 - Maîtrise Structure Mathématique de l’Informatique, Université de Paris VII
1979 - Maîtrise de Mathématiques, Université de Paris VIII

Interests
Rendering, interactivity, software performance and evaluation.

Awards/Achievements
Several articles in various journals and conferences.
Système particulier selected for film show SIGGRAPH 87.
Opening Sequence selected for film show SIGGRAPH 91.
I attended my first SIGGRAPH annual conference in 1981, and was so inspired by the possibilities of our field that I haven’t missed one since. Our community celebrates cross-disciplinary interaction, seeks new experiences and listens to those who push us in new directions, which has kept our conference and our community vital. The excitement and opportunities we have created for our members are a sign of how well we have done. Because I wanted to see that community continue to thrive, I’ve volunteered and contributed to the conference as a course organizer, course speaker, panels speaker, jury member, reviewer and panels chair, as well as serving the ACM SIGGRAPH organization as a task force member, website creator and most recently in my three years as Director for Communications.

Despite our past successes, we cannot be complacent. Our community has already changed as the era of long-term employment has faded and as we have passed some of the milestones we sought for so long. The things that were exciting in our past, such as the first full-length CG movie, the routine use of CG in design or the Visible Human project (to mention only a few) are causes for celebration – but they can’t be the source of our future excitement. We need to make sure that we continue to find, attract and showcase the new and innovative ideas related to computer graphics and interactive techniques, wherever they come from.

The activities ACM SIGGRAPH needs to undertake as an organization to get to these results aren’t always exciting themselves – we need to continually update and track our long-range plan identifying new areas to explore, to continue the evolution of our publications into more accessible electronic forms, to provide on-line archives of our conferences and symposia for the 51 non-conference weeks in a year, to integrate our operations and promotional work with ACM and other SIGs, to broaden our worldwide reach and to more actively promote and retain members. That’s the spadework that can pay off in the excitement and enthusiasm that make the organization valuable to our community. I would be honored to help us get there as President of ACM SIGGRAPH.

**Leo Hourvitz**

**Candidate for President**

*ACM or ACM SIGGRAPH Activities*

1999-present - ACM SIGGRAPH Director for Communications  
1996 - ACM SIGGRAPH Membership Task Force  
1994-1997 - SIGGRAPH Panels Jury  
1995 - SIGGRAPH Panels Chair and Conference Committee member  
1988-1990 - SIGGRAPH Course organizer and speaker  
1981-present - SIGGRAPH and ACM member and SIGGRAPH attendee

**Professional Experience**

Present - Technical Art Director, Maxis/EA, Walnut Creek, CA  
1994-2000 - Producer (Multimedia) and Technical Director, Pixar Animation Studios, Richmond, CA  
1984-1985 - Software Engineer, Macintosh Software Group, Apple Computer, Cupertino, CA

**Education**

1984 - SMVisS, Architecture Machine Group (now the Media Lab), Massachusetts Institute of Technology  
1982 - B.S.E., computer engineering, University of Michigan
David Arnold  
**Candidate for Vice President**

In recent years ACM SIGGRAPH (and ACM itself) has attempted to play an increasing role in the worldwide community of computer graphics professionals - instituting cooperation with existing national or regional groups and encouraging new activities where there is interest but no formally constituted group exists. The post of VP has formal responsibility in these areas.

The traumatic events of September 11 demand reflective thought and will inevitably lead to revisions of previously held views. There are fundamentally only two directions for SIGGRAPH's reaction - retrenchment or even more proactive pursuit of a functional worldwide community.

Quite apart from the moral issues, I have two practical problems with the retrenchment view. Firstly we operate in a global industry and marketplace. Although recent market downturns have affected things, global trade is still pervasive, in goods, services and labour/expertise. These trades are two-way. For example SIGGRAPH is arguably the biggest European or Asian conference in computer graphics. Equally many U.S. universities would struggle to teach computer science without hiring non-U.S. citizens as faculty and teaching assistants. None of us operates in isolation.

Secondly ACM SIGGRAPH is already international - the proportion of non-Americans has increased over recent years and is approaching 25 percent. We need international understanding so that the good that is in all societies can share strength in negating the evil that is also in all societies. I would therefore seek to continue globalisation of the computer graphics community through appropriate liaisons and joint initiatives.

Globalisation requires us to reinterpret the role of professional societies; to distinguish what are core ethical and professional values and local cultural convention. We must preserve and strengthen core values in multi-cultural environments. Areas such as education, cooperation arrangements, policy and conduct in business will be affected. SIGGRAPH is well placed to identify key issues of national and international policy within a complex but focused technical domain.

Although September 11 naturally focuses the mind on the global role of the VP's job, liaisons are only one area of responsibility - there are others including symposia and other small events and project grants. Having personally organised about 30 international events and as a current member of the Special Projects Subcommittee, I think I have relevant experiences in these areas. As a potential deputy for the President I think it is important that the Vice President have executive experience. I have that experience as both a volunteer (as past Chair of Eurographics) and professionally (as a Dean).

In summary, if elected, I would work to:

- Encourage a cooperative globalisation policy, recognising multi-cultural diversity
- Strengthen the interaction and cooperation between ACM SIGGRAPH and ACM centrally
- Improve local delivery of services to members (within geographic and technical groupings), and preserve quality of existing activities
- Foster the next generation through enhanced student activities

**Biography**

I graduated in engineering and computing science and did a Ph.D. in computer modeling in architecture at Cambridge University (England). After working briefly for the Royal Navy, I was appointed to UEA, Norwich, where I am now a full Professor. I have been Dean of Information Systems and headed admissions for the university.

I joined SIGGRAPH 20-plus years ago but most of my volunteer work has been with other related organisations and in ACM. I have attended SIGGRAPH since the early ‘80s and presented on a number of occasions. I have also participated by invitation in the SIGGRAPH meetings on strategic directions since the mid ‘90s. I helped organise the 25th anniversary celebrations and am currently a member of the Special Projects Committee. I have promoted liaison between SIGGRAPH and Eurographics, most recently organising a ‘joint “in collaboration event” to follow-up the Campfire on Computer Graphics and Archaeology, adding to a list of about 30 events I have helped organise - the largest as General Chair of Eurographics 92.
Barb Helfer
Candidate for Vice President

Objectives/Priorities
The state of world affairs has made me look at both my personal and professional relationships and their need in my life. I think am not alone in the introspection, as it seems that this searching is taking place worldwide. The need to understand the ethical, professional and cultural values from a global perspective is shaping the future of both our personal and professional societies. ACM SIGGRAPH’s strength is its membership, and the diversity and technical expertise the community amasses. As the global perspective continues to change we need to determine how to serve our diverse community both individually and collectively.

Through its strategic planning, ACM SIGGRAPH decided on five key values which they thought embraced the organization and its activities: excellence, integrity, volunteerism, passion and cross-disciplinary interaction. The Vice President’s mandate is to take those values and apply them year round to the small conferences, project grants and alliances which the organization makes. In doing so, three goals of the organization - fostering innovation and creative applications, pursuing involvement from the entire worldwide community and being a catalyst in the advancement of computer graphics and interactive techniques - are accomplished.

Many people are familiar with ACM SIGGRAPH through its annual conference. This presentation is only the tip of some of the very best art, science, entertainment, education and interactive techniques that grows year around in our member and industry communities. As a member of ACM SIGGRAPH, I am personally very interested in the value of excellence and passion, which is exhibited through the project grants and the campfire initiative that the Vice President directly supports. The special projects, as an entity, help to support new initiatives within the organization. The campfires, which Alan Chambers started during his term as Vice President, enable computer graphics specialists to interact with scientists and professionals from other disciplines. I am also keenly interested in the member value of volunteerism as it strongly ties into the annual conference and the Executive Committee and the work that is done for the organization. Through my volunteer activities at the conference level, this organization has installed the passion of helping others understand the benefits associated with being a member of this community. This passion for helping others has helped define my path both professionally and personally.

One of my strengths is my ability to take diverse interests and team individuals into working partnerships. I have done this through my involvement with the conference in working with courses and the Pathfinders initiative, as well as in my professional endeavors. As technology progresses, it shrinks the boundaries between disciplines while allowing autonomous pursuit of discovery in a field. I think this ability to see common threads between individuals and communities and making introductions and liaisons as an asset to ACM SIGGRAPH.

As an example, ACM SIGGRAPH needs to look at supporting areas like streaming media, motion analysis, motion recognition, archiving data and video through a multidimensional digital asset management initiative. As Vice Chair, I will seek out these and other technologies and their encompassing organizations to create the kind of cross-pollination that fuels the heart of ACM SIGGRAPH and our annual conference.

If elected, my goals would be to expand the role of the small conferences and project grants in supporting new initiatives, use the “campfire” approach in forming interdisciplinary teams with findings presented at the conference and to expand the dialogue among computer graphics communities worldwide.

Education
1982 - Associate degree in broadcast electronics, Spartanburg Technical College
1979 - Master of mass communication, University of South Carolina
1977 - B.A., journalism-broadcasting, University of South Carolina

Interests
Digital video, copyright and fair use, compositing, motion capture, web-based applications and multimedia as an educational tool, education, compression, scientific visualization and team and project management

Professional Experience
May 2000-present - Assisting in the development of the Motion Capture Research Lab, Advanced Computing Center for the Arts and Design (COTA), The Ohio State University (OSU)
September 1994-May 2000 - Director of Emerging Technologies Studio, ACCAD, COTA, OSU
August 1988-July 1997 - Graphics Resource Manager, The Ohio Supercomputer Center
1986-1988 - Field and Design Engineer, Patlin Electronics, Inc.
1984-1986 - Operations and Maintenance Engineer, WCMH-TV, Columbus, OH
1979-1984 - Operations and Maintenance Engineer, WSPA-TV, Spartanburg, SC

ACM or SIGGRAPH Activities
SIGGRAPH 1992 - Course Reviewer
2001-2002 - COACM Chapter Chair
SIGGRAPH 2001 - Chair, Pathfinders
SIGGRAPH 2001 - Course Reviewer
SIGGRAPH 2000 - Subcommittee Member, Courses
SIGGRAPH 1999 - Chair, Courses
SIGGRAPH 1999 - Subcommittee Member, Pathfinders
SIGGRAPH 1998 - Subcommittee Member, Courses
SIGGRAPH 1998 - Subcommittee Member, Pathfinders
SIGGRAPH 1997 - Chair, Courses
SIGGRAPH 1996 - Subcommittee Member, Courses
SIGGRAPH 1995 - Subcommittee Member, Courses
SIGGRAPH 1994 - Course Reviewer

ACM or SIGGRAPH Activities
SIGGRAPH 1994 - Course Reviewer
2001-2002 - COACM Chapter Chair
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SIGGRAPH 2000 - Subcommittee Member, Courses
SIGGRAPH 1999 - Chair, Courses
SIGGRAPH 1999 - Subcommittee Member, Pathfinders
SIGGRAPH 1998 - Subcommittee Member, Courses
SIGGRAPH 1998 - Subcommittee Member, Pathfinders
SIGGRAPH 1997 - Chair, Courses
SIGGRAPH 1996 - Subcommittee Member, Courses
SIGGRAPH 1995 - Subcommittee Member, Courses
SIGGRAPH 1994 - Course Reviewer
Objective/Priorities
Over the past two years, I have had the chance to actively participate in the continued development of ACM SIGGRAPH and help chart the future direction of the organization. I am honored to be nominated for the office of Director for Communications, and I look forward to bringing my experience and skill to this position.

In my candidate statement for the position of Director At Large two years ago, I focused on the importance of volunteerism. I still believe that volunteers are the core of our organization, and I want to develop programs that will benefit and enhance our volunteer workforce. I want to ensure that we are recruiting a wide range of potential volunteers and working with them to promote their involvement in ACM SIGGRAPH, both with our annual conference and other ongoing projects. In addition, I want to work with the volunteers we have already identified and provide them opportunities to develop and expand their skill sets.

As Director At Large since July 2001, I have been in a unique position to drive projects which are strategic in nature, rather than program-specific. The two primary projects I have worked on centered on ideas that were developed during Executive Committee strategic planning sessions. Expanding and strengthening the ACM SIGGRAPH website are activities which we hope will increase traffic and provide the information our members seek. Working with fellow Director At Large David Ebert, we identified several areas in which we could immediately improve the website. I also led a task force exploring the concept of a traveling courses program, which would bring courses held at the annual conference to a wider audience throughout the year. Currently, we are developing three pilot programs that will help us gather data in order to create a final program plan. Both of these strategic ideas crossed many boundaries throughout the ACM SIGGRAPH organization, and I enjoyed being a driving force behind them.

As Director for Communications, I’d like to focus on the needs of our customers, the members of ACM SIGGRAPH. For instance, what are the benefits of membership and how can we (from within the Executive Committee) add to our membership offerings to increase the value? In addition to the usual tasks of this position, I will continue to support our strategic initiatives and ensure that we are reaching out to any organization or group of people who might have an overlapping interest with ACM SIGGRAPH. I will work to develop programs that will promote computer graphics and interactive techniques. And I will work towards a web presence that will provide resources for our members and help us to continue to reach a wider audience.

Serving two more years on the Executive Committee will be a rewarding and enriching experience. I look forward to influencing the direction of the organization, giving of my time and talents and providing focus as we move forward.

Biography
Gudrun Enger is an independent communications consultant working in the Silicon Valley. Current projects include a documentary film on efficient vehicles and fundraising for a non-profit in Palo Alto, CA. Previously, she worked at Metro Link, concentrating on engineering relations and marketing strategy. Gudrun also worked six years at Silicon Graphics, with significant project management experience including Nintendo 64 chip design and development, and technical and marketing support of the company’s next-generation high-end graphics solutions. She holds a bachelor’s degree in history from the University of California, San Diego. She has also completed several post-graduate courses in computer science and marketing. Gudrun was the SIGGRAPH 99 Creative Applications Lab Chair, and served on the committees for the CAL in 1997 and 1998. She is a member of the American Association of University Women and Women In Technology International. Gudrun is also a facilitator with Kara, a non-profit grief counseling organization in the Bay Area. In her spare time, she plays competitive ultimate Frisbee with a local club team.
Ann Eakes  
Candidate for Director for Communications

My SIGGRAPH experience began in 1991 when I attended my first SIGGRAPH conference in Las Vegas. The energy and spirit of the group were contagious and I have rarely missed a conference since. Our organization provides members with an outstanding forum for many different computer graphics issues spanning from the technical issues of graphics implementation to the relevance of changing public policy in the areas of copyright and encryption. Members are the strength of an organization and ours is no exception. ACM SIGGRAPH has a strong tradition of volunteers who are essential to our function.

The Director for Communications, overseeing membership activities and the ACM SIGGRAPH website, has a responsibility to work to strengthen our organization by building our membership. For many people ACM SIGGRAPH is defined by their experience at the annual SIGGRAPH conference. Not all the people who attend the conference each year are ACM SIGGRAPH members. In fact, many people join ACM SIGGRAPH for an initial year and do not return beyond that first year. While there are many people who strongly support both the annual conference and the organization, there is a much larger pool of people who are most enthusiastic about the annual conference without appreciating the year-round relevance of the organization to their activities. I will work to build our membership by looking beyond those areas that have traditionally been well represented in ACM SIGGRAPH and by trying to retain a larger percentage of members beyond the first year. I feel strongly that the organization must work to understand why these people do not choose to remain members and work to publicize advantages of membership clearly. Adding to the ACM SIGGRAPH community strengthens the group as a whole and benefits all members with opportunities only possible to a larger and more diverse organization.

I want to assess the principal needs of our members and to determine how well we are meeting these needs. Are there services available that are not adequately publicized or benefits that might be modified to have broader appeal? Our strong website is a valuable means of communicating with our members. I will continue to develop our website as a means to provide information and services. Additionally, I will work to invite and to encourage feedback from the members to the organization.

Education
1997 – Ph.D. biochemistry, University of Texas Health Science Center at San Antonio, San Antonio, TX
1980 - B.A. biology, Washington University, St. Louis, MO

Interests
Scientific visualization and molecular modeling along with the use of computer graphics in teaching biological sciences and the expanding role of computer graphics into numerous aspects of daily life.

Professional Experience
Since 1980 I have been involved in biomedical research, first working in biomedical research laboratories and later as a Research Scientist working in the field of molecular biology. Throughout this time I have worked to train students in biomedical sciences and have moved my focus recently to formal teaching at the undergraduate level.

SIGGRAPH Experience
2002 – Chair of the Pathfinders Committee for SIGGRAPH 2002
2001 – Mentor and member of the Pathfinders Committee for SIGGRAPH 2001
2000 – Member and booth manager of the Pathfinders committee for SIGGRAPH 2000
1999 – Co-organizer of the 30th anniversary exhibit of the ACM SIGGRAPH organization at SIGGRAPH 99
1996 – Student volunteer at SIGGRAPH 96
1993 – Student volunteer at SIGGRAPH 93
1991 – Attended first SIGGRAPH annual conference
Thierry Frey
Candidate for Director for Chapters

Objectives/Priorities
Over the last few years, the professional and student chapters have evolved and expanded significantly to become a vital part of ACM SIGGRAPH. Indeed, with over 50 chapters around the world, each one representing a city, a region or a state, these groups form a rich complement to the international membership of ACM SIGGRAPH.

In June 2001, when I accepted the position of Director for Chapters, I set for myself two goals, which may seem antagonistic, but are in fact inseparable:

• To nurture the specific identities that the chapters have developed through the years
• To strengthen the relationship between the organization and the chapters

Both ACM SIGGRAPH and its chapters attract a very diverse range of people with outstanding skills and experience in the arts, research, education and the business of computer graphics and interactive techniques. But because the chapters operate on a much smaller scale, they successfully reach out to people who may not be interested in a worldwide organization such as ACM SIGGRAPH and those who are not directly involved in computer graphics but are intrigued by this dynamic field and want to learn more about it.

But if the chapters are to successfully transform that spark into a flame, they must receive stronger and more flexible support from the organization. This increased support will allow them to more effectively support the values of the organization (excellence, integrity, passion, volunteerism and cross-disciplinary interaction) at their local level.

My first task has been to select and structure the Professional and Student Chapters Committee (PSCC), a group of very talented people who will help me pursue our two goals by working on these topics:

• Share information more effectively
  – Improve communication within the chapters network and between the chapters and the organization
  – Develop a web-based calendar of chapter events
  – Build an on-line archive that will serve as a legacy for future chapter volunteers
  – Develop interactions with other ACM SIGGRAPH programs such as the Traveling Art Show, the Traveling Courses and the Education Committee

• Encourage and support chapter growth
  – Maintain and improve the Chapters Workshop at the SIGGRAPH conference
  – Simplify day-to-day chapter management by developing a web-based application to coordinate memberships and activities
  – Help chapters focus on event organization and content creation
  – Reach out to new cities and countries to start new chapters
  – Encourage chapters to seek out new members, and boldly go where no chapter has gone before!

We have the will and the dedication necessary to succeed. We lack only the time. I ask for your vote so the PSCC can continue to build on the solid foundation we have established in the last few years.

Biography
Computer graphics has always been a passion for me. I obtained my college degree in 1993 at the Ecole Nationale Supérieure des Télécommunications de Paris, majoring in image processing, and continued on to discover the field of animation at the Ecole Nationale Supérieure des Arts Décoratifs. In 1994, I discovered the SIGGRAPH conference as a student volunteer.

After four years as a computer graphics developer at Dassault Systèmes, I am now in charge of quality assurance at Enition S.A., a French start-up developing an IP-based technology in the field of electronic payment.

Since my professional activities veer away from computer graphics, I have decided to volunteer more of my spare time to ACM SIGGRAPH to satisfy my continuing fascination with computer graphics and interactive techniques.

My involvement with the chapters began in 1995 as a member of the Paris ACM SIGGRAPH professional chapter. I have also worked very closely with recent Directors for Chapters, Colleen Cleary and Scott Lang, as Electronic Services Co-Chair and Translator on the Professional Chapters Steering Committee. I also have a good knowledge of the conference. Though I missed SIGGRAPH 96 and SIGGRAPH 98, I have been a member of the International Resources Committee for the last eight conferences, and I am chairing this committee for SIGGRAPH 2002.
Fran McAfee
Candidate for Director for Chapters

Education
1998 - M.F.A., Florida Atlantic University, computer arts
1989 - B.F.A., Florida Atlantic University, print-making, ceramics

Interests
Computer animation, art, virtual reality, high performance networking.

Objectives/Priorities
I was first introduced to SIGGRAPH through the efforts of Garry Paxinos who arrived at our research laboratory in Fort Lauderdale seeking support from the academic community involved in computer graphics. He wanted to charter a new ACM SIGGRAPH professional chapter to serve the South Florida area. Along with Garry, I met several other intelligent, good-natured people that shared a general interest in gathering occasionally to learn, teach and nurture a community with an interest in computer graphics. This experience could be compared to creating a kind of extended family with the advantage of building professional skills at the same time. Add to this, the annual SIGGRAPH convention and you expand this experience to a global scale.

Since 1994 I have been impressed with the quality of character that I find in local SIGGRAPH membership as well as the officers that make the international organization work. This year, Scott Lang and Thierry Frey have been selflessly working overtime adjusting to a sudden change in chapter leadership. This kind of dedication reminds me of what motivated me to get involved in this organization in the beginning. Building a productive community over oceans and across continents is an admirable, satisfying task to undertake.

Support for chapters in regards to new charters and continued development for existing chapters would be a priority for me. Old chapters need to keep members active and motivated without overburdening and exhausting volunteers. New chapters may need start-up funds to create venues and special events. I do not propose that any of this is not already being addressed; I would just like this to be an area that the Chapters Committee could focus on.

Another area would be to create more interaction between chapters throughout the year and to create more outreach efforts to traditional artists organizations, museums, creative industries and educational institutions. All of these are old ideas and goals that might need some new approach to create more dynamic activity within the chapters.

To begin with, I’m honored to be nominated. If elected, I would be dedicated and conscientious in handling the responsibility in guiding the chapters growth and development. Please give me your careful consideration in electing the Director for Chapters.

Professional Experience
Present - Associate Director of the Florida Center for Electronic Communication and Assistant Professor of Art at Florida Atlantic University
1991-1998 - Research Associate, CGI Artist Florida Center for Electronic Communication
? -1998 - Freelance artist

ACM and SIGGRAPH Activities
Present - Chair, Fort Lauderdale ACM SIGGRAPH Professional Chapter
1994-1998 - Vice Chair, Fort Lauderdale ACM SIGGRAPH Professional Chapter
SIGGRAPH 98 - Creative Applications Lab Committee

Other Organizations
Current - International Game Developers Association, Miami South Florida Chapter, Board Member
1997 - Museum of Discovery and Science Scientific Advisor
Werner Hansmann
Candidate for Director for Education

Education
1985 - Doctorate in computer science, Hamburg University, Germany
1973 - Diploma (M.S.) in civil engineering, Bochum University, Germany

Interests
Computer graphics education, geometric modeling, photorealistic rendering, computer-aided animation.

Statement
There is hardly any discipline that does not use graphics in some way or other in order to communicate information in a more concise form than simple text can offer. Pictures are central to the fine arts; engineers have always used technical drawings for describing the complex systems they designed; in economics and science, diagrams help to understand complicated facts; and even in the humanities people cannot do without graphs; to name just a few.

As computers become more powerful, their potential for being turned into modern tools for creating graphics increases significantly. Computer scientists have developed sophisticated graphics systems, which meet the needs of various application areas. Our task as educators is to teach our students how to use up-to-date graphics systems, show them how these systems work, enable them to conduct research in the field and/or to take part in the development of graphics systems of the next generation.

However, as computer graphics is becoming more complex it is also becoming impossible for a single graphics teacher to get - without expert support - acquainted with all the different aspects of the field which she or he needs for up-to-date education. Today there exists a wealth of valuable information, which has been accumulated and structured by volunteers from many disciplines, who have been cooperating in the SIGGRAPH Education Committee. Educators who start teaching in an area of computer graphics or need to update their teaching material can now benefit from these resources. Moreover SIGGRAPH provides a well established forum for graphics educators to meet and exchange experience.

I’d be happy to share my experience to support the SIGGRAPH Education Committee in further pursuing the goals of providing educators with educational resources and materials, and furthermore in establishing a lively network within our community.

Professional Experience
1993-present - Student Advisor, Computer Science Dept., Hamburg University
1987-present - Senior Lecturer, Computer Science Dept., Hamburg University
1992-1993 - Visiting Professor, Computer Science Dept., Weimar University
1987 - Research Associate, Ocean Engineering Dept., MIT, Cambridge, MA
1980-1986 - Research Associate, Computer Science Dept., Hamburg University
1976-1977 - Visiting Engineer, Ocean Engineering Dept., MIT, Cambridge, MA
1973-1980 - Research Associate, Civil Engineering Dept., Bochum University

SIGGRAPH/Eurographics Activities
1999-present - Member of the Eurographics Executive Committee
1999 - Co-chair for the Graphics and Visualization Education Workshop GVE'99
1995-1997 - Member of the Eurographics Executive Committee
1993-present - Participation in all joint Eurographics/SIGGRAPH workshops on Graphics and Visualization Education (GVE)
1993-present - Member of Eurographics Working Group on Graphics and Visualization Education
Tony Longson
Candidate for Director for Education

Since the early '80s my contributions to ACM SIGGRAPH include organizing the early “Frame Buffer” shows, exhibiting work in the '86 and '95 Art Shows, presenting papers, chairing a panel, working with the “Dream Curriculum” committee, helping outreach, etc. Three years ago I was invited to work with the Education Committee and this year organized the student animation competition (SPACE).

The Education Committee has established a strong presence at the annual conference and has developed several “year-round” projects to develop and support educational resources. The strength of the committee reflects the dedication of its members and the leadership of Director Mike McGrath, which if elected, I will build upon, specifically in the areas of outreach, demo- and geo-graphically, and in extending and promoting resources to educators. I want to provide content and methods of evaluation and pedagogical frameworks for those who are developing new curriculum.

Computer graphics education in art and design has seen a fairly steady progress, though perhaps no obvious conclusions (not necessarily a bad thing in a creative arena). Graphics in computer science education, firmly established in the “tool building” curriculum of the ‘80s, is being reassessed in an era where highly sophisticated graphics software and hardware is readily available. I will work with people from both disciplines and from the professions that they serve to foster an open exchange of ideas.

Perhaps my best qualification for this position is that I have been involved in both the arts and computer science areas of computer graphics education; in the arts since 1971, starting some of the first courses in computer graphics for artists and designers in England and the United States, and in computer science as an instructor at West Coast University and, as of this year, Adjunct Professor of Computer Science at California State University, Los Angeles.

Professional Experience
Fine arts graduate from Reading University, U.K.
Postgraduate work in Holland and England
Arts Council of Great Britain Fellow, University of Hertfordshire
Bicentennial Arts Fellowship, Jet Propulsion Laboratory, Pasadena
Part-time teaching includes USC (cinema and television), UCLA (design), Otis Art Institute
Currently Professor and Animation Chair, Art Department, CalState, Los Angeles
David S. Ebert
Candidate for Director at Large

Education

Interests
Procedural techniques for computer graphics (procedural modeling, rendering and animation); scientific, medical and information visualization; volume rendering; realistic and nonphotorealistic rendering; modeling and animating natural phenomena; volumetric displays.

Objectives/Priorities
As ACM SIGGRAPH moves forward, the role of the organization needs to adapt to the changing needs of its members and the field of computer graphics and interactive techniques. We cannot rest on our success over the past 30 years, but must work hard to be the most useful organization to our membership. Our goal is to expand our outreach to bioinformatics and other scientific application areas. I would like to build closer associations and joint events between ACM SIGGRAPH and other organizations in associated areas, such as the IEEE Technical Committee on Visualization and Graphics, international art societies (e.g., ISEA), computer game associations, bioinformatics, animation, and broadcasting and display societies.

Awards/Accomplishments
Over $6,000,000 in grant funding from NSF, NASA, DOD, NIST
Over 50 refereed and invited conference and journal publications and several book chapters.
Exhibited computer generated art at international art exhibits
Computer animations shown internationally
Awards in SIGGRAPH 89, 90 - Papers program Outstanding Paper Award
Awards in SIGGRAPH 90 - Outstanding Paper Award
Awards in SIGGRAPH 92, 93, 94, 95, 96, 97, 98, 99, 2000
Awards in SIGGRAPH 90 - Outstanding Paper Award
Awards in SIGGRAPH 92, 93, 94, 95, 96
Awards in SIGGRAPH 96 - Outstanding Paper Award
Awards in SIGGRAPH 97 - Outstanding Paper Award
Awards in SIGGRAPH 98 - Outstanding Paper Award
Awards in SIGGRAPH 99 - Outstanding Paper Award
Awards in SIGGRAPH 2000 - Outstanding Paper Award

Professional Experience
2000-present - Associate Professor, School of Electrical and Computer Engineering, Purdue University
2000 - Consultant, Electronic Arts, Inc.
2000 - Visiting Associate Professor, Computer Science Department, Stanford University
1998-2000 - Associate Professor
1993-1998 - Assistant Professor, Computer Science and Electrical Engineering Department, University of Maryland Baltimore County
1999 - Visualization Consultant, American Association for the Advancement of Science
1998 - Visualization Consultant, National Library of Medicine
1998 - Visualization Consultant, Mitsubishi Information Technology Center America
1996-1997 - Visualization Consultant, NASA Goddard Space Flight Center
1995 - Visiting Scientist, NASA Goddard Space Flight Center
1994-1995 - Summer Faculty Fellow, NASA Goddard Space Flight Center
1991-1993 - Instructor, Computer and Information Science Department, The Ohio State University

ACM and/or SIGGRAPH Activities
2001 - SIGGRAPH Conference Advisory Group member
2000-2002 - ACM SIGGRAPH Executive Committee Director at Large
SIGGRAPH 99, 2000 - Emerging Technology Committee member
1998 - SIGGRAPH Sketches Review Task Force Chair
SIGGRAPH 98 - Technical Sketches Chair
SIGGRAPH 97 - Sketches Chair; Technical Slide Set Jury; Contributor, Electronic Theater and Technical Sketches program
Co-organizer, New Paradigms in Information Visualization and Manipulation Workshop, in cooperation with ACM SIGGRAPH
SIGGRAPH 96 - Courses Committee member
SIGGRAPH 92, 93, 94, 95, 96, 97, 98, 99, 2000, 2001 - Course organizer and presenter
SIGGRAPH 90 - Papers program Contributor
SIGGRAPH 89, 90, 91, 92, 96 - Technical Slide Sets Contributor
SIGGRAPH 89, 90 - Animation Screening Room Contributor
SIGGRAPH 89, 90 - SPACE Program Contributor

Over 50 refereed and invited conference and journal publications and several book chapters.
Exhibited computer generated art at international art exhibits
Computer animations shown internationally

Member of IEEE Visualization 1995 - 2000 conference committees:
Program Co-chair 2000
Co-chair Papers program 1998, 1999
Co-chair Late Breaking Hot Topics 1997
Chair Late Breaking Hot Topics 1996
Co-chair Demonstrations 1995
Co-chair, Vissym 2001, 2002 - Joint Eurographics/IEEE TVCG Symposium on Visualization

Computer Graphics
Jacquelyn Ford Morie
Candidate for Director at Large

Education
1988 - M.S., University of Florida
1984 - M.F.A., University of Florida

Interests
Immersive virtual environments, interactive art, animation, emotive potentials of technology, scientific visualization, education.

Statement
I have worked with the ACM SIGGRAPH organization for the past 15 years. Why? Because for me it is an organization that embodies many worthy and admirable traits I want to support. These include the spirit of collaboration, sharing of information and an indomitable spirit to invent the future. ACM SIGGRAPH has always been the place to meet and work with the best computer graphics people from all over the world, from all walks of life and from all viewpoints and disciplines. This is the aspect of SIGGRAPH I feel is most important for the future: to encourage the integration of this diversity of talents, wisdom, knowledge and understanding. I believe collaboration is the heart and soul of what makes SIGGRAPH great. I want to encourage increased cross-disciplinary fertilization. I have learned so much from other fields of knowledge that informs my work in exciting and diverse ways. As a Member at Large, I would work to encourage more SIGGRAPH participation from communities we don't see often enough, and help inform these communities about what SIGGRAPH can do for them. These include the medical community - from surgery to cognitive science, artificial intelligence researchers, interactive and innovative artists, CAD and industrial designers, government research and, of course, educators.

Another area I would like to work on is keeping the work and spirit of SIGGRAPH constant throughout the year and throughout the world. I would like to help continue the efforts already underway that are expanding the reach of SIGGRAPH to other countries and into year-round activities. We all agree that sharing of information should be more than a once-a-year event. Efforts should be made to make the results of the summer conference and other valuable SIGGRAPH-sponsored events available through on-line resources where people have access to them. The SIGGRAPH Education Committee has made a good start at this effort, and I would like to see it increased to augment SIGGRAPH's on-line educational efforts.

Finally, I would like to see even more innovation shown at and supported by SIGGRAPH, so it is indisputably the place to see the future before it happens. I would like to work with others who have ideas on how to increase SIGGRAPH's leadership in this arena. SIGGRAPH has been, and must continue to be, about quality, not quantity - in all its broad and diverse aspects.

Collaboration, information and invention: these are the strengths of the ACM SIGGRAPH organization and where I would be honored to serve with my talents and time.

Professional Experience
2000- present – Manager of Creative Development, USC Institute for Creative Technologies and Project Lead, Sensory Environments Evaluation Project
1997-2000 – Head of Training and Artist Development at VIFX, Blue Sky|VIFX, Rhythm & Hues Studios
1994-1997 – Manager of Digital Training, Walt Disney Feature Animation, Florida and California
1990-1994 – Visiting Assistant Professor Film Animation Program, and Researcher at UCF Institute for Simulation and Training, University of Central Florida
1988 –1990 - Designed Computer Animation Program at the Ringling School of Art and Design, Florida

ACM SIGGRAPH Activities
SIGGRAPH 2001 - Computer Animation Festival, Alternate Juror
1999-2001 - SIGGRAPH Educators' Program Submission Reviewer
SIGGRAPH 2000 - Animation Sketches Reviewer
Eurographics Workshop International Program Committee, Computer Graphics and Visualization Education '99

SIGGRAPH 98 - SIGGRAPH Education Outreach submissions reviewer
SIGGRAPH 98 - Emerging Technologies reviewer
SIGGRAPH 98 - Outreach panelist, “Coast to Coast: What Industry Needs”
SIGGRAPH 97 - Outreach Program, “The Intersections of Education and the Entertainment Industry”
SIGGRAPH Los Angeles Professional Chapter, 1997 Panelist “Where Is the Talent to Power Our Industry's Future?”
ACM SIGGRAPH Educators’ Newsletter Editor, 1991-1993
SIGGRAPH Los Angeles Professional Chapter, Gainesville FL, Speaker “Computer ART,” November 1990
SIGGRAPH Los Angeles Professional Chapter, Gainesville FL, Speaker “2D and 3D Computer Art,” Summer 1991
1988-present - SIGGRAPH Education Committee Member
SIGGRAPH 94 - Conference Planning Committee, Co-Chair Emerging Tech venue “The Edge”
SIGGRAPH 92 - Electronic Theater, Contributor
SIGGRAPH Professional Chapter, Orlando, 1991 - Member of the Inaugural Executive Steering Committee
1991-93 - SIGGRAPH Regional Workshops Committee member
SIGGRAPH 86, 87, 88 - Art Show Contributor

February 2002 29
Masa Inakage
Candidate for Director at Large

I believe that computer graphics and interactive techniques will be the core technology for the emerging broadband domain. SIGGRAPH has been focusing on the technical aspect of these core technologies, but I believe that killer content and services will become equally important. Furthermore, the broadband technology will allow stronger global collaborations in research, development and production.

I have a unique background with experiences in both production and academia and international achievements. In addition, I have an art background as well as an engineering background.

Given the assumptions I made above, I have several recommendations to strategically expand SIGGRAPH activities to account for the broadband generation. First, SIGGRAPH should be more active as a global community. The International Committee has been very successful in attracting international participants, but we should start looking for possibilities to offer even stronger international support, such as translations at the conference, as well as a higher level of exposure to foreign countries as a global brand.

Second, the community should utilize broadband networking to share and communicate as an international and global organization. The annual conference should not be the sole international activity. The secure broadband network allows SIGGRAPH to share databases including but not limited to papers, artworks and career opportunities. More on-line tutorials and courses could be an achievable and valid service.

Third, it is becoming extremely important to focus on content and creativity issues. SIGGRAPH currently offers technical paper sessions but there should be creative paper sessions to share industry and production know-how that could lead to the next areas of technical research.

To summarize, I believe that (1) the broadband-based global branding of SIGGRAPH, (2) strong support for on-line-based communities and database sharing and (3) more focus on content and service oriented research and applications are the key issues for SIGGRAPH’s strategies.

Education
1983 - M.F.A., video art, California College of Arts and Crafts, CA
1982 - B.A., economics, Oberlin College, OH

Professional Experience
Masa Inakage is a Digital Media Artist and Producer, and is President/CEO of The Media Studio, Inc. in Japan. He is also a Professor of digital entertainment design as well as Chair of Media Design Program at Keio University. At The Media Studio, he has produced numerous computer animations and visual effects for feature films, HDTV and broadcast programs. At Keio University, his current research projects include digital cinema, virtual actor, non-photorealistic rendering and interactive entertainment. He spent two years at MIT Media Laboratory to develop computer animation systems for animators.

ACM SIGGRAPH Activities

Selected Presentations
SIGGRAPH 95 - Technical Sketches
SIGGRAPH 91 - Course Chair, “Photorealistic Volume Modeling and Rendering”
SIGGRAPH 88 - Course Chair, “Functional Based Modeling”
SIGGRAPH 86 - Course Speaker, “Developments in Ray Tracing”

Selected Works
SIGGRAPH 99 - Art Show, Tangled
SIGGRAPH 97 - Screening Room, Phantom
SIGGRAPH 95 - Art Show, Relations
SIGGRAPH 95 - Electronic Theater, Continuum
SIGGRAPH 93 - Small Theater, Fantastic Dreams
SIGGRAPH 87 - Art Show, Message from the Third Kind
SIGGRAPH 84 - Film and Video Show, Digital Fantasy

Committees
2001-current and 1997-2000 - Chair, Tokyo Professional Chapter
1993-2001 - International Committee
1993 - Designing Technologies Committee
1990 - Panels Committee
Jiaoying Shi
Candidate for Director at Large

I have read the ACM SIGGRAPH Director at Large job description carefully. I realize that although the job of the Director at Large is very challenging, I am willing to accept the challenge and have confidence that I can fulfill the job properly. If elected, I intend to do the following:

- I will attend all EC meetings and participate in all activities required.
- I will learn from the predecessors to summarize their experience and to communicate with different people widely to learn their ideas and their needs.
- I think the work of "Support close contact/awareness of all ACM SIGGRAPH programs to better synergy and communication" is very important. I will use my contacts in other national and international societies to raise awareness of ACM SIGGRAPH activities and to communicate information about the field of computer graphics and interactive techniques.
- As an international member of EC, I am interested in establishing a closer relationship between ACM SIGGRAPH and local academic associations, societies and federations specialized in computer graphics in different countries. Because I have lived and worked in many countries, I have a good understanding of the cultural and educational differences in Asia, Europe and the U.S.
- I will use my unique skills to further the ACM SIGGRAPH strategic planning efforts, as past Directors at Large have done in areas such as outreach to game developers, the Carto Project, traveling courses and expanded on-line services.

**Professional Experience**

Jiaoying Shi is a Professor of the Department of Computer Science and Engineering at Zhejiang University, which is located in Hangzhou, Zhejiang Province of China. He is now the Director of Academic Committee of State Key Lab of Computer Aided Design and Computer Graphics (known as State Key Lab of CAD&CG). Professor Shi is the Deputy Chairman of China Image and Graphics Association, the Deputy Chairman of China CAD and Graphics Society under China Computer Federation and member of the Education Committee of ACM SIGGRAPH. He is on the editorial boards of *International Journal of Computers & Graphics* and several domestic journals, such as *Journal of China Image & Graphics* and *Journal of CAD & Graphics*. He is a guest professor for four domestic universities in different cities.

Prof. Jiaoying Shi was born in Ningbo of Zhejiang Province in 1937. He finished his school education in Ningbo, and graduated from the Department of Physics at Leningrad University of USSR in 1960. He worked as an Assistant Professor at North-West Polytechnic University in Xi’an from 1960 to 1963. He worked as an Assistant Professor at Shanghai University of science and technology in Shanghai from 1963 to 1973. Then he joined the Radio Electronics Department of Zhejiang University in 1973. In 1978 he transferred to the Department of Computer Science and Engineering at the same university. In the years from 1982 to 1984, he worked as an Adjunct Associate Professor at Department of Electrical and Electronics of University of Florida, U.S. After he returned from the U.S., he rejoined Zhejiang University. He was promoted as a full Professor in 1987. He served as the Vice Chairman of the Department of Computer Science and Engineering (1985-1988), the Dean of the Division for University Scientific Research Affairs (1988-1991) and the Director of State Key Lab of CAD&CG for 10 years (1989-1998). The State Key Lab of CAD&CG he leads is evaluated as one of the top 10 excellent research labs in China (see 1995 November issue of *American Journal of Science*).

In the 1960s, he did basic research and teaching in the nuclear physics area. In the 1970s he changed his research direction into minicomputer hardware design and applications. Since 1980 his research interests lie on computer-aided design and computer graphics. Since 1990 his works are concentrated on visualization in scientific computing and virtual environments. He received the First Prize for Science and Technology Progress awarded by Zhejiang Province twice, and the Second Prize for Science and Technology progress awarded by State Department of Education once. The CAD support software system developed by his research group was the first commercialized software with domestic intellectual property. He has published more than 100 papers and four books.

Professor Shi is actively involved in international academic exchange programs. He established close relationships with many universities and research institutes in different countries especially with German FhG-IGD led by Professor Encarnação and GMD in Bonn. He served as a member of the International Program Committee for various international conferences including Eurographics and GraphiCon. He organized several international conferences and workshops in CAD, computer graphics, visualization and virtual reality areas in the past 10 years in China.
ACM SIGGRAPH Executive Committee Minutes

Meeting October 28, 2001 Atlanta, GA

Attendees
Judy Brown, Alan Chalmers, Steve Cunningham, David Ebert, Gudrun Enger, Thierry Frey, Leo Hourvitz, Erica Johnson, Mike McGrath, Scott Owen, Garry Paxinos, Dino Schweitzer, Stephen Spencer.

Guests
Alain Chesnais, Alyn Rockwood, Dena Slothower.

The meeting came to order at 9:07 a.m., and the guests were introduced and welcomed.

Economy
There was a discussion of the economic future and a suggestion that we will need to watch finances more closely. Everything that has been budgeted does not necessarily have to be spent. Money that is not spent for a particular item is returned to the reserve fund. For the next fiscal year's budget, all committees should look for ways to reduce their budgets and to justify any money requested. Budgets should also include how to measure success of the goals.

Strategic Plan Discussion
We also need to keep in mind our strategic model that reaffirms the importance of ACM SIGGRAPH as a membership organization, stresses globalization and personalization and includes priorities for resource allocation. At the Sedona planning meeting, we selected 10 goals or projects that we want to be sure to accomplish this year. Any of these that are not already budgeted will have to be budgeted from the reserves or next year's budget. Other projects can also be considered, especially if the cost is low, or the budget is already in place for it.

In order to see the progress on the Sedona goals, we should have an update from all project leaders a month before each Executive Committee meeting. Brown will remind everyone about this. It was also requested that everyone send updates or summaries on progress one week before each monthly conference call and include resources needed to complete each item, both monetary and volunteer resources. It was further suggested that tasks that have only one person assigned should have at least one other person involved. There was consensus on these suggestions.

David Ebert reported on Goal 2: Complete Hub prototype implementation by September 2002. Make SIGGRAPH 2002 presentations available on-line by 9/1/02 and develop plan for sustainability.

Progress on this goal has been set back by problems in completing the prototype of getting information on-line from the SIGGRAPH 2001 conference. They are now looking at a smaller model and plan to get a portion of the SIGGRAPH 2002 conference on-line. They will then be able to study this prototype in order to determine the cost for a full model.

Selection of Conference Volunteers
The recommendations for SIGGRAPH 2003 technical chairs (Papers Chair, Panels Chair and Courses Chair) were discussed.

Motion: To approve Jessica Hodgkins as Papers Chair for SIGGRAPH 2003. Owen, Enger (Approved 10,0,0)

Motion: To approve Lou Harrison as Panels Chair for SIGGRAPH 2003. Owen, Ebert (Approved 10,0,0)

Motion: To approve Rick Barry as Courses Chair for SIGGRAPH 2003. Owen, Chalmers (Approved 10,0,0)

Dena Slothower was the nominee for SIGGRAPH 2004 Conference Chair. She responded to questions about the position and her goals before leaving the room for the vote.

Motion: To approve Dena Slothower as SIGGRAPH 2004 Conference Chair. Owen, Chalmers (Approved 10,0,0)

Scott Owen was nominated for the position of Conference Advisory Group Chair. His qualifications and the selection process were discussed.

Motion: To approve the nomination of Scott Owen to the position of Conference Advisory Group Chair for the term of three years, from 2002-2004. Ebert, Hourvitz (Motion approved)

Conflict of Interest
There was a discussion of potential conflicts of interest and how these should be handled.

Action Items:
1. Erica Johnson will forward the current ACM policy
2. Judy Brown will draft an ACM SIGGRAPH policy by the January Executive Committee meeting.

Cooperation Agreement Between ACM SIGGRAPH and CSIG
Alan Chalmers presented a draft agreement of cooperation between ACM SIGGRAPH and China Society of Image and Graphics (CSIG)

Motion: To accept the agreement. Chalmers, Cunningham (Approved 10,0,0)

Eurographics/ACM SIGGRAPH Affiliation Agreement
The Eurographics/ACM SIGGRAPH affiliation agreement was discussed. In order to form stronger links between the two organizations, it was proposed that each organization have a representative attend the other organization’s meeting. The representative would participate in the discussion but would not vote.

Motion: To accept the following agreement.

Eurographics/ACM SIGGRAPH Exchange Proposal
In order to strengthen our affiliation, Eurographics and ACM SIGGRAPH agree to an exchange of representatives at Executive Committee meetings during the year. Beginning in 2002:

• ACM SIGGRAPH formally invites Eurographics to send a representative to participate in one ACM SIGGRAPH Executive Committee meeting.
• Eurographics formally invites ACM SIGGRAPH to send a representative to participate in one Eurographics Executive Committee meeting.

These meetings are intended to be in addition to the meetings that currently take place during the week of the respective annual conferences. ACM SIGGRAPH will cover the expense of sending its representative to the Eurographics meeting, and Eurographics will cover the expense of sending its representative to the ACM SIGGRAPH meeting.

Chalmers, Cunningham (Approved 10,0,0)
This proposal also goes to the Eurographics Executive Board for approval.

Oceania Proposal
Alan Chalmers submitted a proposal to send a delegation to Australia and New Zealand, similar to last year’s delegation to Southern Africa. The proposal requested $30,000 for a five-person delegation to travel to Oceania in March, and the
purpose of this visit is to meet with key people in industry, universities and funding agencies to share information and promote computer graphics activities in the region.

**Motion** (Chalmers, Cunningham) To accept the Oceania proposal.

There were concerns about the budget and the number of people proposed to go.

**Amendment:** To limit the budget for the proposed mission to $14,000.

Hourvitz, Owen (Approved 5,4,1; Opposed: Eger, Ebert, Spencer, Cunningham; Abstain: Chalmers)

**Amended Motion:** To accept the Oceania proposal with a budget of $14,000. 

Approved (6,4,0; Opposed: Eger, Ebert, Owen, Spencer)

There was a suggestion to include the funding for future projects of this nature in the annual Vice President's budget since this type of activity is becoming an annual program, rather than a one time event. It is also expected that there will be a report on what benefits come as a result of these expeditions.

**Location of SIGGRAPH 2004 Conference**
The Conference Advisory Group recommended Atlanta for the SIGGRAPH 2004 conference, based on a number of factors including availability of space over the conference's preferred dates, housing options and pricing.

**Motion:** To approve Atlanta as the site for the SIGGRAPH 2004 conference. 

Owen, Spencer (Approved 9,0,1; Abstain: Hourvitz)

**Web Graphics and Design Contract**
The Conference Advisory Group recommended Q Ltd. as preferred vendor for the web graphics and design contract.

**Motion:** To accept the contract recommendation of the Conference Advisory Group to award the web design contract to Q Ltd.

Owen, Ebert (Approved 9,1,0; Opposed: Cunningham)

**SIGGRAPH 2003 Preliminary Budget**
Alyn Rockwood, SIGGRAPH 2003 Conference Chair, discussed the preliminary budget for SIGGRAPH 2003. SIGGRAPH 2003 will be held in San Diego, CA. Because conference registration was down for SIGGRAPH 2001, a number of financial changes are under discussion, including possible registration and exhibitor fee changes. The Creative Applications Lab (CAL) program, which has not been cost effective, will be eliminated.

**Motion:** To approve the SIGGRAPH 2003 preliminary budget. 

Owen, Enger (Approved 10,0,0)

**ACM Portal Proposal Discussion**
ACM SIGGRAPH earlier approved a proposal to support the ACM Portal, with the understanding that it would be free for at least three years and that ACM SIGGRAPH would be part of an advisory group for this activity. Later information from ACM indicates that ACM intends to charge for it. Alain Chesnais, Chair of the SIG Governing Board, clarified that the original proposal is still up for discussion and no money will be disbursed until an agreement is reached.

**Executive Committee Budget**
Garry Paxinos discussed the process for planning the budget for the next fiscal year in order that it be ready for approval at the January Executive Committee meeting.

Conference calls will be held at 3:00 p.m. Eastern time on Wednesdays, with the presentation of two budget proposals each call. The dates are:
- **November 28** (Education and Publications)
- **December 12** (President and Vice President)
- **December 19** (Chapters and Communications)

A conference call will be held on January 2, 2002, for the SIGGRAPH 2002 Conference budget.

**Note:** It was later determined to discuss this budget at the December 19 call.

**Upcoming Executive Committee Meetings**
The January meeting will be on January 25-26, 2002, in Paris, France. Since TTG is no longer under contract with ACM SIGGRAPH to provide airline tickets, these will need to be purchased individually.

The May meeting will be May 3-5, 2002. Erica Johnson is researching San Diego and San Francisco for the May meeting.

**Meeting Minutes**
**Motion:** To approve the minutes from the August Executive Committee meeting. 

Hourvitz, Frey (Approved 9,0,1; Abstain: Paxinos)

**Honoring Pioneers and Distinctive Members**
There were a number of suggestions about how to honor pioneers and distinctive members who have passed away. Steve Cunningham volunteered to look into this and report back at the January Executive Committee meeting.

**Responsibility of Committees and Committee Chairs**
There was a discussion of the responsibilities of committees and committee chairs. Some felt that committees should be completely democratic, and others felt that, in some cases, the chair has to take more responsibility since he/she must be accountable for the committee results. Also, due to deadlines or other reasons, sometimes the chair is not able to reach all committee members at a given time. Policies and procedures should be clarified.

Motion made and seconded to adjourn.
By acclamation, meeting adjourned at 5:12 p.m.

**Conference Call September 19, 2001**

**Attending**
Judy Brown, Alan Chalmers, David Ebert, Gudrun Enger, Thierry Frey, Erica Johnson, Leo Hourvitz, Mike McGrath, Scott Owen, Garry Paxinos, Dino Schweitzer, Stephen Spencer.

**Absent**
Steve Cunningham.

**ACM Portal Proposal**
The discussion on the portal proposal was deferred until the October Executive Committee meeting. It was felt that there was inadequate information.

**Public Policy Budget**
Bob Ellis, Chair of the Public Policy Committee, requested an additional $2,800 from the reserve fund for the Public Policy budget to cover the cost of two trips each to Washington, D.C. by two ACM SIGGRAPH volunteers, Jim Foley and Mike McGrath, so that they can meet with people at the National Research Council (NRC) and other agencies to facilitate the project to produce a research study by the NRC.

**Motion:** To increase the Public Policy budget by $2,800 to enable travel by volunteers to Washington, D.C. to meet with people at the National Research Council and other agencies.

McGrath, Owen (Approved 9,0,0)
**Chapters Budget**
Thierry Frey, Director for Chapters, requested an increase to the Chapters Budget of $9,870 from the reserve fund to enable nine Chapters Committee members to meet with him in November to get the new volunteers acclimated and to plan activities for the coming year. A similar meeting, which is usually held in May, was not held this past year.

**Motion:** To increase the Chapters budget by $9,870 to cover a Chapters Committee meeting in November.
Frey, Owen (Approved 9,0,0)

**Meeting August 18, 2001 Los Angeles, CA**

**Attending**
Judy Brown, Alan Chalmers, Steve Cunningham, David Ebert, Gudrun Enger, Thierry Frey, Erica Johnson, Leo Hourvitz, Mike McGrath, Scott Owen, Dino Schweitzer, Stephen Spencer.

**Absent**
Garry Paxinos.

**Guests**

Introductions were made, and Judy Brown welcomed the guests.

**Project Grant**
Nan Schaller and Alan Chalmers presented a project to the Executive Committee for approval. This project intends to archive the interactive art pieces from all SIGGRAPH conferences onto an interactive website, and the proposed budget is $19,280. The Project Grants Committee has approved the project, but it also requires Executive Committee approval because it is over $10,000. The proposal specified that the project would be on the University of Arizona website, but some felt that it must at least be mirrored on siggraph.org. Some other questions were previously raised by the Project Grants Committee, but had not been answered yet.

**Motion:** To accept the proposal submitted by the Project Grants Committee subject to the project being mirrored on the ACM SIGGRAPH website, and timely receipt of responses to the concerns raised by the committee.
Chalmers, Cunningham (Approved 7,1,1; against, Ebert; abstain, Cunningham)

**Brainstorming**
A brainstorming session was held to explore events that happened during the conference week.

**Conference Business**

**SIGGRAPH 2001**
Lynn Pocock, SIGGRAPH 2001 Conference Chair, reported that we had an excellent conference this year. Although the 34,000 attendance figure is down 15 percent from expectations, and early projections indicate that revenue was down, expenses were in line or down slightly as well. There were 300 exhibitors.

**Motion:** To congratulate the SIGGRAPH 2001 Committee on an excellent conference.
Owen, Hourvitz (Approved by acclamation)

**SIGGRAPH 2002**
Tom Appolloni, SIGGRAPH 2002 Conference Chair, reported that this year’s exhibitors were very happy with the results from their exhibition, but one-third of the exhibitors were new and did not select any space for next year. These smaller companies felt that they could not project how things would be a year from now.

**Request for Waiver from ACM Policy**
Scott Owen requested a waiver for the Freeman general services contract from the ACM Policy that requires a Request for Proposal (RFP) process for all multi-year contracts at the end of each contract. The Conference Advisory Group would like to be able to renew this contract for two years without going through the RFP process. They have been happy with Freeman’s work, and the cost has been reasonable. Also, there is only one other contractor who could even respond to an RFP for this work.

**Motion:** To approve the sole source selection of InterConnect for web programming services for SIGGRAPH 2002.
Owen, Spencer (Approved 9,0,0)

Both of the above motions also require ACM and SIG Governing Board (SGB) approval. Judy Brown will take them to the SGB Executive Committee for their next conference call.

**Public Policy**
Bob Ellis reported that the public policy tutorial, panel and BOF were all well attended this year. The tutorial was attended by 75 people. He wants to get non-US participation in these activities.

**Request for Reserve Spending for Community Software**

**Motion:** To allocate an amount not to exceed $2,500 from the Executive Committee Reserve Fund for the upgrade of software licenses for chat and bulletin board facilities for siggraph.org.
Hourvitz, Enger (Approved 9,0,0)

InterConnect has been providing web programming services for the past four years. These services include the initial designs and implementations for the electronic submissions system, on-line review system, industry directory and personal scheduler applications. Each year they have successfully taken committee input to improve the systems. These highly customized applications are very conference-specific. Their experience with these systems and the conference requirements makes them an obvious choice for continuing to support these applications.

In addition, the existing applications have been successful, and InterConnect’s work has been of high quality. When problems have arisen, they have responded quickly to correct them and ensure conference success. They are responsive and familiar with the conference structure in which these applications work.

**Motion:** To approve the sole source selection of InterConnect for web programming services for SIGGRAPH 2002.
Owen, Spencer (Approved 9,0,0)

Both of the above motions also require ACM and SIG Governing Board (SGB) approval. Judy Brown will take them to the SGB Executive Committee for their next conference call.

**Web Programming Contract**
CAG requests endorsement and support from the Executive Committee for a sole source selection of InterConnect for web programming services for SIGGRAPH 2002. The contract value totals $107,525 and is for services that include migration of existing SIGGRAPH 2001 systems to the new Linux siggraph.org platform and enhancements to those systems to support SIGGRAPH 2002 and beyond. This sole source request is based on three key factors: experience and familiarity with existing software and requirements, reliable past experience with the quality of work and service provided by InterConnect, and the existence of a longer term solution.

InterConnect has been providing web programming services for the past four years. These services include the initial designs and implementations for the electronic submissions system, on-line review system, industry directory and personal scheduler applications. Each year they have successfully taken committee input to improve the systems. These highly customized applications are very conference-specific. Their experience with these systems and the conference requirements makes them an obvious choice for continuing to support these applications.

In addition, the existing applications have been successful, and InterConnect’s work has been of high quality. When problems have arisen, they have responded quickly to correct them and ensure conference success. They are responsive and familiar with the conference structure in which these applications work.

**Motion:** To approve the sole source selection of InterConnect for web programming services for SIGGRAPH 2002.
Owen, Spencer (Approved 9,0,0)

Both of the above motions also require ACM and SIG Governing Board (SGB) approval. Judy Brown will take them to the SGB Executive Committee for their next conference call.

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Bob Ellis reported that the public policy tutorial, panel and BOF were all well attended this year. The tutorial was attended by 75 people. He wants to get non-US participation in these activities.

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**Motion:** To allocate an amount not to exceed $2,500 from the Executive Committee Reserve Fund for the upgrade of software licenses for chat and bulletin board facilities for siggraph.org.
Hourvitz, Enger (Approved 9,0,0)
July Conference Call Minutes

Motion: To approve the Executive Committee July conference call minutes. Cunningham, Spencer (Approved 9,0,0)

Revised Trademarks and Logo Usage Policy

Motion: To approve the revised policy on ACM SIGGRAPH and SIGGRAPH conference trademarks and logo usage. Frey, Chalmers (Approved 8,0,1; abstain, Hourvitz)

This policy is posted at http://www.siggraph.org/gen-info/logos.html/Policy.

Traveling Courses
Gudrun Enger reported that the OpenGL course will be given at the Afrigraph conference in Cape Town, South Africa in November, and possibly also for the Paris Chapter. She is also looking into an industry course. These three pilots will be reviewed. The videotaped courses at SIGGRAPH 2001 will provide alternative course dissemination.

HUB Update
We have been adding content to siggraph.org and continue to investigate other improvements. The conference online program will become an ongoing organizational activity so we can track the success of the program. The online program estimated cost is $50,000 - $150,000, including the 12 student volunteers and donations of equipment. The group felt that the priority would be to have online panels, sketches and courses, rather than paper sessions.

Electronic Balloting
There was a discussion of electronic balloting because of the time needed for paper ballots. However, online balloting or electronic balloting is challenging and would be costly at this time. Our goal is to have ballots go out March 1 with a two-month turnaround, getting ballots back by May 1. This should be sufficient time for all members.

Future EC Meetings
The next Executive Committee meeting will be the last weekend in October in Atlanta, and we plan a visit to Georgia Tech on Friday afternoon. The September conference call will be Wednesday, September 19, at 1 p.m. Eastern time.

Motion: To adjourn.
Enger, Chalmers. Meeting adjourned by acclamation at noon.
ACM to place
House Ad Here
ANNOUNCEMENTS

Calendar

February 4-8, 2002
WSCG Conference 2002
Pilsen, Czech Republic

February 12-15, 2002
ICAIS 2002
Australia

March 24-28, 2002
IEEE VR 2002
Orlando, FL, U.S.A.

April 10-12, 2002
VRAI’2002
Hangzhou, China

April 30, 2002: papers due
Pacific Graphics 2002
Beijing, People’s Republic of China
See Computer Graphics 36(1) February 2002, this issue

May 30-31, 2002
Eighth Eurographics Workshop on Virtual Environments (EGVE ’02)
Barcelona, Spain
See Computer Graphics 36(1) February 2002, this issue

July 21-26, 2002
SIGGRAPH 2002
San Antonio, TX, U.S.A.
See http://www.siggraph.org/s2002/

October 9-11, 2002
Pacific Graphics 2002
Beijing, People’s Republic of China
See Computer Graphics 36(1) February 2002, this issue

December 16-18, 2002
ISA 2002
Shanghai, China

Details on many of these announcements are available on siggraph.org at http://www.siggraph.org/calendar.

Eighth Eurographics Workshop on Virtual Environments (EGVE ’02)

May 30-31, 2002
Barcelona, Spain

The Eighth Eurographics Workshop on Virtual Environments (EGVE ’02), May 30-31, 2002 in Barcelona, Spain, is a well-known international forum for the exchange of experience and knowledge among researchers and developers concerned with virtual environments and virtual reality. Papers and case studies will form the scientific content of the event.

Papers present research results from all areas of virtual environments, and case studies report on practical applications of virtual environments. This year a special focus is set on interaction with virtual environments. Topics include 3D interaction techniques, innovative 3D input devices, augmented/mixed reality, multimodal interaction, VR systems development, collaborative VR, VE evaluation, virtual reality for scientific visualization, real-time graphics techniques for VE, haptic rendering and displays and interactive physical based simulation. Case study topics cover application areas including industrial, marketing, e-commerce, entertainment and architecture.

Workshop Co-chairs are Stefan Mueller, Fraunhofer IGD, Darmstadt, Germany and Wolfgang Stuerzlinger, York University, Canada. Additional information is available at http://www.lsi.upc.es/ve2002.

EGVE ’02 is preceded by VisSym ’02, the 4th joined Eurographics-IEEE TCVG Symposium on Visualization. This symposium is held from May 27-29 in Barcelona at the same site.
Call for Papers
Pacific Graphics 2002

October 9-11, 2002
Beijing, People’s Republic of China


The conference topics include computer graphics systems; geometric modeling and algorithms; rendering techniques and illumination computation; volume graphics; human computer interface; computer animation; virtual reality; scientific visualization; image-based modeling and rendering; computer graphics in arts, education, engineering, entertainment and medicine.

For more information on submitting papers or the conference, visit http://ncc.cs.tsinghua.edu.cn/pg2002 or email pg2002@tsinghua.edu.cn.

The Conference Chair is Jia-Guang Sun of Tsinghua University. Program Co-Chairs are Coquillart Sabine, INRIA; Heung-Yeung Shum, Microsoft Research; and Shi-Min Hu, Tsinghua University. The conference is held in cooperation with CSIAM Geometric Design and Computing Society, the National Natural Science Foundation of China and Microsoft Research China.

Cornell University
Department of Architecture

The Department of Architecture at Cornell University is building up expertise in the computer-aided design and computer graphics areas, and is seeking to make up to three full-time tenure-track or tenured appointments in these areas. One position must relate closely with the Program of Computer Graphics, an interdisciplinary center which advises and educates graduate students in computer science. The other two positions, one of which is jointly sponsored by the Faculty of Computing and Information in the area of Digital Arts and Graphics, are dedicated to undergraduate and graduate teaching in the architecture department. Applicants with the following specializations are encouraged to apply:

Specialization in Computer Graphics
- Ability to supervise graduate students in computer graphics (Ph.D. and M.S. programs)
- Ability to teach computer graphics and computer-aided design within the professional degree programs of the Department of Architecture
- Ability to develop new software programs for architecture

The position involves research and teaching in computer graphics. Most graduate research occurs in the Program of Computer Graphics, an interdisciplinary graphics center dedicated to the development of interactive graphics techniques and the uses of these techniques in a variety of applications. Current projects involve three-dimensional, photorealistic rendering within the fields of architecture, structural engineering, engineering mechanics, medicine, and lighting design.

A graduate degree in computer science or computer-aided design is required (Ph.D. desirable).

Specialization in Computer-Aided Design
- Ability to teach courses in computer-aided design and/or digital media
- Ability to teach architectural design studio with emphasis on computer-aided design and digital media

The successful candidate must demonstrate exceptional skills in the integration of digital technology with architectural design. The requirements for the position include demonstrated experience integrating digital technology with teaching and/or architectural practice, and the ability to produce significant research.

A professional degree in architecture and a graduate degree in a closely-related field is required.

Desirable qualifications include: architectural practice, digital media experience, teaching experience, and the ability to develop new software programs for architecture.

Applicants should send a letter of interest, curriculum vitae, and contact information for three references to: Professor Jonathan Ochshorn, Associate Chair, Department of Architecture, Cornell University, 143 E. Sibley Hall, Ithaca, NY 14853. Review of applications will begin immediately and continue until the positions are filled. The appointments are anticipated to begin July 1, 2002 with teaching commencing in Fall 2002.

Cornell University is an Equal Opportunity/Affirmative Action Employer and is strongly and actively committed to diversity within its community. Women and minority candidates are encouraged to apply.
ACM SIGGRAPH Membership

Please support the computer graphics community worldwide and year-round by joining ACM SIGGRAPH today.

ACM SIGGRAPH Membership
Please choose one of the following three membership options (all prices are in U.S. dollars)

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Pioneers  SIGGRAPH News
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SIGGRAPH Annual Conference Publications

<table>
<thead>
<tr>
<th>Member Price</th>
<th>Air</th>
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</thead>
<tbody>
<tr>
<td>Full Package (all three publications listed below) $40</td>
<td>$12</td>
</tr>
<tr>
<td>Conference Proceedings + videotape + CD-ROM $25</td>
<td>$7</td>
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<tr>
<td>Electronic Art &amp; Animation Catalog + CD-ROM $25</td>
<td>$6</td>
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<tr>
<td>Conference Abstracts &amp; Applications + CD-ROM $25</td>
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Member Plus Proceedings

<table>
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<th>Member Price</th>
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<tr>
<td>Computational Geometry (June) $22</td>
<td>$8</td>
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<tr>
<td>Multimedia (November) $28</td>
<td>$8</td>
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<tr>
<td>UI/UE (November) $15</td>
<td>$5</td>
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<tr>
<td>Graphics Interface (May) $20</td>
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<tr>
<td>Volume Visualization (October '00, biennial) $12</td>
<td>$4</td>
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<tr>
<td>IEEE Visualization (October) $25</td>
<td>$9</td>
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<tr>
<td>Interactive 3D Graphics (April '01, biennial) $15</td>
<td>$5</td>
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<tr>
<td>Solid Modeling (May) $25</td>
<td>$8</td>
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<tr>
<td>Eurographics Rendering Workshop (June) $40</td>
<td>$7</td>
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<tr>
<td>VRML (February) $12</td>
<td>$5</td>
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<tr>
<td>Workshop on Implicit Surfaces (October) $30</td>
<td>$4</td>
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ACM Membership Category

<table>
<thead>
<tr>
<th>Dues</th>
<th>Air</th>
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<tr>
<td>Professional Member $98</td>
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<tr>
<td>Student Member $40</td>
<td>$37</td>
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ACM Optional Publications

<table>
<thead>
<tr>
<th>ACM Member Price</th>
<th>Air</th>
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<tbody>
<tr>
<td>Transactions on Graphics (Professional Members) $44</td>
<td>$13</td>
</tr>
<tr>
<td>Transactions on Graphics (Student Members) $39</td>
<td>$13</td>
</tr>
<tr>
<td>Journal of Graphics Tools $40</td>
<td>$13</td>
</tr>
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</table>

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Teresa Lang is an opinionated eccentric two-eyed right-handed independent film animator-artist who has a day job using computer animation software.

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