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February 2004 www.cgw.com

New Heights

Digital artists advance 2D animation in the
avant-garde film *The Triplets of Belleville*

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*A CG hero hits
live-action TV*

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*Indie filmmaking
comes of age*

Virtual Art
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On the cover:

A unique animated comedy having few spoken words, *The Triplets of Belleville* is a feast for the eyes and the senses. For more information, see pg. 18.





Phil LoPiccolo
Editor-in-Chief

Serious Games

A year ago in this column, I lamented the fact that interactive computer graphics, namely gaming technology, was not living up to its potential in areas like education and training, but instead was being squandered on marginal applications like "advergaming" (see "The Buttering Edge," January 2003, pg. 2).

I'm happy to report that much has happened recently to remedy the situation.

Indeed, last month we reported on a new effort called the Education Arcade, based at MIT, that aims to employ the latest graphics technology and education research to create games that are both educational and entertaining (see "That's Edutainment!," January 2004, pg. 4). And now, a similar program, the Serious Games Initiative, sponsored by the Woodrow Wilson Center, is employing game technology for training in virtually any profession. Here are a few examples:

Virtual U: Created by game developer Digitalmill, this simulation gives would-be administrators a better understanding of the complexities of running a university. Players make decisions on issues ranging from faculty salaries to campus parking. At the end of the school year, the board of trustees rates the player's performance. Dozens of schools have already used the program, which can be downloaded from www.virtual-u.org.

MassBalance: Conceived by Massachusetts Senator Richard Moore as a way to educate constituents about the state's budgeting process, this game challenges players to balance a \$23 billion budget with a \$3 billion deficit. Players get feedback about the risks of making deep spending cuts, and they receive an evaluation after submitting a final budget. MassBalance can be played at www.playmassbalance.com.

Incident Commander: Currently under development for the National Institute of Justice (NIJ) by Breakaway Games, this role-playing simulation aims to help public safety workers handle terrorist attacks, hostage situations, and natural disasters. It will offer simulations of situations that are difficult to simulate in real life. For example, when an incident occurs, users will be able to block roads, evacuate areas, and call in government agencies. NIJ plans to distribute the game to more than 30,000 public agencies.

So do these games make training and learning fun? They are certainly more entertaining than sitting through a lecture or poring over a textbook. But dwelling on whether they're fun or not is missing the point, says Ben Sawyer, head of *Virtual U* creator Digitalmill and co-leader of the Serious Games Initiative. "Learning can be just as much fun as playing a game," he says. "And playing a game can be just as serious as learning a skill. In fact, many gamers take their games pretty seriously."

The point is that serious games have a different mission. They are intended to make the best use of advanced computer gaming technology and offer new and better ways for people to learn, analyze, and explore.

Perhaps just as significant, as the demand grows for new training simulations and education-oriented games, it will open new markets for socially conscious developers seeking alternatives to creating yet another generation of violent, vacant, and valueless computer games. Serious gaming is an idea whose time has come, for developers and players alike. To paraphrase the rock song "Teen Angst" by Cracker, what the world needs now is another *Grand Theft Auto* like I need a hole in my head. ■

These training simulations are built on the premise that learning can be fun and play can be serious.

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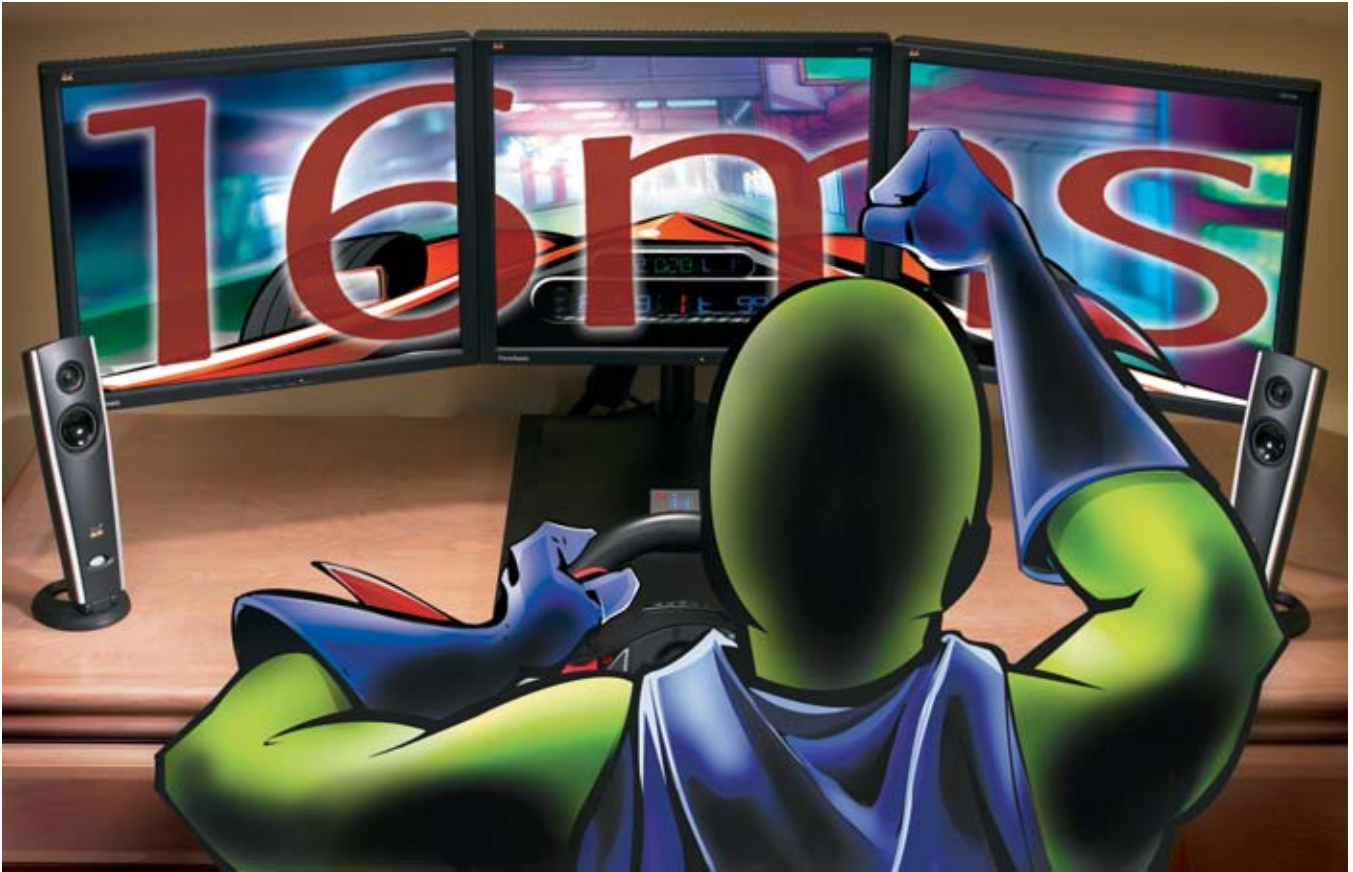
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workstation

products

Boxx Technologies Unleashes SDBoxx [pro]

SDBoxx [pro], a nonlinear editing system from Boxx Technologies, ships complete with Adobe Systems' Premiere Pro, Encore DVD, and Audition. Offering support for NTSC and PAL video formats, SDBoxx [pro] features 10-bit uncompressed, 4:2:2 SD input and output, as well as genlock sync support, six channels of AES/EBU digital audio, and color space conversion from YUV to RGB.

Housed in a rack-mountable or desk-side chassis with a front 1394 Firewire port, Boxx Technologies' new system boasts a Bluefish444 Wildblue AV board and support for a variety of video formats, such as MPEG-1 and 2, DV, AVI, Windows Media 9, and QuickTime. The price of SDBoxx [pro] starts at \$8900 and varies according to configuration. —Courtney E. Howard

■ **Boxx Technologies;** www.bboxtech.com
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animation

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Side Effects Software Upgrades Houdini

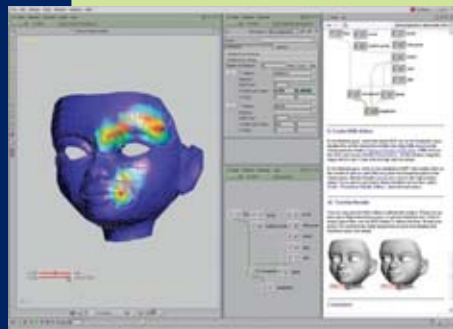
Houdini 6.1, the latest version of Side Effects Software's popular program, boasts a wealth of new features based on feedback from artists and animators in the field.

Designed to provide increased control and speed, Version 6.1 boasts an improved interface and enhanced texturing, character, modeling, and digital asset features. UV Pelt, on the texturing side,

enables users to unwrap a model's UVs complete with cut lines. The new Bones on Curve tool aids designers in spacing bones evenly on a curve, whereas new wire, bone, and muscle deformation tools

enable users to sculpt surfaces by simply pushing and pulling points or sections. —CEH

■ **Side Effects Software;** www.sidefx.com
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graphics processor

products

XGI Technology Enters Market

XGI Technology made its US debut during CES in Las Vegas last month. A graphics chipset supplier, XGI Technology is an independent company formed through a combination of the technology assets and intellectual property of Silicon Integrated Systems' (SiS) multimedia division and Trident Microsystems' graphics division.

During CES, XGI Technology demonstrated its Volari line of graphics processors for real-world 3D gaming and multimedia applications. The Volari Duo processors sport two graphics chips with 80 million transistors, enabling the equal distribution of frame loading and reducing bottlenecks at the data path. Whereas the CPU communicates with one chip, the two chips are able to work together as one with the help of XGI's patented BitFluent Bus. —CEH

■ **XGI Technology;**
www.xgitech.com
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Corel Ships Graphics Suite 12

Corel's most recent software release, CorelDraw Graphics Suite 12, begins shipping this month. This latest version of CorelDraw sports new, intelligent tools designed to help users work faster. With Version 12, Corel aims to reduce the number of steps required to complete a design task.

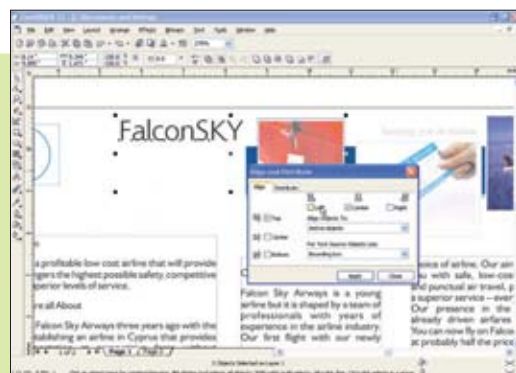
The new suite of tools incorporates CorelDraw 12 for illustration, page layout, and vector drawing; Corel Photo-Paint 12 for digital imaging; and Corel RAVE 3 for the creation of motion graphics. Among the new tools introduced to speed and simplify work flow

is the Smart Drawing tool. Its built-in intelligence enables it to recognize shapes—including circles, rectangles, triangles, arrows, and more—and then to smooth curves and lines automatically. The Smart Drawing tool even can interpret freehand line drawings, and applies symmetry and balance on the fly as needed.

Its Snap to Objects utility has been expanded with the ability to snap to nodes, intersections, midpoints, quadrants, tangents, edges, and more. A new, customizable Touch-Up Brush

enables users to remove defects, such as dust and scratches, from digital images with minimal effort. Available only on the Windows platform, CorelDraw Graphics Suite 12 carries a \$399 price tag. —CEH

■ **Corel;** www.corel.com
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Laptop Makes Debut

Eurocom has launched the D870P, a mobile workstation well suited to 3D modeling and high-end gaming applications.

The Eurocom D870P is powered by the ATI Radeon Mobility 9700 graphics engine with 256MB of DDR video. The system sports a 17-inch WUXGA wide-screen display, a 1.3-megapixel PC video camera, a choice of Intel Pentium 4 processors, and an onboard, 1Gb LAN. Additional options include an internal TV tuner, subwoofer, and Bluetooth technology. Pricing varies according to configuration. Customers can customize their own Eurocom D870P online at the company's Website. —CEH

■ **Eurocom;** www.eurocom.com
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Media 100 Launches New Mac Product

Media 100 is shipping what is said to be the company's first Macintosh design in eight years. The Media 100 HD is a 10-bit uncompressed, native HD and SD editing system powered by GenesisEngine technology, called HDX.

Thanks to HDX, Media 100 HD users can convert files to and from virtually any SD and HD format. And because



it is resolution-independent, editors can mix HD and SD source material within the same timeline.

The new editing system comes complete with Media 100 i software. Priced at \$7995, Media 100 HD is targeted at independent studios, large broadcasters, and postproduction facilities, as well as corporate and educational media departments. —CEH

■ **Media 100;** www.media100.com
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The Art of Swordsmanship

Using 21st-century digital craftsmanship, Digital Dimension artists created photorealistic CG weapons for the epic film *The Last Samurai*, about a Civil War veteran who visits Japan to train its military in the use of guns as the Japanese soldiers prepare to battle the country's last remaining samurai.

"This is not an effects film, so everything we did had to blend perfectly with the live-action footage," says Ben Girard, president/founder of the

Burbank, California, studio.

For several sequences, including the final battle, Digital Dimension replaced prop weapons with CG swords and lances, which were used mostly when a particular weapon had to penetrate a victim. It's easier and more effective to use CG to simulate this action, says senior animator Justin Mitchell, than to employ a practical effect, such as a retractable spring-loaded blade tip.

According to Girard, as the star (Tom Cruise) stabbed an enemy with the loose grip of the sword, the artists had to match his action and timing. One of the problems the team faced was that the sword handle would rotate unrealistically in the live-action footage.

"It's very difficult for an actor to simulate the action, or inaction, of a sword being stuck into another person's body and react to their movement," Girard says. "This meant that sometimes we had to replace the entire sword to make the shot work, while other times we just replaced the blade."

To model and texture the objects, the team used Discreet's 3ds max run-

ning on Dell Precision 650 PC workstations. The artists rendered the images with Chaos Software's V-Ray, and using eyeon Software's Digital Fusion, composited the objects seamlessly into the actors' hands while paying particular attention to the lighting. "At times we built environments around the CG elements so that the reflections and shadows would be accurate," says Mitchell.

The team also developed shaders to alter the reflections of the swords based on their angle to the camera. As they do for most projects, the artists complemented the commercial software with in-house scripts and tools, enabling them to achieve the desired level of realism while remaining efficient.

In addition, the studio completed a great deal of compositing tasks, color correction, and crowd replication work for the film. —Karen Moltenbrey

KEY TOOLS: 3ds max, Discreet

www.discreet.com

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Digital Fusion, eyeon Software

www.eyonline.com

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Digital Dimension crafted period weaponry for a number of scenes in the film *The Last Samurai*.

Lyrical Lip-synching

Velocity Design Group in New York City helped HBO coordinate a sing-along for a television branding campaign featuring 35 of the network's hottest stars from shows such as *The Sopranos* and *Sex and the City*. In the spot, the individual actors and actresses are shown in quick succession singing—or, more accurately, lip-synching—to Mel Torme's rendition of "Comin' Home Baby."

To create the spot, producer Kathy Rocklein and the Velocity staff sifted through scores of tapes from the shows to find the longest moments of serendipitous synchronization of the actors' lip movements to the song lyrics.

While some of the snippets appeared perfectly synchronized to segments of the song, others were not. For these, the group had to put words, or more accurately, lyrics, into each star's mouth by juxtaposing the numerous clips with the music and re-timing the video to match the song using RE:Vision Effects' ReelSmart Twixtor.



The actors (such as Sarah Jessica Parker) appear in character for the sing-along, making it more interesting to watch.

According to Bryan Fernandez, president and

senior designer, the biggest concern was making the idea work. "The question was whether we could find clips to support the bulk of the lyrical content of the song," he says.

Familiar with HBO's content from previous work, the editors were able to screen the tapes at five times the normal playback speed, enabling them to search through a large number of tapes quickly. The majority of the clips were found this way and incorporated into the edit unadjusted. For the remaining clips, the group re-timed the footage with minimal degradation. —KM

KEY TOOL: ReelSmart Twixtor, RE:Vision Effects

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Markets Recover, Markets Evolve

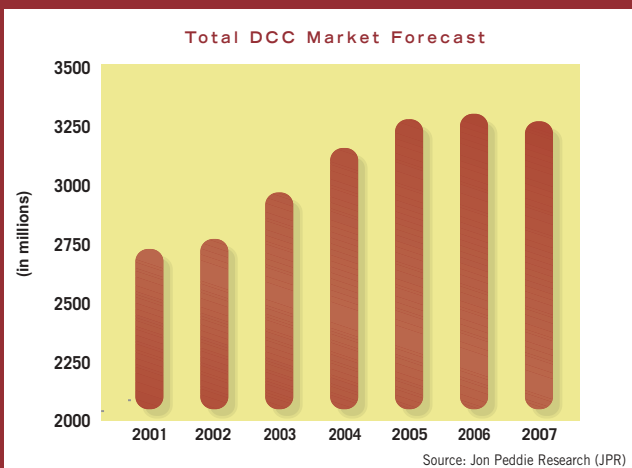
The crash of 2000 resulted in setbacks for every segment of the high-tech industry, including the digital content creation (DCC) market. Corporate cutbacks on equipment upgrades and advertising spending translated to lower demand for content-creation products, both for in-house work, such as desktop publishing, graphics, and video editing, and for projects involving ad agencies and studios.

Yet, as highlighted in the newly released "Digital Content Creation 2003" report from Jon Peddie Research (JPR), several trends are stimulating a recovery. First and foremost, spending has increased on films for digital effects, compositing, editing, color correction, and the like. Video is seeing strong growth in consumer and professional segments. Also leading the way is a growing demand for digital content for advertising, as that industry resumes its pre-2000 growth

rate. In all the DCC markets, the actual unit shipments of digital content creation software are increasing at a compound annual growth rate of 15.8 percent. On the downside, average selling prices are decreasing, so revenues for DCC software are growing at a much slower pace than unit sales.

Moving to hardware, according to the latest MarketWatch report from JPR, the PC graphics market experienced better than seasonal growth in the third quarter of 2003, when some 56 million graphics devices shipped. However, the PC market recovery is a mixed bag for graphics suppliers. Intel, with its integrated graphics chipsets (IGCs), has become the dominant supplier of graphics to the PC industry, taking market share from discrete graphics hardware suppliers.

The good news is that the trend toward the use of IGCs in desktop PCs has stabilized and, as a result, discrete graphics chips will hold their own in the near future. Motherboard manufacturers are building one-size-fits-all products for desktops that feature "good enough" IGCs and accommodate add-in boards for higher-end units. The situation is different on mobile computers, where IGCs are continuing to grow at the expense of discrete graphics chips. In all cases, the average machine sold to the average consumer may well include IGCs that are insufficient for demanding applications, such as PC gaming, desktop publishing, image processing, and video. As a result, there is continued interest in advanced graphics processors, which in turn is stimulating the development of new products from a revitalized S3, as well as from XGI, a new graphics provider that has spun out from Taiwanese chipset provider SiS. ATI and Nvidia, meanwhile, are locked in a pitched battle for market share, which will continue to raise the bar for all segments of graphics chips. —Kathleen Maher, senior analyst, Jon Peddie Research



Revenues for DCC software are growing slowly, despite a notable increase in unit sales. A reduction in the average selling prices is thought to be responsible for the trend.

news

In Brief

Splutterfish (Venice, CA) has announced that its Brazil Rendering System Version 1.2 provides support for **Discreet's** 3ds max 6.

E frontier (Tokyo, Japan) has acquired **Curious Labs** (Santa Cruz, CA), maker of Poser. According to a recent merger agreement, e frontier will serve as the parent company and both entities will retain their individual names. Expanding its content management business, **IBM** (White Plains, NY) has acquired **Green Pasture Software** (Corvallis, OR), a provider of document management software solutions that enable businesses to collaborate, edit, and manage multiple documents electronically and in real time. **IGN Entertainment** (San Francisco) and **GameSpy Industries** (Irvine, CA) have entered into a merger agreement to combine IGN.com, an online gaming and entertainment environment, and Game-

Spy's Web destinations serving game enthusiasts and game developers. The merger is expected to create the Internet's largest PC and console game content network and the largest online gaming audience. **Turbine Entertainment Software** (Westwood, MA), a developer and publisher of online subscription entertainment, is developing its first self-funded project, *Dungeons & Dragons Online*, a PC game to be published by **Atari**. Currently working on *The Lord of the Rings: Middle-Earth Online*, Turbine Entertainment Software also has purchased the complete *Asheron's Call* massively multiplayer online game franchise from **Microsoft Game Studios**. **Avid Technology** (Tewksbury, MA) has acquired **NXN Software AG** (Munich, Germany), maker of the popular NXN alienbrain line of digital asset management tools for the entertainment and CG industries.

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Form Follows Function

By Rick Barry

When the leading schools of art and design were built before the turn of the last century, great care was taken to ensure proper light exposure, flexibility of space, and durability of structure in their art studios. As a result, these studio spaces have been remarkably successful in supporting the fundamental, traditional needs of art and design students.

But the fundamental needs of art students have radically changed. In addition to traditional media and their associated tools, fundamental art and design studies now include new media and their associated digital technologies.

As the nature of art and design studies has evolved, so have their support requirements. Issues such as light exposure are less important than the need for sophisticated networking, bandwidth, throughput, electrical capabilities, and multifunctional usage.

Today, these evolving needs apply to virtually all core creative arts studies, yet most schools are ill-equipped to satisfactorily address them. Placing computers in a room and plugging them into a wall does not constitute a meaningful approach to modern creative arts education. We need to re-examine, re-define, and re-design the appro-

priate environments for modern creative arts studies—and we need to find models and sources for funding them.

Technology and Art

As great figures such as DaVinci, Rembrandt, and Daguerre have demonstrated, the relationship between the arts and sciences has always been central. Their enormous creative advances were

clearly the result of their remarkable geniuses. But none of those advances could have been possible—nor perhaps even imagined—if the necessary technology had not first been available to them. This phenomenon is arguably more relevant today than it was during the lives of these great figures.

“What is crucial to the understanding of the value of technology adoption in creative studies is to recognize that our tools help to shape our perceptions and, thus, our conceptions,” says William Fasolino, chair of the Department of Art & Design Foundation at Pratt Institute. “Digital technologies, with their power and flexibility, have the ability to change the very way the artist sees and interprets the world,” he adds. “The plasticity of the human mind and nature enables technologies to become natural extensions of the artists themselves. In this sense, digital technologies are becoming a natural evolution of the human (and artistic) experience.”

Cost Considerations

Schools of art and design appear to be conceptually prepared to embrace the digital arts, and one by one, they are striving to do so. But most of these institutions are encountering the daunting challenge of paying for it.

Ten years ago, the number of academic institutions offering digital arts programs was exceedingly modest, as were the quantity and variety of equipment and support for these programs. Today, it would be difficult to find a college without some form of digital arts program, and many of these include numerous labs containing computers with multiple peripherals, digital audio and video equipment, high-speed networking, Web-based information access, and file serving systems. The cost of this widespread implementation is daunting. Now apply this to art schools, which tend to be private institutions funded almost entirely by tuition.

Where are the necessary funds coming from? The short answer is that, in many cases, adequate financial support isn't there. Art schools can't keep up with technological advances and often can't provide the quality of digital arts studies their students require.



Rick Barry

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It's time to
re-design the
environment
for creative
arts studies.

In describing funding trends for independent artists employing technology, Michael Naimark, former director of Xerox PARC, writes: "Tech-based art is largely supported by two different kinds of institutions: art centers with an interest in new technology and research labs with an interest in art. Some are university-based. Some are corporate-based. Some are government-funded."

Unfortunately, since private art schools are generally not perceived as research centers or as significant professional resources, they have been largely overlooked as likely recipients for support. In the US, government-supported academic programs tend to be limited to high-profile research institutions. And government-supported art programs tend to be part of state- or city-supported university systems. But, increasingly, schools of art and design are seeking to change this trend in myriad ways, from fund-raising to resource sharing, to corporate and institutional partnering arrangements.

What Some Schools Are Doing

At New York's Pratt Institute, a Digital Arts Advisory Committee has recommended the creation of a Center for Digital Arts. The CDA will be a think tank for developing new concepts in the emerging field of digital arts. It will not be limited to supporting existing media and forms, but will be designed to explore new directions. To fund such an ambitious project, Pratt has applied to the Department of Education for a Title III grant. In 2001, a "Partnering with Technology" fund-raising campaign targeted both potential corporate and governmental resources. And more recently, a newly constituted Office of Institutional Advancement has been developing new strategies and identifying new potential sources of support.

The Rhode Island School of Design has undertaken a faculty-based approach to technology implementation. With initial grants from Microsoft and Apple, RISD was able to establish a Faculty Research Lab where instructors can experiment with digital media independent of the student-oriented facilities. This year, the school began a series of faculty project workshops to facilitate the sharing of ideas and the exploration of the creative potential of software, before introducing it to students.

While there are other examples of private art schools undertaking external support initiatives like these, the majority of academic support is limited to university-related programs. With a few exceptions, private art schools—the backbone of art and design education in the US—receive little or no such external support for technology. This represents a significant problem for the vast majority of these schools.

Internationally, the role of government as the primary supporter of art and design studies has long been widespread, and the digital arts are no exception. However, as Naimark suggests, it is "noteworthy that no such counterparts at all exist in the US."

This lack of support, together with the university-oriented structure so prevalent here, may be leading some private US art schools to establish alliances with university systems, and in some cases, to reposition themselves as small universities, in order to benefit from potential funding opportunities. The integration of Parsons School of Design into the New School University system may be an example of such a trend.

Where Do We Go from Here?

If there is a "correct" approach to meeting this challenge, it would appear to be via a combination of considerations:

First and foremost, the institute's academic objectives must always drive its decisions—from planning to policy-making, to programming, to implementation. In other words, "It's the arts education, stupid."

Likewise, acquiring external resources is imperative. There needs to be a significant

investment in, and dedication to, institutional development in the form of governmental and private grant writing and receiving, industry partnerships, general fund-raising, and the like.

In addition, faculty training is essential, particularly in an environment where knowledge, skills, and tools quickly become obsolete. Most private art schools have little or no structures to help teachers keep up with the torrent of technological advances in their fields. Schools must establish such programs, perhaps with the support of the industry, which has much to gain by such an arrangement.

There also needs to be a long-term investment in modern infrastructure to ensure the future of digital arts studies. For example, modern academic institutions must establish high-speed digital networks with high-capacity servers. Today's Internet-based portal systems offer exciting potential for digital arts. The ability to access and transmit large amounts of data holds enormous potential for teaching, learning, and creative expression.

Finally, the senior academic leadership should be reconfigured to include those who are knowledgeable not only about digital technologies and support systems, but also about the school's art-related academic requirements. This approach will help ensure that technical policies and procedures support these needs.

Naimark contends that with regard to this technology-based revolution, "we have a very clear idea of what does not work, but not much of a clue for what does."

While that may be true, one thing is certain. The technological imperative of contemporary

art and design studies is here to stay. And those fortunate enough to be a part of it are embarked on a challenging and fascinating journey. ■■

Placing computers in a room and plugging them into a wall does not constitute a meaningful approach to modern creative arts education.

HD on the Desktop

By Stephen Porter

Brian Greene of Greene HD

Productions (Arlington, TX) has been working with high-definition video since 1995, which is long enough to qualify him as one of the more experienced veterans of the still-young HD format.

While many video professionals have begun to use HD here and there for the occasional video project, what's unique about Greene is that he runs one of the few production houses that makes its living almost exclusively from HD. And during the last eight years, he's seen the market for HD evolve significantly.

Originally, the only outlets for HD were "demo programs and museum and exhibit content, and we were one of the foremost companies producing that type of material. Virtually every manufacturer that made HD has probably used one of our programs at one time or another as a demo to show off the technology."

By the end of the '90s, Greene began to see another market for HD start to open up—the broadcast industry. Initially, he says, broadcasters were desperate, willing to buy almost anything shot in HD, including pieces that were only a few minutes long.



Brian Greene mans the video camera during the filming of an HD documentary that he produced about Sweden's glass crystal business.

In the past year and a half, however, Greene says the broadcast market has begun to take off, and the demand is for longer form material. "A 30-minute program is fine. A 60-minute program is better. And a series is what they are really after," he says.

Eager to meet that demand, Greene's work these days largely involves producing documentaries for various HD broadcast channels. Just recently, for example, he completed a series in HD consisting of four 30-minute shows about Sweden's glass crystal business for Comcast's HD channel. And he currently is posting a 14-part HD series for Comcast about Route 66.

Other customers of Greene's work include such prestigious broadcast outlets as Discovery HD Theater, HDNet, Cablevision, PBS, and the BBC.

Given the caliber of his clientele, one might assume that Greene does his postproduction work on a high-end HD editing system from Quantel or Discreet. Interestingly, that's not the case. Instead, he relies on a relatively low-cost HDBoxx PC workstation from Boxx Technologies running in-sync's Speed Razor editing software.

Before too long, Greene expects to trade in the Speed Razor software for Adobe Premiere Pro, and he also expects to add a second HD editing suite built around Apple's Final Cut Pro on a Power Mac G5. But beyond that, he's feeling no need to jump up to the higher-end platforms.

The fact that someone like Greene is using a desktop HD editing system is good news for the vendors of low-cost HD postproduction editing programs that are eager to make the case that HD video production is rapidly becoming an affordable alternative for almost anyone. Final Cut Pro's relatively early support for the HD format has made Apple one of the favorites in the desktop HD space, but it's beginning to get some serious competition from Adobe, which included HD support in its recent release of Premiere Pro.

Stephen Porter

is a CGW contributing editor and a freelance writer who has been covering video, graphics, and digital content creation technologies and applications for more than 15 years. He can be reached at sporter@gsinet.net.

A voice of
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Free from many technological constraints, the focus of animation is shifting from production quality to exploring new ideas and art styles that allow an entertainment product to stand out from the competition. As technology allows games and film to converge, having a combination of skills in both fields will become necessary.

The GDC Visual Arts track provides inspiration and specific practical knowledge of advanced techniques to take art and animation in new directions. Sessions are focused on intermediate and advanced artists and are expanded in length to walk attendees step by step through the latest tools and technologies.

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Richard Townhill, group product manager for Premiere Pro, insists that Adobe "views HD as a very important development in video production," and adds that Premiere Pro has seen an emergence of third-party support for HD. For example, he says, "Cineform has introduced a plug-in that will enable the capture, editing, and output of JVC's new consumer High Definition Video (HDV) format. And Boxx Technologies is building turnkey systems around hardware cards from Bluefish and AJA that support HD."

Meanwhile, in-sync, one of the first desktop software vendors to enter the HD market, continues to improve its HD offering with the release of Speed Razor HD 3.0. This Windows XP-based program adds support for Thor HD, a new board from AJA specifically designed for in-sync. It includes EDL import and export, 10-bit uncompressed HD capture and playback, infinite track editing, support

for HD decks, such as the Panasonic AJ-HD150, and high-quality audio support that enables users to capture from 16 channels of audio embedded in the HD-SDI signal.

Media 100 is also entering the desktop HD fray with the release of Media 100 HD. Media 100 HD is powered by the company's GenesisEngine (844/X) technology, called HDX. The product features 10-bit uncompressed, resolution-independent native HD and SD editing, and allows editors to mix and match all HD and SD formats in a single timeline and even convert between them in real time. The product is scheduled to begin shipping this month.

System Suggestions

As the number of HD product announcements grows, you do get the impression that affordable HD editing has arrived. But before you jump into a desktop HD editing system with both feet, Greene suggests a couple points to keep in mind.

The first consideration is the type of work you're doing. Greene purchased his first HDBoxx system in 2000 after working with analog HD systems for five years. At the time he made the purchase, he says, there were only two viable systems capable of dealing with uncompressed HD—the HDBoxx and the Quantel system. In his opinion, the main difference was that Quantel could do everything in real time, but it was also four times as expensive.

"If we were strictly a post house trying to work with the advertising industry," Greene explains, "then the Quantel would have made a more logical choice. If you've got clients in there watching the clock, you want things to click along. You don't want to sit around waiting for rendering. But for our purposes, where we do mostly documentary work, rendering really is not that much of an issue because we can make all

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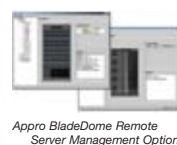


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Today, even though the range of choices is much wider, Greene is still content to work with a desktop HD system, but he recognizes that such systems wouldn't be the best choice for everyone, and that the choice has to be driven by the nature of the work.

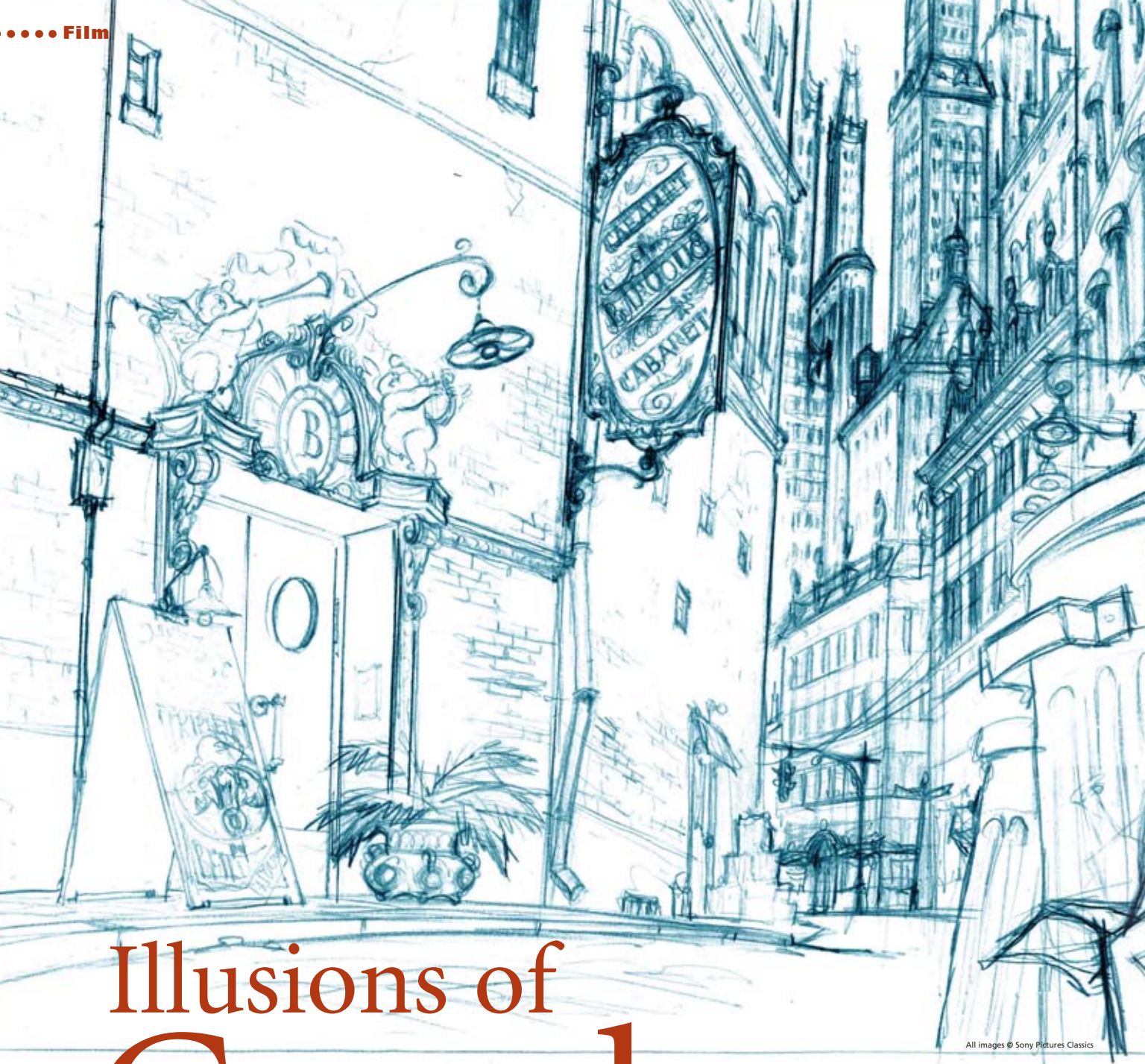
The other point Greene makes is that setting up a desktop HD system isn't quite as inexpensive as vendors would have you believe—at least not if you want to produce quality work. In fact, for \$25,000 to \$30,000, one could assemble a nice HD editing workstation based on either a Mac or PC platform. And for that price, you'd be able to get plenty of storage and to input, output, and edit HD effectively.

When you add in the cost of all that extra equipment, the price of a good HD editing suite gets up to about \$150,000. While it represents a huge savings over the \$2 million-plus price tag of an HD linear suite just six or seven years ago, it's hardly a price that's going to be affordable for everyone.

"HD, if treated right and edited and shot properly, can be head-on competition for 35mm film and look as sharp as, or sharper than, anything anybody's ever seen," says Greene. "But not when you water down the technology. You cannot accurately do broadcast-quality HD without the proper equipment."

Clearly, for users like Greene, desktop HD systems are an ideal tool capable of delivering phenomenal performance at an attractive price. But whether they'll meet your particular needs will depend on the size of your wallet, your quality standards, and the nature of your projects. ■■

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Illusions of Grandeur

The Triplets of Belleville's unique look was
created with the help of 2D and 3D tools

By Barbara Robertson



One of the most imaginative films of 2003

has risen from the ashes of what some people have bemoaned to be a dying art: 2D feature animation. By taking advantage of at least one unique quality of 2D animation—the freedom to exaggerate—Sylvain Chomet's film *The Triplets of Belleville* sets a new standard for hand-drawn storytelling. In what other medium would you find three old, impoverished, yet stylish cabaret singers accompanying themselves with sounds made with a vacuum cleaner, crumpling newspaper, and refrigerator racks? The award-winning film, which has almost no dialogue, leaves reviewers gasping for words.

Roger Ebert writes in the *Chicago Sun-Times*, "It is creepy, eccentric, eerie, flaky, freaky, funky, grotesque, inscrutable, kinky, kooky, magical, oddball, spooky, uncanny, uncouth and unearthly. Especially uncouth. What I did was, I typed the word 'weird' and when that wholly failed to evoke the feelings the film stirred in me, I turned to the thesaurus and it suggested the above substitutes—and none of them do the trick, either. There is not even a way I can tell you what the film is 'like,' because I can't think of another film 'like' it."

New York Times film critic A.O. Scott: "*The Triplets*...may be the oddest movie of

the year, by turns sweet and sinister, insouciant and grotesque, invitingly funny and forbiddingly dark. It also may be one of the best, a tour de force of ink-washed, cross-hatched mischief and unlikely sublimity."

Stephanie Zacharek, *Salon.com*: The first 10 minutes of Sylvain Chomet's animated feature *The Triplets of Belleville* constitute one of the eeriest, most inventive, and loveliest animated sequences I've ever seen."

Drawing the Story

Rated PG-13 and in no way resembling a feature-length children's storybook, the Sony Classic Pictures film began moving into US theaters in December, following a successful run in France and after having gathered one award after another on the festival circuit. In January, *Triplets* received an Oscar nomination for Best Animated Feature, although the quirky movie designed for adults, rather than children, will have a tough go against Disney/Pixar's wildly popular *Finding Nemo*.

In *Triplets*, a club-footed Portuguese grandmother, Madame Souza, has adopted her sad young grandson, Champion. Determined to brighten the boy's life, she first buys him a puppy named Bruno and then, when she discovers his love of bicycles, a tricycle. As Champion grows, she

Director Sylvain Chomet drew all the storyboards for the 80-minute film *The Triplets of Belleville*. Most of the nearly 900 backgrounds were later hand-drawn by production designer Evgeni Tomov, then scanned and painted by artists using Photoshop and Painter.

helps him train for the great bicycle race, the Tour de France. But during the race, Champion is captured by the French mafia who, we learn later, will put him to work bicycling for gambling gangsters. Bruno tracks Champion to an ocean liner, so the ever-resourceful grandmother rents a paddleboat, puts Bruno aboard, and follows the liner to Belleville.

When they lose track of Champion in the big city, a disconsolate Madame Souza begins tapping a tune on the spokes of a discarded bicycle wheel. This attracts the Triplettes, the stylish old cabaret singers who live in a seedy hotel and survive by eating frogs they catch by exploding them out of the water with hand grenades, and together the group rescues Champion. But also, during the film, Fred Astaire's shoes grow teeth and devour him, Bruno dreams in black and white and obsesses over trains, and a waiter bends over backwards; there's a wild but oddly slow-motion car chase, a moon made of tadpoles, a chubby Statue of Liberty holding an ice-cream cone, and much more.

To create the film, teams assembled by Chomet in France, Canada, and Belgium



Although all the characters in the film were drawn by hand, most of the vehicles, such as this tricycle, were created as 3D elements.

used 2D and 3D tools, primarily Adobe Systems' Photoshop and Corel's Painter on the 2D side, with Discreet's 3ds max, NewTek's LightWave, and pmG's Messiah on the 3D side. Eyeon Software's Digital Fusion helped bridge the gap; and Toon Boom Technologies' US Animation (now Toon Boom) handled compositing.

Chomet single-handedly drew all the storyboards for the 80-minute film to set the scenes and style the characters, a process that took six months. "The storyboards are very precise," he says. "They aren't just telling the story. I wanted to show the animators where the characters are and show the backgrounds. I like to animate funny characters; the more exaggerated they are, the more fun it is." The characters are grotesquely fat or horribly skinny, even the cars and the boats are deformed.

Because the film has almost no dialogue, the music, composed and arranged by Benoit Charest, with a nod toward Django Reinhardt, was especially critical. "Charest was playing in a club as a jazz pop guitarist in Montreal when we met," Chomet says. "He brought his demo, and that was it." In many of the scenes, the characters perform to the music; however, in at least one scene, the music was improvised to match the animation.

"When the characters are eating frogs and start to jam, the music was written to the rhythm of the animation," Chomet says. During the jam, one character, for example, might hit the table every eight frames, while another taps a glass every four frames. Charest wrote music to match.

All the principal characters were animated by hand, with drawings scanned into US Animation software by a team of ani-



Madame Souza (above), Bruno the dog and Champion (right) were hand-animated and then scanned into US Animation (now Toon Boom) software.



mators led by Jean-Christophe Lie, working primarily in Montreal at the Studio Les Triplettes. Chomet kept his hand in as well, animating Bruno the dog and the waiter, in particular.

Most of the nearly 900 backgrounds were drawn by production designer and director Evgeni Tomov, who managed "everything that didn't move," according to Chomet. Tomov began in July 1999 using Chomet's storyboards and various reference materials—pictures of postwar Paris, documentaries of the Tour de France, Charles de Gaulle's speeches, and so forth. For the color palette, French comic books provided inspiration. "The colors are brownish, sepia, subdued," Tomov says. For ambience, Tomov was inspired by J.M.W. Turner's paintings and atmospheric movies, such as *The City of Lost Children*. "Everything in that film looks real, but not realistic," he notes. "The lighting was beautifully staged. I don't think light is always used very well in animated films, especially in 2D animation. The images are decorative, but they're not immersive enough because they're not lit nicely. Animation for kids needs to be as simple as a poster, but this film is not for kids. We wanted a more subtle, indirect use of light."

While lighting for live action or 3D animation can be controlled with many light sources, in a 2D animation, background painters largely provide the illusion of light.

Creating the Environment

The hand-drawn *Triplets* backgrounds were all colored digitally. "There were 1200 scenes in the movie," Tomov says, "and the color palette was adjusted for every scene. We'd start in Photoshop, then move to Painter, and then move back to Photoshop for final touches and adjustments."

The sizes ranged from six inches to a seven-foot tall, 15-inch wide drawing of Belleville used for a vertical camera pan. "We had many large backgrounds," Tomov says. "One of Belleville for a multiplane shot had five overlays and was almost as big as the table we were



To give the backgrounds a hand-painted look, the team used two transparent layers in Photoshop, one with a watercolor effect and another created from scanned paper.

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Image produced by Patrik Puhala, Oregon3D student.



working on, probably three feet by four or five feet and meticulously drawn.”

When approved, these background drawings were scanned in parts when necessary. “Sometimes this was not so nice,” Tomov says. “The light would come under the lid of the scanner because it couldn’t close properly.” The parts were then assembled in Photoshop. “We were using Macintosh G3s and G4s at the time, which were not very optimized,” he says. “Sometimes I had to move memory from one and put it into another temporarily to handle the large files. But it worked surprisingly well.”

To help give the backgrounds more of a hand-painted look, the team created two layers in Photoshop: one with a slightly brown, dotted texture resembling a watercolor effect, the other created by scanning a textured paper. “We kept those layers on top of everything and painted underneath,” Tomov says. “They both had a high transparency level and low opacity.”

Although the final look of the film is 2D, about 45 minutes, between 700 and 800 shots, had 3D objects or animation—primarily the vehicles, bicycles, cars, buses, and trucks—and a few



scenes, notably the ocean storm, were entirely 3D.

Pieter Van Houte, working in Montreal with Chomet, managed the 3D work. “All the 3D work was supposed to have been done by Walking the Dog, a small studio in Brussels,” he says. “It would have been impossible. So, I divided the work into several parts.” Walking the Dog and Gents Grid worked together in Belgium on the bicycles, the bicyclists, and cars using LightWave and Messiah. Special effects, such as fire, smoke, and explosions, stayed in Montreal with a team using 3ds max and LightWave. And 2D3D Animations in Angoulême, France, used 3ds max to create the car chase.

“All the bicycles and all the cyclists in the long and medium shots are fully 3D,” says Van Houte. When the bicycles were 3D and the cyclists were 2D, the images were carefully composited in US Animation. “There is no nifty way to do it,” he adds. “We would have to erase parts of the bicycle or parts of the cyclist frame by frame to fit one on top of the other and then composite them frame by frame.”

To make lines on 3D elements rendered bytoon shaders look hand-drawn, Pieter Van Houte’s 3D team used Digital Fusion filters. More than half the scenes in the film had 3D objects and animations.

An Interview with **Sylvain Chomet**, director of *The Triplets of Belleville*

Q. Why do you create animated films for adults rather than children?

A. I think that doing animation for children keeps the art form very immature. I want to show what we can do in animation. I am an adult; I try to do things that make me react.

Q. Why do you think the art of animation is immature?

A. I feel very lucky that the Disney films of the ‘30s, ‘40s, ‘50s, and ‘60s brought a lot to animation, feature animation, and cinema as a respectful art form. But after that, I think animated films started to be more of a product than animated experiments. I think a feature animation style was frozen in the ‘60s and what Disney has been doing for 40 years has been limiting creativity and

risk taking. There are still a lot of things to do in animation. It’s young as an art form.

Q. But what about 3D animation?

A. For me, 3D animation is more like live action than animation in a way, because everything is so real. Of course, it’s animation because it’s done frame by frame, but there is a different feeling about it. Characters are not created with the same tools. It’s not the same way of animating at all. If I had to move to something else, I would move to live action, not 3D animation. Live-action films really have evolved from the ‘60s.

Q. So, would you consider working in live action?

A. I like to animate funny characters. The

more exaggerated they are, the more fun it is. And Belleville is an imaginary city, everything is enormous. Even the cars and the boats are exaggerated. This is something you can do in animation that would not work in live action—the exaggeration of shapes and volumes of all these things.

Q. If you aren’t interested in 3D animation, why did you use 3D animation for *The Triplets of Belleville*?

A. There is a lot of 3D in this film, but we tried to make it look like 2D, pretending that everyone was drawing all these things. The traffic jam, the boats, the sea, the storm, and the bicycles were animated in 3D. You can’t ask a 2D animator to draw a bicycle; it’s very complicated and not very much fun to do,

All the 3D elements were rendered with standard cartoon shaders to create rendered images with a 2D look; however, the rendered lines did not have the hand-drawn quality the team wanted. "The lines were very sterile," Van Houte says. "We found a plug-in for 3ds max that added textures to the lines, but it was difficult to apply, and the render times were huge. Also, we needed a method that different teams using different types of software could use."

Van Houte settled instead on a method he developed in Digital Fusion. "We used sets of filters to destroy the lines and make them look more hand drawn: three or four basic settings for long, medium, and close-up shots. I'd sit with Sylvain, prepare a line with him, and then send the specific settings to the respective team. He was very keen on being able to approve how the lines look in every shot."

In general, objects close to the camera, such as Madame Souza's truck, sported hand-painted textures; background objects were flat-shaded. Because every shot has a different color palette, rather than trying to render 3D elements to fit, the team color-corrected elements in Digital Fusion using Krokodove plug-ins from Komkom Doorn. "For example, a couple of the 3D trains would be a certain type of red in one shot and in the shot after that, just a little bit darker," Van Houte explains. "To do this in rendering, we would have had to retexture the object with a different color, save it as a different object, and then the director might want it even a bit darker. With the Krokodove plug-in, we could pick the color from one image and use that to replace a color. We rendered all the elements flat-shaded, all with the same red color, for example,

and then replaced the colors while we composited the shots. It saved a huge amount of time."

In addition to vehicles and machines, the team also created CG water and several effects, notably the "frog explosion"—a giant waterspout caused by the tossed hand grenade—and a CG storm at sea.

3D Effects

For the frog explosion, the Montreal-based team started with a hand-drawn 2D layer onto which they piled layer after layer of 3D geometry created in 3ds max and LightWave, rendered with

motion blur, and then added multiple layers of volumetric particle effects created with LightWave.

Similarly, a combination of tools helped create the storm at sea: 3ds max, LightWave models with hand-painted textures, and effects composited with Digital Fusion. "The storm was almost entirely 3D," Van Houte says. "The

water was a huge 3D mesh, which was animated by hand because Sylvain wanted the storm moving to a rhythm by Mozart. One big wave comes off another, and both come down at the same time. For the fog and spray, we used standard particles in LightWave or 3ds max. We didn't have the budget to develop any special in-house tools, and 3D software is quite highly developed already."

Chomet expects to use 3D tools for his next film as well, but more for lighting than for objects. "We did that in the chase sequence, to light the 2D walls with the car lights when they turn," he says. "It's really interesting and adds a lot of atmosphere and depth."

Now that *Triplets* is finished, both Tomov and Van Houte have taken temporary work to tide them over until Chomet completes the financing for his next feature, which he describes as a modern fairy tale about zoo animals in Paris caught in the civil war of 1871.

"The next film doesn't resemble anything I've ever seen in animation," says Tomov, which, considering *Triplets*, is quite a statement. ■■

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and we needed more than one. But so far I don't think that 3D humans are very interesting. And I like to draw.

Q. Did you draw the storyboard and characters?

A. Yes. I took one-half year to draw a storyboard very precisely with all characters and backgrounds. I designed all the main characters, some of the secondary characters, and quite a few other characters. Also, I animated the waiter and did a lot of animation for the dog.

Q. You're the director. Why do you do animation yourself?

A. I'm trying to show by example. If I'm just there directing and not doing any animation,

it's very difficult to explain to animators what I want. It's better if I have a table in my office.

Q. Did you use your own dog as a reference?

A. I've never had a dog before. In animation, you have to really look carefully at things. I saw a lot of dogs and made a caricature. He's real. He doesn't talk. He does not read the newspaper. He isn't very clever.

Q. Will your next film be for adults too?

A. Yes. *Triplets* was a big success in France, so I've proven that adults can enjoy an animated film if it is done for them. I think it was just a start. I think kids will love the films, too, even if they don't understand everything, because it's their world. It's a discovery for them. Everybody likes to be surprised.

Like Lightning

Calibre creates a bizarre cast of digital characters in record time for the live-action television show *Ace Lightning*

By Martin McEachern

Despite the capabilities of state-of-the-art animation software and talented computer artists, starring roles in weekly live-action television shows have been virtually nonexistent for digital characters. This is because of the daunting production logistics and formidable creative and technical challenges imposed by the medium's limited budgets and tightly compressed shooting schedules. However, a digital cast of computer game characters in the new children's television series *Ace Lightning* is redressing that situation, and in doing so, is paving the way for more virtual actor roles (see "A New Hybrid," pg. 44).

Now airing in the UK and Canada, and set to debut later this year in the US, *Ace Lightning* presents a rare and seamless co-existence of live action and CGI on weekly television. Created by Calibre Digital Pictures in Toronto, each half-hour episode

features more than 10 minutes of digital content, including nearly 160 shots of engaging character animation, realistic effects, digital matte paintings, and green-screen composites. To accomplish this feat, Calibre designed a production pipeline that is streamlined to accommodate the strict time frame of a series and flexible enough to let the artists collaborate with the film crew, so they can more easily composite the CGI into the shots.

The live star of the series is 13-year-old Mark Hollander, whose life is turned upside down when characters from his favorite computer game exit their cyber world and land in his backyard. First to arrive is the evil Lord Fear and his motley gang of henchmen, who are hotly pursued by Mark's favorite superhero, Ace Lightning. Believing he's just landed in another level of the game, and that Mark is a fellow Lightning Knight, Ace enlists the youngster to help him battle the villains.

The show's digital troupe currently features a bizarre assortment of computer-

generated characters, including Lord Fear, a skeleton with telescoping arms that coil around his victims. Plotting his evil deeds with histrionics, he commands a group of creatures that can morph into various attractions at the local carnival to avoid detection. They include Staff Head, a bat-like creature perched atop Lord Fear's wooden staff; Lady Illusion, a voluptuous woman who can assume animal forms; Anvil, a rhino-headed oaf that morphs into the test-your-strength booth; Pigface, a pig-headed monster that transforms into a trash bin; and Dirty Rat, a flying spy that turns into a gargoyle overlooking the carnival's haunted house.

Digital Actors with Range

Working in Alias Systems' Maya, the artists at Calibre specifically develop the show's character models for broad, physical expression. The team initially sculpts the meshes with NURBS and subdivision surfaces, both of which are ideal for modeling organic surfaces, then converts them

ing

With a streamlined production pipeline, Calibre Digital Pictures is meeting the challenges of using digital characters in a weekly television series. In *Ace Lightning*, the leading roles are played by a live actor and two CG characters—the hero, Ace Lightning (foreground) and his enemy, Lord Fear (background).

Images courtesy Calibre Digital Pictures.



In addition to creating the CG characters, including Lord Fear (above), the artists built a number of complex 3D objects and set pieces, some of which required animated textures and skeletal rigs controlled through keyframes.

into closed-surface polygonal models that are more efficient and easier to work with.

Because the CG characters are intended to appear native to the digital realm, their texturing is accomplished with standard Maya shading networks consisting of color, bump, and specular maps. However, more complex shading networks are required for the scale models of the live-action sets and props, which also are built for previsualizing the scenes and assisting the lighting and compositing departments with shadow casting and reflection mapping. Special care is taken in texturing these models, especially those with glass, metallic, and plastic surfaces, which have to be intercut with a live-action counterpart. Other props demand animated textures and skeletal rigs with keyframeable controls, such as the glass orb crowning Staff Head, which is mapped with a cloud texture that brightens before expelling an energy bolt.

After the artists complete the models, they generate a master file of customized character setups. Then, following every *Ace Lightning* episode, the team adds a new version of each character—specially modeled or rigged to accommodate the unique demands of that particular show—to the master file, enabling the animators to later choose a model that meets the needs of a certain scene. Maintaining this expanding database of custom setups also allows the artists to continually improve the character rigs over the course of the series.

Each of these character models contains approximately 80 joints, used for animation. The base skeletal setup comprises two sets of joints for the limbs: one for binding the geometry and inverse kinematics (IK), and the other for the

forward kinematics (FK). Using a combination of constraints and Maya Set Driven Keys to keep the twin joints in perfect alignment, the animators operate an IK/FK toggle switch to shift between them and keyframe either set.

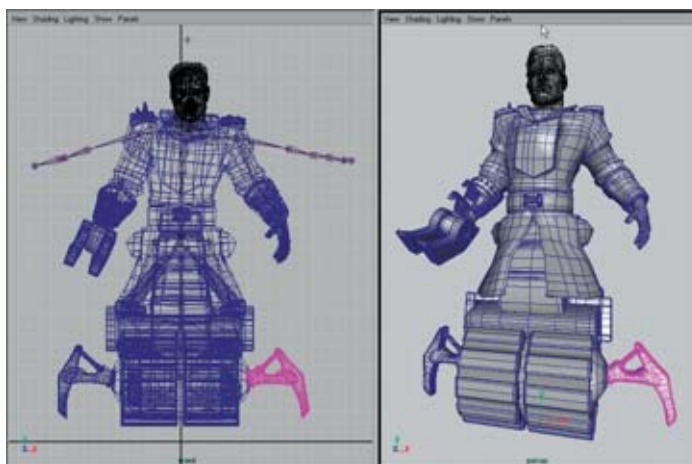
According to technical directors Yi Zhao and Daniel Lu, much of Calibre's character rigging hinges on well-placed Maya Set Driven Keys. By manipulating a series of elemental blend shapes for the face, the team creates Set Driven Key controls to achieve a wide range of movements for many of the facial features, including the lip sync. In total, 30 controls are used for Ace Lightning's facial expressions, 20 for Lady Illusion's, and 10 for Staff Head's.

Creating Scenes

Once the CGI superheroes and villains are modeled, rigged, and ready to take on the real world, Calibre's artists tackle the real technical feat of the show: the planning and execution of each episode's 10 minutes of composited effects and character animation. "It's important to the overall production that Calibre get involved early in the script-writing process," notes animation director Robert D.M. Smith. "It is crucial to flag pitfalls that could put us behind in production, such as shots featuring interactions between live actors and CGI characters, and scenes involving interactions with natural elements like water."

At the outset of pre-production, a CG artist creates storyboards to indicate the movements of the camera and the actors, establishing camera placements that will ideally situate the real actor behind the CG character or at a distance where the actor's gestures will not "screen" the CG character and result in a difficult matte.

To ensure that the CGI integrates perfectly with the live action, Calibre's onset visual effects supervisor records the camera's focal length, rotation, and height up to the nodal point, and trans-



Each character model is designed and rigged to accommodate the specific demands of each episode. The new versions are later added to a master library of customized character setups for use in future shows.

fers the information to the Maya camera. Occasionally, the focal length of the virtual camera is increased to cope with the extreme foreshortening in scenes that are deliberately shot with a wide-angle lens to accommodate digital camera moves created in Discreet's combustion. The onset visual effects supervisor also records the lighting design for every scene and, in some cases, for individual shots, since many of the same scenes are filmed at different times of day and in different weather conditions.

Digital Stunt Coordination

Like the characters, the effects used in the show also are a mix of real (practical) and digital. For nearly every episode, the artists add animated effects, including sparks, fireworks, smoke, lightning, exploding crystal balls, and myriad other electrical, pyrotechnical, and dust effects, all generated in Discreet's flame. Currently, the digital elements are rendered on both Linux- and Windows 2000-

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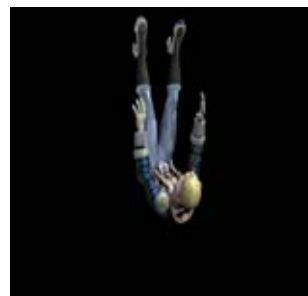
based workstations running Maya 3.0. Although the renderfarm is quick and efficient for generating full-resolution dailies, the studio is currently integrating the Maya, mental ray (Mental Images), and 3ds max (Discreet) renderers through a number of scripted GUIs to form a more robust and powerful pipeline.

One of the most ambitious integrations of practical and CG effects thus far required Ace to fall onto the roof of a car, causing it to collapse. To accomplish the stunt, the team initially contemplated cross-dissolving between two images of a normal and crushed roof, but decided that a more convincing shot could be achieved by dropping a 150-pound weight from a height of 30 feet onto the car roof and compositing Ace into the film plate. Fortunately, it not only collapsed the roof at an angle that afford-

ed a full view of Ace sprawled unceremoniously on his back, but fell deep enough into the car so that it was barely visible. Then, back at Calibre's studio, an artist animated Ace so that his falling body hid the descent of the weight and tracked with the bounce of the car. The artist also painted out and replaced the shadows and reflections of the weight with those of Ace by modeling geometry that approximated the roof, windshield, and trunk, and adjusting the position and intensity of the lights to maximize the surfaces' reflectivity before rendering Ace's reflective pass. Finally, the team enhanced the concussive force of the impact with flying debris created in combustion.

Ace's High

Ace Lightning is pushing the broadcast envelope with a large cast of major digital players with multifaceted personalities. It also breaks the mold through its use of sophisticated compositing—involving live action unfolding in a wide range of sets, locations, and weather conditions—and digital stunt work typically reserved for feature-film production. "Viewers are well versed in CGI," says executive producer Pete Denomme, "so we

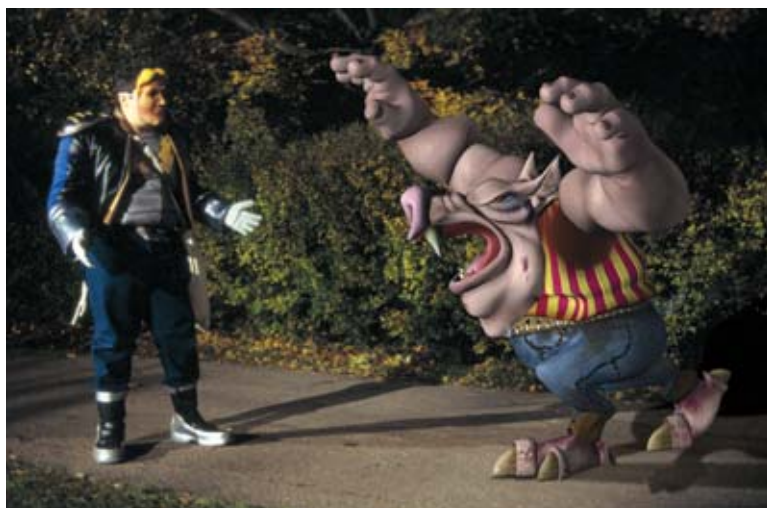


For one of the show's most demanding sequences, artists had to integrate digital and practical effects to achieve the illusion of having the CG hero crashing through the roof of an actual vehicle.

knew that the show's success—in particular, its ability to hold the audience—rested on the credibility of our hybrid scenes."

Part of the show's believability stems from the writing, acting, and a premise that calls for computer graphics in every story line. Yet the ability to suspend the audience's disbelief is ultimately the result of the effects artists' efforts to seamlessly wed the live action and CG, and craft unique performances for every scene that are not only highly expressive, but also acutely sensitive to the real actors' performances—all under the most pressured production conditions. ##

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For this live-action environment scene, the artists used proxy models of Ace Lightning (left) and Pigface (right) before finalizing the scene.

. a growing trend

Widely available prosumer video products are producing a new crop of independent filmmakers

By Karen Moltenbrey

Amateur filmmaker and director Matt Giraud spent what seemed like a lifetime chasing a dream, hoping that the three years he spent filming, editing, and then shopping his documentary to distributors would have a happy ending. And it did.

Giraud's independent project, a half-hour movie titled *Life in Vine*, was the Web site designer/writer's first foray into independent filmmaking. However, unlike the multitude of newcomers who are flooding this burgeoning field with projects, Giraud beat the odds and received a national distribution deal.

Giraud is a principal in Grapheon, a design firm, and the owner of Gyroscope Moving Image, a production company in Portland, Oregon. He also has written about food and wine in alternative newspapers and trade publications for nearly a decade. Not long ago, he decided to combine his knowledge of the wine industry with a yearning he had for filmmaking. As a result, he followed a handful of small winegrowers in northern Oregon during a full sea-

son as they toiled in the fields, cared for their delicate crop, and prayed for weather that would give them a good harvest.

"Wine making is being overrun by big corporations, but there's still a number of people doing it by the seat of their pants," Giraud says of the "stars" of his movie. "Many people see this industry as glitzy and sophisticated, but I wanted to show it in its true light, so this film is a little grittier from the lifestyle pieces you typically see about wine making."

To this end, the documentary contains a mixture of interviews in nontraditional settings. Instead of focusing on what he describes as "talking heads," Giraud shows what occurs in the vineyards. "It's not all sun and luxury," he says. "It was a very soggy activity, as a lot of the filming takes place in the rain."

In fact, Giraud chose an especially good year to follow his subjects. When he began filming in 1999, the grape-growing season looked bleak. It was a cold, wet spring, which meant the harvest would be pushed into late fall, making the crop vulnerable to winter storms. "Luckily for me—but not for them—everyone thought they would get decimated," he says, "which built a natural tension into the story from the get-go." And just like Giraud's own story, the winegrowers' tale ended happily when an unexpected three-week window of superb October weather turned despair into ripened delight.

Toiling in the Field

Prior to embarking on his film odyssey, Giraud had only directed and edited public service announcements and completed a short-film project—a far cry from this attempt at a long-form documentary. "The project became film school for me, as I learned so much about every step of the process," he says. "At times I found myself in a situation where I wanted a particular shot and had to figure out a way to make it work without spending extra money." In one instance, Giraud built a dolly from plywood and PVC piping for a running camera shot. In another, he attached the camera to a stick for a crane shot. "I hoped I was

pointing it in the right direction, and miraculously, I did, and I got the shot."

With a limited budget of \$10,000 from personal savings, Giraud had no choice but to complete the work himself, although he sought assistance whenever possible. An invaluable resource was the Northwest Film Center, a Portland-based organization that encourages independent filmmaking through classes and low-cost equipment rentals.

Over the course of a year, Giraud shot nearly 50 hours of digital video using a Canon XL1. "As with most documentaries, 90 percent of that was garbage, especially

One of the important lessons Giraud learned is that you have to think like an editor while filming. "When I reviewed the early footage on the monitor, I kept shouting, 'Focus! Reframe!'" he recalls. "Without question, having gone through the process made me a better videographer." Yet transitioning from one shot to the next remained one of Giraud's biggest challenges during *Life in Vine*, forcing him to reshoot some material because there was too big a chasm between certain shots. This was caused, in part, by large gaps in the filming schedule as Giraud covered the entire growing season and worked on the



Images ©1999-2004 Gyroscopic Moving Image, LLC.

With *Life in Vine*, filmmaker Matt Giraud distinguished himself from the growing number of indie filmmakers by creating an interesting story and securing a distribution deal.

the early stuff," he recalls with a laugh. After a while, though, some of the concepts from his design work, such as composition, began to influence how he would shoot with video. "Being able to frame a shot so it is interesting and tells a story is one of the main concepts you need to know while filming anything," Giraud maintains.

In addition, there were hundreds of technical issues, such as how to manipulate the lighting and determine the best time of day to shoot, that Giraud had picked up through the yearlong filming schedule. "I have been shooting still photography for years, but when you add motion, it becomes a whole different game," says Giraud.

project during weekends, evenings, and time off from his full-time job.

Another factor contributing to this was Giraud's decision to edit the entire footage all at once, rather than in segments, which made themes and missing shots easier to identify. This task was accomplished in Adobe Systems' Premiere nonlinear editing software running on a Power Mac G4 from Apple Computer. Since completing *Life in Vine*, however, Giraud migrated to Apple's Final Cut Pro after Adobe abandoned the Mac version of Premiere.

In addition to Premiere, Giraud used a range of other Adobe products that he was familiar with because of his design work. These included After Effects for

incorporating effects and for vertically reframing some shots to make the most of the project's final letter-box format. He also used Adobe's Photoshop for the title work and Illustrator to re-create a particular mechanism shown in the film that measures the sugar content in the wine.

While Giraud did all the off-line work himself, he turned to others for assistance in color-correcting the video. Downstream Digital, a local high-end postproduction facility, allowed the filmmaker to use its da Vinci Renaissance color system at a reduced cost and even provided an assistant colorist who worked after-hours with Giraud. "He really ratcheted up the quality of the video, making it look very professional," he notes.

Finding a Distributor

An equally daunting, but far less glamorous part of the independent filmmaking process is selling the piece. With so many "prosumer" film tools now available at a reasonable price, amateur filmmakers are flooding the market with projects.

On the upside, there is little overhead associated with these

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says Giraud. "The tools let people produce a higher quality of material in general, but they still needed an eye and a sense of taste to do something that will rise above the din."

Weighing these pros and cons, Giraud believes the trade-off is still

worth the effort. However, because there are so many projects vying for recognition, it becomes even more difficult to get a film in front of a content filterer, whether that person is a producer, broadcaster, or distributor.

For Giraud, that process took more than a year. After Giraud got a foot in the door at Oregon Public Broadcasting (OPB), the PBS affiliate in Portland, he was able to work the 30-minute documentary into the right hands—a process that required "insisting, but not bullying." After there was some expressed interest, he re-cut the film to the standard PBS length (26 minutes and 46 seconds). Soon after, the documentary debuted on OPB, where it became the station's highest rated show that evening. That accomplishment carried some weight with national distributors, one of whom eventually offered Giraud a two-year deal. And now, nearly 100 PBS stations across the country are broadcasting the documentary.



From the spring planting (left) to the fall bounty (right), Giraud documented the winegrowing season using a Canon DV camera and the Premiere editing system.

movies, enabling skilled people without a lot of financial resources to tell stories that just couldn't have been told otherwise. Giraud, for instance, is currently working on two new documentaries—one about a woman trying to run an independent farm in an era of huge corporate farms, and the other about a facility for the mentally ill. As with *Life in Vine*, these require a large time investment so the stories can unfold. "Until recently, these stories were under-told because they're too expensive to do in the traditional filmmaking framework," Giraud says.

On the downside, there are many untrained people producing and pitching uninteresting stories and poor-quality work, Giraud points out. "It reminds me of the desktop publishing revolution, when suddenly everyone became a production/layout designer,"

movies, enabling skilled people without a lot of financial resources to tell stories that just couldn't have been told otherwise. Giraud, for instance, is currently working



Still, Giraud had to do a tremendous amount of self-marketing and promotion. "Thank God for the Internet," he says, noting that he subscribed to a scheduling service that provided a time and location for *Life in Vine* showings. Then, he would look up the local and regional press outlets on the Web, and promote the film. "The requisite promotional work is half the battle to getting your film seen, and that's even after you have a distribution deal in place."

Learning this secondary process, Giraud says, was an enormous challenge, but necessary. "These people are inundated with projects, and their default setting is 'I don't want to talk to you.' But you need to be persistent and learn the ropes on the back end just as you do on the front end," he advises. "Then, with some luck, you may be on your way." ■

Karen Moltenbrey is a senior technical editor at Computer Graphics World.

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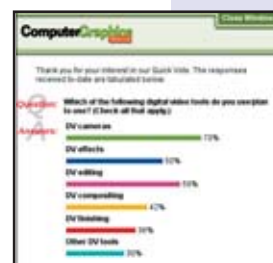
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Renaissance

A CG re-creation lets viewers get up close and personal with a unique 15th-century masterpiece

By Kees Kaldenbach

In 1432, painter Jan van Eyck completed a towering work of art, titled *The Adoration of the Lamb*, in the then-new medium of oil paint. Approximately 570 years later, digital artists working in the contemporary medium of computer graphics re-created the set of paintings for a DVD titled *De Visione Dei*, which focuses on the creation of the original art, also known as the *Ghent Altarpiece*.

The 21st-century art history production

is the brainchild of Ghent University (Belgium) professor Marc de Mey, who created the project with architect/ animator Wim de Boever. The concept was born from their academic research into the crossover within the arts, sciences, and religion. The team, working with a multi-disciplinary group, transformed the masterpiece from the early Renaissance period into virtual art using Discreet's 3ds max software.

In doing so, the group not only made the original work accessible to people throughout the world, but also provided an intimate view of the piece that is unattainable today because of its current exhibition arrangement

inside the Vijd chapel at Ghent's grand St. Bravo Cathedral, where it is now displayed in a small space behind a protective casing.

The original work was created as an enormous set of paintings on panels, also known as a polyptych, by the two van Eyck brothers: Hubert, who started them, and Jan, who completed them. The masterpiece measures 11 feet 3 inches high by 14 feet 5 inches wide and includes a fixed central segment of four panels and a pair of wings, each of which contains four additional panels.

By manipulating the 3ds max model, viewers today are able to see the position

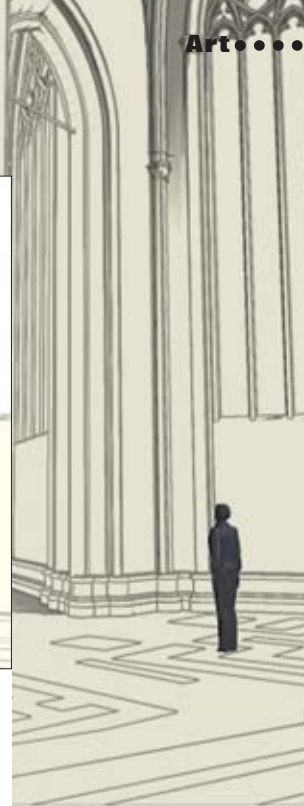
toolbox

Autodesk www.autodesk.com • infoNOW 125

Discreet www.discreet.com • infoNOW 126



These 3D images, re-created by an academic group from Ghent University, are from a set of paintings on panel located inside the St. Bravo Cathedral in Belgium. Available on a DVD, the imagery offers an unobstructed view of the paintings and the environment.



Art

of the panels as they were originally displayed, thereby allowing them to gaze at the entire work, including the Annunciation scene depicting the incarnation of the Virgin Mary, which cannot be seen from the display case because of the closed positioning of the original panels.

Generating the CG models was far from easy. Since 1986, the panels have been displayed at the main entrance of the cathedral in a bank vault-quality glass container under bright floodlights. While protective, the thick glass made it difficult to acquire accurate measurements necessary for digitally re-creating the paintings.

So for analysis purposes, de Mey's team was granted access to high-quality photographs of the artwork taken by the late Reverend Alfons Dierick before the protective glass was installed. These pictures show the paintings in their original location, in full view, and under natural

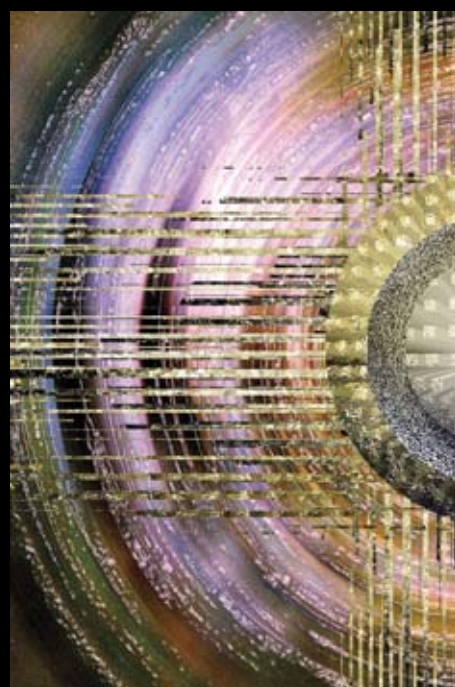
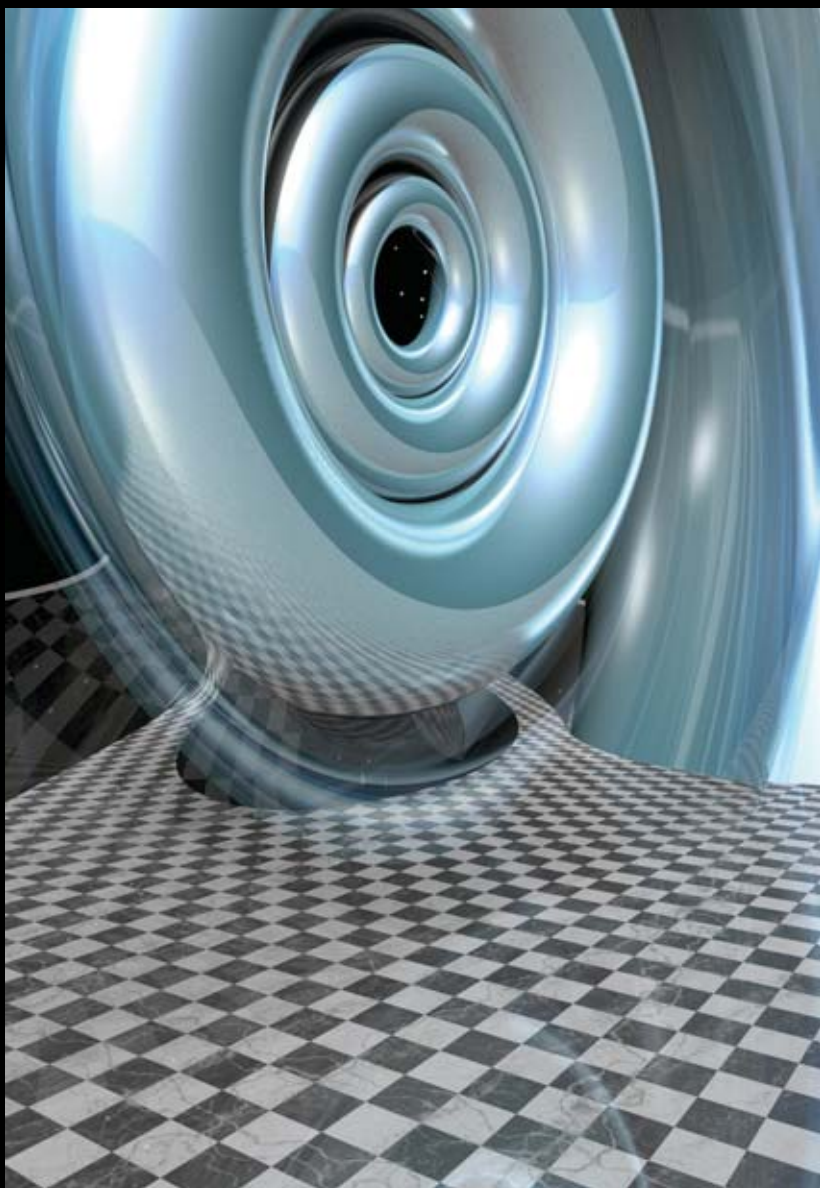
lighting, enabling the digital artists to more closely replicate the original work for the DVD.

In addition to the digital models, the DVD contains animated architectural imagery, created by de Boever using Autodesk's AutoCAD software, for a dramatic opening to the DVD. These digital scenes incorporate a virtual camera flythrough of the finely detailed Gothic-style architecture of the cathedral before zooming in on the paintings.

The DVD, published by de Mey, is compatible with the PAL broadcast format. It is being distributed by Mercatorfonds Publishers in Belgium. ♣

Kees Kaldenbach is an Amsterdam-based art historian whose work includes 3D presentations of the Delft master artist Johannes Vermeer and of Delft. He can be reached at kalden@xs4all.nl.





Clockwise from left:

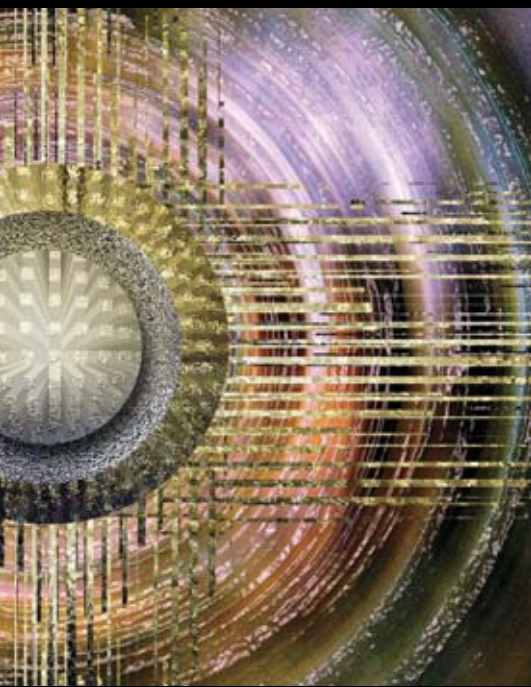
Untitled Created with Bryce and Photoshop, this figurative abstraction is eerie yet sophisticated in style, and, according to the artist, is illustrative of the maelstrom of the present technological age.

The Inner Offering The oval-shaped window in this spiritual piece leads viewers to a place of unexpected wonder. The image, among the artist's most acclaimed works, was created with Bryce, Poser, and Photoshop.

Meta-Cryptic This abstract image, created entirely in Photoshop, is a symbolic representation of the movement from chaos to unity.

"I have been an artist since I was a child," says professional digital artist J.L. Mendez of Tenerife, Spain, who creates CG "paintings" under the moniker Atman Victor. What began as a creative outlet and a method of achieving a higher grade average in school soon turned into a passion that still burns inside Victor today.

Victor considers himself a fine artist who happens to use the computer to create his works, as it offers a world full of endless possibilities. "With the computer, you can emulate traditional media and any kind of technique ever known. It all depends on your skills." Victor's digital palette consists of many 3D software programs, including Autodesk's AutoCAD and Discreet's 3ds max, though he feels especially comfortable using 2D programs such as Adobe Systems' Photoshop, Corel's Painter and Bryce, and



Curious Labs' Poser. "My main goal is to produce art, not a high-tech design," he notes.

Over the years, Victor has tried numerous styles, and currently he is particularly drawn toward social criticism expressed in surrealistic fashion and a quest for a new type of digital abstractionism. Yet, no matter the style, Victor's artwork has earned him many international accolades, including honorary mentions from worldwide digital art contests such as the Asia Digital Art Awards. In addition, his digital pieces have been featured in countless group and solo exhibitions, the more recent being at the 12th International Biennial of Cerveira (Portugal), Gallery 47 (London), and the Häsinglands Museum de Hudiksvall (Sweden).

A sampling of Victor's work appears on these two pages. Additional imagery can be viewed at www.absolutearts.com/portfolios/c/cyber. —Karen Moltenbrey

From top left to right:

The Unwanted Welcome The artist approaches the uncomfortable topic of death and decay in this scene containing romantic ambience with a certain amount of gloom. The image, created with Photoshop, Poser, and Bryce, is intended as a tribute to 17th-century artists like Spain's Juan de Valdes Leal, a baroque painter and etcher known for grimly moralizing subjects.

Between Nightmare and Hope Initially created using Bryce and Poser, and then postprocessed in Photoshop, this piece depicts a couple as they struggle to break free from their self-imposed Hades, or realm of darkness.

Kaydara MotionBuilder 5

New upgrade offers power, low price

By George Maestri

Kaydara, a pioneer in animation and motion capture, always has offered very high-end and fairly pricey software. MotionBuilder 5 is priced at \$995, making quality motion editing available to a much wider audience.

Strictly an animation authoring system, MotionBuilder does not provide any modeling tools. Basic texturing and effects can be done in the software, but high-end rendering is perhaps best left to other programs. Characters are modeled in a favorite 3D package and brought into MotionBuilder where motion—whether keyframed animation, motion clips, motion capture, or automatic animation—is applied.

Getting data to and from other applications is fairly easy, thanks to Kaydara's .FBX file format. Rapidly becoming a standard file format for 3D authoring, it supports NURBS and polygonal models, as well as texturing, deformations, and skeletons. I passed scenes between Alias Systems' Maya, Discreet's 3ds max, and MotionBuilder with relative ease. The .FBX format also is available as a plug-in for QuickTime, for viewing motion files on any system. It is a great feature for directors who need to see animation files but don't have sophisticated 3D software.

The interface seems a little daunting at first, but after a few minutes of exploration, things become fairly clear. The software relies on floating windows to organize the work flow. MotionBuilder has windows for asset management, motion editing, transformations, and so on. One nice little feature enabled me to switch the software's hot keys to reflect my favorite package.

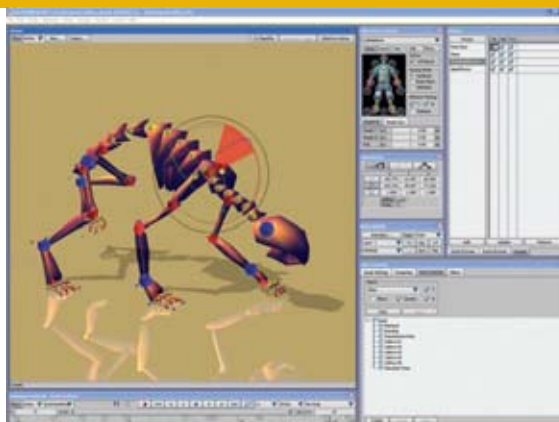
Before animation begins, characters and

assets are imported into the scene in the .FBX format. The software supports most major features, so models are imported fully rigged and textured. Users performing character animation might elect to use MotionBuilder's rigging tools. MotionBuilder's skeletons have many nice features. They are fairly smart in that motion from one type of character can be mapped smoothly onto others; a karate kick for a tall character will map directly to a short one. The skeletons can move seamlessly between forward and inverse kinematics. MotionBuilder skeletons also have controls that can define the floor plane and a character's finger tips, thereby helping to prevent the feet from going through the floor or a character's hand from penetrating an object it is holding.

After a character is rigged, it can be brought to life using a variety of methods. MotionBuilder provides a curve editor and a dope sheet that most animators will find very familiar. Animators can store clips of motion and reuse them with MotionBuilder's nonlinear motion editor, which enables users to layer motion and to transition smoothly between motions. The nonlinear tools are particularly good for manipulating motion-captured data. Those doing real-time animation will enjoy the ability to connect characters to the outside world using such devices as joysticks and midi sliders. Support for advanced full-body, motion-capture systems is available only in the Professional Version.

MotionBuilder has great tools for facial

animation. Using .FBX, characters and morph targets are brought into MotionBuilder, where animators can manipulate facial features with either morphing or clusters. MotionBuilder also provides



MotionBuilder 5 users have the option of either importing or creating new skeletons and rigs.

a very robust voice-recognition module, enabling users to supply a voice track either through a microphone or an audio file and have the character's lips automatically synch to the dialogue. The module is essentially plug and play; I match phonemes to facial shapes, and MotionBuilder does the rest. The results were good, if a bit mechanical. A decent animator could do much better, but it would take a lot longer. Still, with the cost of third-party voice-recognition software running into the hundreds, if not thousands, of dollars, this module alone makes MotionBuilder worth the cost.

For scene authoring, Version 5 adds a story timeline; users can manage an entire project, rather than individual scenes. The Story tool enables users to combine assets and switch cameras as they animate, speeding the authoring process. MotionBuilder has a number of real-time effects, such as particle systems, to help add realism to a scene. Lights have such features as fog, and reflections can be calculated in real time.

Overall, MotionBuilder 5 is a terrific tool for character animation. It's only an animation package, so good 3D software is required for modeling and high-end final rendering. But the package is a great investment, particularly for those creating large amounts of character animation. ■

George Maestri is president of Rubberbug, a Los Angeles-based animation studio specializing in character animation.

Kaydara MotionBuilder 5

Price: \$995

Minimum System Requirements:

Windows 2000/XP or Mac OS 10.2, 256MB of RAM, 300MB of hard drive space, and a 16MB OpenGL card

Kaydara

www.kaydara.com
infoNOW 127

Vegas+DVD

Sony Pictures Digital debuts an extraordinary NLE

By David Singer

The nonlinear editor (NLE) market is crowded and competitive. With everyone claiming to be the best, feature sets expanding, and the level of power and flexibility exploding, it is becoming more and more difficult for professionals working with digital video and nonlinear editing to make a decision about which NLE to buy. Sony Pictures Digital has been trying to simplify the decision-making process. With Vegas + DVD, it has succeeded.

The installation was painless. Upon launching the application, I was presented an interface laid out in a logical fashion: the timeline window across the top, a tabbed section of palettes in the lower left, and a preview window in the lower right.

My first mission was to customize the interface to my way of working. Vegas + DVD enabled me to choose which windows to display for easy access and which to hide. Because windows can float and are dockable, I could select features that I regularly use, such as histograms and the surround panner, and dock them to the work area for easy access. At the same time, I hid features I used less often. Next, I chose Split View for the Preview window to view my video side by side in a before-and-after style.

Those new to video editing should expect a learning curve. Yet, Vegas + DVD does a good job of flattening that curve by enabling users to work in as simple or as

complex an environment as suits their comfort level. Editing video in Vegas is as simple as dragging a file from the Explorer window into the Trimmer window and high-

lighting the selection by dragging the cursor. Alternatively, users can click the cursor where they want the clip to start and hit the I key (for "in"), click the cursor where they want the clip to end, and hit the O key (for "out"). Upon striking the A key (for "add"), the trimmed clip is added to the timeline.

The Transition tab in the lower-left window lists transition styles on the left and thumbnails on the right. To see an animated preview of the transition, you move the mouse over the thumbnail. You then drag a selection to the timeline, and you're done. When finished editing clips, you can print to a tape or burn to a CD directly from Vegas. That's Vegas + DVD at its simplest, yet it just scratches the surface of the power within.

Moving beyond the basics, Vegas + DVD offers many advanced features that are new to Version 4, such as video scopes (Vectorscope, Waveform, Parade, and Histogram), three-wheel primary color correction, secondary color correction (to adjust a single color), new transitions, effects and composite abilities, and enhanced ripple editing.

Vegas + DVD boasts an incredible audio-editing experience with unlimited tracks,

24-bit/96KHZ audio support, and more than 30 studio-quality effects, such as EQ, reverb, time compress/expand, and delay. It also offers ASIO driver support and a Dolby-certified AC-3 5.1 encoder. With Vegas + DVD, you can produce videos with Dolby 5.1 soundtracks and add tremendous depth to your productions.



Vegas+DVD provides greater control of your project with color correction and various video scopes.

Also included is DVD Architect for DVD authoring. DVD Architect integrates flawlessly with Vegas, enabling users to import markers in Vegas as DVD chapter points and AC-3 files for multi-channel 5.1 DVDs. And as with Vegas, it's all wrapped in an easy-to-use, wizard-driven interface.

Customizing the layout of the DVD menu in DVD Architect is as simple as dragging the elements to the desired locations. Double-clicking the chapter thumbnail switches the interface to a trimmer window, where you can insert chapters, set in and out points, set menu item thumbnails, and more. When you're done building the DVD, you can preview it by selecting Preview or pressing the keyboard shortcut (F9), after which you're presented with a large viewing area on the left and a virtual remote on the right. When satisfied, select Make DVD from the toolbar to open the burn dialogue window. You have three options: Prepare (if you intend to burn later), Burn (from a previously prepared file), or Prepare & Burn (to complete the entire process at once).

Vegas + DVD, an all-in-one professional video/audio/authoring solution, is powerful, flexible, and stable. It ships with Vegas 4.0, DVD Architect, Sony's Dolby Digital AC-3 encoder, MediaFACE 4 labeling software, and more than 30 DirectX audio plug-ins. ■

David Singer (*singercreativeservices@charter.net*) is a founding partner of Singer Creative Services offering digital photographic, video, and other services.

Vegas+DVD

Price: \$799.96

Minimum System

Requirements: 400MHz processor; 128MB of RAM; 30MB of hard-disk space; Windows 98SE, ME, 2000, or XP; DirectX 8 or later; IE 5.5 or later; OHCI-compatible IEEE 1394 DV card; Microsoft .Net framework or Windows XP; and a supported DVD recordable drive

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Mediasoftware.sonypictures.com
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SOFTWARE

VISUAL EFFECTS

On the Mac Platform

Mac Discreet has announced the availability of its combustion 3 visual effects and 3D compositing software for Apple Macintosh systems. Carrying a suggested price of \$995, combustion 3 for the Mac is targeted at Mac users who produce Web content and professional motion graphics, repurpose video content for use on the Web, and create effects for feature-film and HDTV content. Reportedly the first visual effects application to offer integrated editing, combustion 3 enables users to perform simple editing tasks and assemble video with transitions without the need for nonlinear editing (NLE) software. Other features new to combustion



3 for the Mac are JavaScript-based expressions and the ability to create and output Flash animations.

Discreet; www.discreet.com
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Synthetik Solution

Mac Synthetik Software has released Version 3.0 of its Studio Artist graphics synthesizer, which has been optimized for Mac OS X and OS 9 operating systems. In addition to more than eight hours of QuickTime video tutorials and instructional guides, Studio Artist 3.0

STOCK OPTIONS

Juiced-Up Collection

Digital Juice's VideoTraxx is said to be the largest single volume of royalty-free stock film and video footage available today. Indeed, VideoTraxx boasts more than 3200 unique clips, equating to 220GB of stock footage across 34 DVDs. The 100 percent royalty-free clips are offered in NTSC QuickTime MOV format and divided into 36 categories. Among these categories are Family, People, Fitness, Abstract, Extreme Sports, Suburbia, City Life, NASA, Military, Aerials, Weather, and many others. Now available for purchase from Digital Juice's Web site, the VideoTraxx film and video library is priced at \$599.

Digital Juice; www.digitaljuice.com
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incorporates the new Vectorizer raster-to-vector synthesizer with EPS output capabilities, MSG (modular synthesized graphics) plug-in architecture, and live video processing. Enhanced animation capabilities, image processing, and Paint Synthesizer functionality help to round out the updated version. User-configurable painting and drawing tools, a complete image processing and video effects suite, and automatic Intelligent-Assisted painting actions provide professionals a wealth of options. Now available for purchase, Studio Artist 3.0 is priced at \$379. Registered users of earlier versions can upgrade at a cost of \$179.

Synthetik Software; www.synthetik.com
infoNOW 132

ANIMATION

Creating Crowds

Win • Linux Softimage debuted Version 1.5 of SoftimageBehavior, its crowd effects software. Upgraded in response to customer

feedback, Behavior 1.5 boasts an SDK, a powerful Integrated Development Environment, and what is reported to be the only batch-processing module currently available in crowd-simulation programs. SoftimageBehavior is now shipping at a cost of \$14,995.

Softimage; www.softimage.com
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CAMERA TRACKING

Auto Camera Tracking

Andersson Technologies LLC has unveiled SynthEyes 2004, its new 3D camera-tracking software offering both automatic and supervised tracking. In fact, users can automatically track and solve a DV shot with more than 100 frames in less than a minute. A light solver helps users match lighting, whereas the solver assists with single-camera and multiple-camera setups, object tracking and camera-plus-object tracking, reference stills, zooms, and tripod shots. SynthEyes can be downloaded from Andersson Technologies'

Web site at a cost of \$349 or purchased on CD for an additional \$10 in the US or \$15 internationally.

Andersson Technologies LLC;

www.ssontech.com

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HARDWARE

GRAPHICS CARD

TripleHead and TV Output

Matrox Graphics has unveiled the TripleHead upgrade kit for its Millennium P650 graphics card. Enabling users to drive three displays from a single Millennium P650,



Matrox Graphics' new kit includes a DVI-to-dual HD-15 cable and TV output connector, as well as a utility that adds TV output functionality. The TripleHead upgrade package also sports a fanless design, enabling silent operation conducive to efficient sound production. The Matrox Millennium P650, a 64MB graphics board offering AGP 8X support and dual 400MHz RAMDACs, is priced at \$169, whereas the optional TripleHead kit is priced at \$90.

Matrox Graphics; www.matrox.com

infoNOW 135

STORAGE

NAS-SAN Hybrid

SGI (Silicon Graphics, Inc.) has introduced the InfiniteStorage NAS 2000, its latest network-attached storage (NAS) system. Already adopted by Reel FX Creative Studios, a 3D animation and visual effects studio, InfiniteStorage NAS 2000 offers universal

BOOK CORNER

EXPRESSLY FOR EDITORS

Authored by Rick Young, director and founding member of the UK Final Cut Pro Users Group and an Apple solutions expert, *Focal Easy Guide to Final Cut Pro 4* is intended to aid professional video editors, producers and independent filmmakers, wedding videographers, corporate video producers and film producers, students, and others in the use of Final Cut Pro 4. Designed to help Final Cut Pro users get the most out of the tools in the latest version of Apple's flagship editing application, the 240-page book includes work flow tips and is shipping at a cost of \$24.95.

Focal Press Publishers, an Imprint of Elsevier; www.elsevier.com

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A VIRTUAL GUIDE

Virtual Humans is a new book from Peter Plantec, a psychotherapist and digital graphics artist. The text assists readers in creating Web-based virtual assistants that guide visitors through a Web site. It instructs readers how to create an illusion of conscious intelligence through Q&A scripting and facial expressions. A CD-ROM containing v-human brains, animations, and environments accompanies the 288-page, paperback book priced at \$34.95.

AMACOM; www.amacom.com

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PHOTOSHOP VIDEO-BOOK

From Andrei Doubrovski, a professional photo restoration artist and technician, comes *As Simple As Photoshop (ASAP)*. *ASAP*, a video-book offered as a 103MB EXE (Windows only) or Adobe PDF file, includes 198 embedded movies with a total run time of 291 minutes. Macromedia Flash Player 6 is required. The video-book is priced at \$19.50 if downloaded and \$29.50 on CD.

As Simple As Photoshop; www.SimplePhotoshop.com

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data access, providing artists and animators access to the same digital content simultaneously. And because the system is scalable, users are able to increase network bandwidth and storage capacity as their company and its needs grow. In fact, the SGI NAS system can expand into a storage area network (SAN) with the SGI InfiniteStorage Shared Filesystem CXFS. Without having to convert the data, users can retain the ease of use of a NAS and gain the speed and power of a SAN. Redundant power supplies, cooling fans, and RAID 5 data protection round out the company's latest offering.

SGI; www.sgi.com

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SERVER

On the Road

Acme Portable Machines has launched a new family of portable servers with the release of the GMII-102. The portable system sports 2.0GHz or 3.0GHz Intel Pentium 4 processors and eight expansion slots in a compact solution measuring roughly the size of a lunch box. Well suited for the storage and transfer of large files, the GMII-102 offers high-end image, graphics, and video processing that include data-intensive video editing and 3D visualization. Now available and priced at \$4500, Acme's GMII-102 multifunction, portable server includes 32MB or 64MB of video

RAM, integrated multimedia speakers, two USB ports and an Ethernet/Fast Ethernet port, and a flat-panel, 14.1-inch XGA TFT display.

Acme Portable Machines;

www.portablesys.com

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WORKSTATION

Itanium-Based Innovations

RackSaver has premiered its NemeSys I2 workstation based on the 1.4GHz Intel Itanium 2 processor. Now available for purchase at a base price of \$7995, the workstation sports an ultrahigh-bandwidth system architecture, dual-monitor compatibility, and 1.5MB of L3 cache. In other company news, RackSaver recently demonstrated what is said to be the industry's first Intel Itanium 2-based server blade. Operating in



the company's 132 CPU UltraDense Blade-Rack, the RackSaver Intel Itanium 2 processor blade supports dual Intel Itanium 2 processors running up to 1.5GHz with a maximum 6MB of L3 cache and 16GB of four-way, interleaved ECC DDR RAM memory.

RackSaver; www.racksaver.com

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CTIA Wireless 2004, held in Atlanta, GA. Contact the Cellular Telecommunications & Internet Association (CTIA), www.ctiashow.com.

22-26

Game Developers Conference (GDC) 2004, held in San Jose, CA. Contact www.gdconf.com.

APRIL

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NAB2004, held in Las Vegas, NV. Contact the National Association of Broadcasters (NAB), www.nab.org.

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backdrop

Interview by contributing editor
Martin McEachern



Cyia Von Tiedemann

Rick Siggelkow is the executive producer of *Ace Lightning*, which features a level of interaction between live-action and computer graphics characters that is unprecedented in episodic television. For more information, see "Like Lightning," pg. 24.

A New Hybrid

Once restricted to the rarefied realm of film, stories with CG and live actors are about to go prime time

Q *What's the secret to creating a series with both CG and live characters?*

A A hybrid show requires technical expertise and strong artistic vision. But it will ultimately succeed or fail for the same reasons that apply to any TV series. Foremost, it will need a good story and characters that we care about. And the CG and live-action mix should spring from the premise of the series and be tied directly to the story.

Q *What makes the interactions between the characters work in this series?*

A First, the premise that the CG characters came out of a video game means they don't have to look or act real. Second, the character design is so distinctive that the good and evil qualities of the CG characters are quickly relayed to the audience. Third, the dialog between the two types of characters feels natural because they realize they are in a bizarre situation and they try to adapt to it in their own way.

Q *Do you write scenes differently for live action versus CG?*

A We started out being cautious because we didn't know what the potential of the CG characters was, and we didn't know how convincing the live actors would be interacting with an empty space. But after seeing the characters in action together, we

began to think of them as being the same and treated them accordingly.

Q *What lessons will you apply to new episodes?*

A We plan to increase the interaction between the human and the CG characters. Putting them into the same scene is one

thing, but having a CG character pick up a human, for example, and dangle him by his shirt collar is something else.

Q *How far can hybrid interactions go in weekly TV?*

A Gollum from *The Lord of the Rings* is the benchmark for live-action/CG interaction.

And I don't see any reason why the same standard couldn't be achieved in weekly television because of the extraordinary advances that have been made in computer animation, and because shooting hybrid shows is a relatively simple process. The biggest drawback, which is a budget issue, is the amount of time it takes to do the animation once the live action has been shot.

Q *How do you balance animation and live action?*

A The directors on both sides need to understand the processes and limitations of each other's work.

It's important to have a strong production team that doesn't favor one side over the other and gets them to work in tandem. For example, if the animation

boards are too ambitious, then the live-action director won't be able to shoot them within his schedule. Conversely, if the live-action director doesn't follow the boards, the animation director won't be able to properly animate to them and fulfill his vision. It's the producer's job to make it all fit together and appear seamless.

Q *What other projects are in the works?*

A I'm developing another CG/live-action hybrid based on the premise of what would have happened if the dinosaurs had continued to evolve. In it, they've returned to Earth and want their planet back. That's all I can say for now.

Q *Could a hybrid show ever succeed in prime time?*

A Yes. Its success would have more to do with the series premise and the traditional elements of storytelling than with the use of CG. It cannot exist primarily because it's a CG/live-action mix.

Q *What were some of the narrative issues you faced?*

A Making the entire half-hour show into a unified story. Whereas the CG elements were the "A story," we had to make sure that the live-action segments, the "B story," somehow reflected and fit together so that the two complemented each other and were seamless. ■■

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