The Second Generation

We are at a crossroads. Major changes are taking shape in the business of computer animation, and those of us committed to this field are taking a close look at the opportunities existing today. As we peer down the roads open to computer image-makers, one thing is clear: The second generation of this industry has begun.

The new breed of computer image companies

The pioneering days of computer graphics are over. It is no longer enough to pat each other on the back for our past technical and creative achievements. Nor is it productive to mourn the passing of the innovators who have dropped out along the way. As an industry, we need to change our focus to a wider perspective—where we’re going, not how far we’ve come.

This is not to say that the field has passed its infancy; it has not. Even though tremendous changes have occurred in the marketplaces that use computer images, the proper and efficient application of this technology is still fairly recent. People who work in this field still labor to convince potential clients that computer animation can be a practical tool. Among the new generation of computer animation companies, the ones that succeed will be those that can deliver on this promise.

That will require both the vision to anticipate what the marketplace wants, and the experience to respond in a flexible way...because the marketplace, as we’ve learned from the pitfalls of the past, is never wrong.

Basic facts

Over the 14 years that Gary Demos and I have been in this industry, we’ve observed some fundamental equations about the relationship between the marketplace, the hardware/software technology, and the creative and financial elements. In the current business climate, the problems that face this industry are multidisciplinary. They call for solutions that balance all these elements.

This is especially critical at a time when our potential marketplaces are in a state of flux themselves. Computer graphics has had the reputation of being so expensive that advertising agencies remain skeptical, and TV cartoon programmers think this kind of animation is out of their ballpark altogether.

At the same time, a bread-and-butter marketplace of the past has become extremely limited. Motion graphics, which helped sustain the first generation of computer image producers, is no longer a viable business because there are enough stand-alone workstations out there that clients can do most motion graphics jobs in-house. They do not need to buy services from a production company, so that market is, essentially, GONE.

Cost/performance

These realities demand new strategies. In my view that requires us to design and use a technology that is cost/performance superior to anything done before. It is incumbent on second-generation companies to carry the banner of computer graphics performance forward, to deliver a product that meets the creative standards of the marketplace, plus the time and budget requirements of clients.

Our clients have to see that what computer-generated images can provide is more intriguing than what they’re currently using, but they’re unlikely to make that subjective judgment until they can have this higher production value for a competitive price. Unless that reality exists, the most elegant, complex images are strictly academic.

As much as we may hate to admit it, we are still paying our dues in this field. But what’s making it easier than before are the alliances that we’re forming to help each other share the load. At Whitney/Demos Productions, for example, we’ve allied ourselves with the software and hardware technology from Symbolics and Thinking Machines. These alliances have enabled us to create a unique system of workstations, and move a generation beyond what we had just last year at Digital Productions.

At the same time, what we are building will help our partners move their own agendas forward. Symbolics will be able to market what we develop with their system, and Thinking Machines will have a high-profile opportunity to demonstrate that its parallel processor can outperform the Cray. Let’s face it: Your chances of someday reaching perfection are much greater when you have a larger group of people working together to solve the multidisciplinary problems involved.

Alliances

The alliances forged on the technical side must also be balanced by creative alliances if the second-generation companies are to meet the prime challenge—creating full, computerized character animation. Here is where the remarkable collaboration between Hollywood and computer science comes strongly into play. Two worlds that previously had no contact are uniquely bridged by computer animation, and it has been a productive relationship from the start. Back in the 1950’s, when my father, John Whitney, Sr., linked an old military tracking computer to a camera and discovered “computer graphics,”
those two worlds came into each other’s orbit for the first time.

From his work came the fundamental precepts on which several filmmaking techniques are based. For example, the special effects achieved though motion control photography are based on Whistney Sr.’s principle of incremental drift. His research also led directly to classic film sequences like Kubrick’s slit-scan “Stargate” in 2001: A Space Odyssey. A generation after this work began, we’re still exploring the connections between the worlds of the movies and computers.

It is really not surprising that the science of computer animation has drawn on the talents of Hollywood, when you consider that there’s a tremendous body of visual knowledge accumulated among people from film and video backgrounds. Their concern has always been how to make things look right, to mimic or model the phenomena of the physical world.

Science to art to science
What may seem ironic is that computer science has allied with Hollywood’s image makers to make a tool that will be sold back to scientists and engineers. But the power of this industry lies in the fact that problems solved for one marketplace will ultimately be useful in other applications. The equations that relate performance to cost in making images for entertainment and advertising are likely to hold true in the scientific and engineering communities as well.

The synergy among these arts and science is growing in important ways. Today’s technical innovators are now providing the creative people with a tool they need to expand on their contributions to computer animation—a user interface that does not encumber the creative process. One of the distinguishing characteristics of second-generation CGI companies will be workstations that allow a designer the easiest possible contact with the computer. Interaction with any machine, whether it’s a camera or a computer, should not be a barrier to creative manipulation.

Mutual benefit
When this barrier falls, I believe that a new kind of creative interaction will take place, which will benefit the field immensely. As live-action filmmakers become comfortable enough to use this tool, they will use it very effectively, since they already know, for example, how to light and stage scenes for maximum impact. Filmmakers who come from the tradition of cell animation will also use it well, since they understand how to create visual effects by manipulating physical gestures. These talents will provide a future creative wellspring for the computer animation business.

That will be essential, since all the technical imagination in the world will not produce effective computer character animation without visual and storytelling creativity. The great story ideas that will emerge during this generation will justify the kind of full animation that will move us all forward. But we cannot count on that happening anytime soon.

We have to live in the present, with all the attendant fears about the costs and complexities of computer-generated images. The education of the marketplace about our product must be ongoing, but, at the same time, we must meet its current time and budget constraints. If that means working beneath what we see as our potential, so be it. However limited we may think the current TV cartoon standards are, for example, we have to work first at that standard, if we are to demonstrate that computerized character animation is an affordable way to go. And if we are fortunate enough to be associated with a successful project, I believe that will pave the way for doing more sophisticated imagery in the future. When the standard begins to rise in this area of programming, it will also rise in others.

But to be a leader, we still have to prove that computer character animation can work at whichever level a client requires. This will hold true in other forms of episodic television, and advertising as well. But I think it is just a matter of time before we see a validation of computerized character animation in a big way.

Quality
One of the spin-offs will be an improvement in the quality of computer animation in other areas. The “comfort factor” that the buyers have in engaging this tool will improve because of a reputation for on-time and on-budget delivery.

To earn that reputation, second-generation CGI companies are being constructed in a much more streamlined fashion than their predecessors. They are learning from the mistakes that decimated the ranks of the first-generation companies, and attracting the venture capitalists who would not have dreamed of taking the risks associated with the pioneer companies. (My own personal experience is that being among the first generation in a field is not necessarily the greatest, unless you survive to be among the second generation!)

It is now incumbent on second-generation companies to nurture that growth, and achieve the kind of practical productivity that will open doors. Remember, such a new field will never hold still in our lifetimes, and we must keep adapting to the markets for our product. Fortunately, the potential subject matter for computer simulations continues to grow at a great rate. It is as big as the potential subject matter for a camera...limitless.