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The AMIGA® VIDEO Journal

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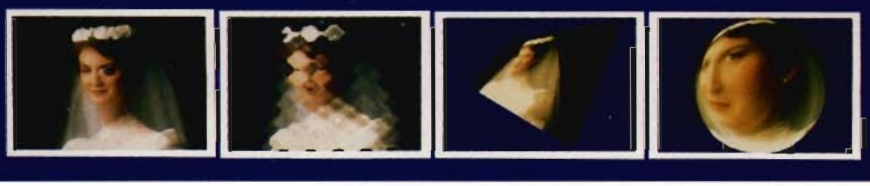

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365 Victor Street
Suite#H
Salinas, CA 93907
(408) 758-9386

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ADVERTISING DIRECTOR
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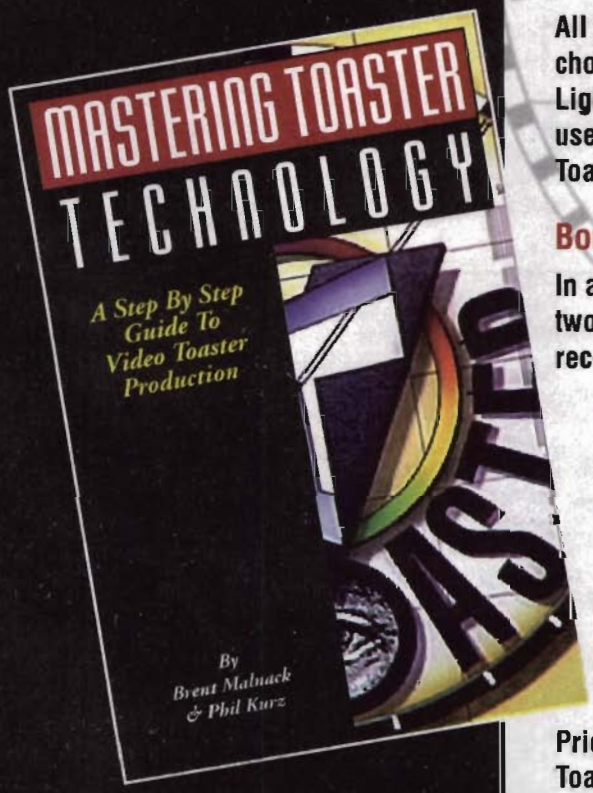

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At last there's a step-by-step guide to using the NewTek™ Video Toaster™: Mastering Toaster Technology.

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Written by Video Toaster™ authority Brent Malnack and AV Video editor and publisher Phil Kurz, Mastering Toaster Technology walks you through each step on the road to Video Toaster™ mastery.

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All from the voice of experience. Mastering Toaster Technology is chock full of tricks and techniques that Brent Malnack, former NewTek™ Lightwave product manager and AV Video Toast Production columnist, uses daily to squeeze the maximum performance from the Video Toaster™.

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Bars 'N' Tone

Things are really heating up in my favorite sector of the Amiga graphics world; 3D modeling, rendering, and animation. Allen Hastings and Stuart Ferguson are busy cramming feature after feature into the new LightWave 3D and Modeler, which now looks like it will be released sometime in 1993. New features I can tell you about include improved integration—everything is done in Layout—plus surface morphing, 68040 optimization, and improved antialiasing. Of course, there's a lot more I can't discuss, but look for an exclusive sneak preview coming soon in our sister publication, Video Toaster User. This product is going to set the high-end Wavefront/3D Studio world on its ear—Hollywood will flock to it in droves.

Other important recent and impending (and really exciting!) releases of Amiga 3D software include applications Playmation, Aladdin 4D, Caligari 24, and Real 3D as well as support programs such as Morphus, InterChange Plus, Pixel 3D Pro, and Essence. There are even a couple of great new free programs called Icoons and ISL—see my 3D Perspectives column in this issue for more information.

I'm so pumped about all this that I've half-seriously petitioned to make AVID an all-3D magazine, but my publisher reminds me that there's more to desktop video than 3D. Nonetheless, I strongly believe that 3D computer graphics will play a bigger part than ever in tomorrow's video, and that in an increasingly competitive marketplace one terrific (and fun!) way to success is by using your imagination to create truly bodacious 3D animations for your clients. If (like me) you have no imagination, try pumping your kids' brains, or maybe your wacky Aunt Gladys'. And get one or more of the above applications, spend time learning the ropes, and get busy earning the big bucks!

As the magazine expands we'll increase coverage of 3D products, and in my opinion the best way to accomplish this is with tutorials. If you'd like to see a tutorial on a certain topic, let us know. If you work with one of the above-mentioned products, or any other readily-accessible Amiga 3D-related product, and are interested in writing about your favorite application, call 1-408-758-9386 or drop us a line at the editorial office and ask for the writer's guide. Our goal is to share with you the special tricks not found in the manuals for creating unique effects that will have your clients filling your schedule book and forcing you to hire help.

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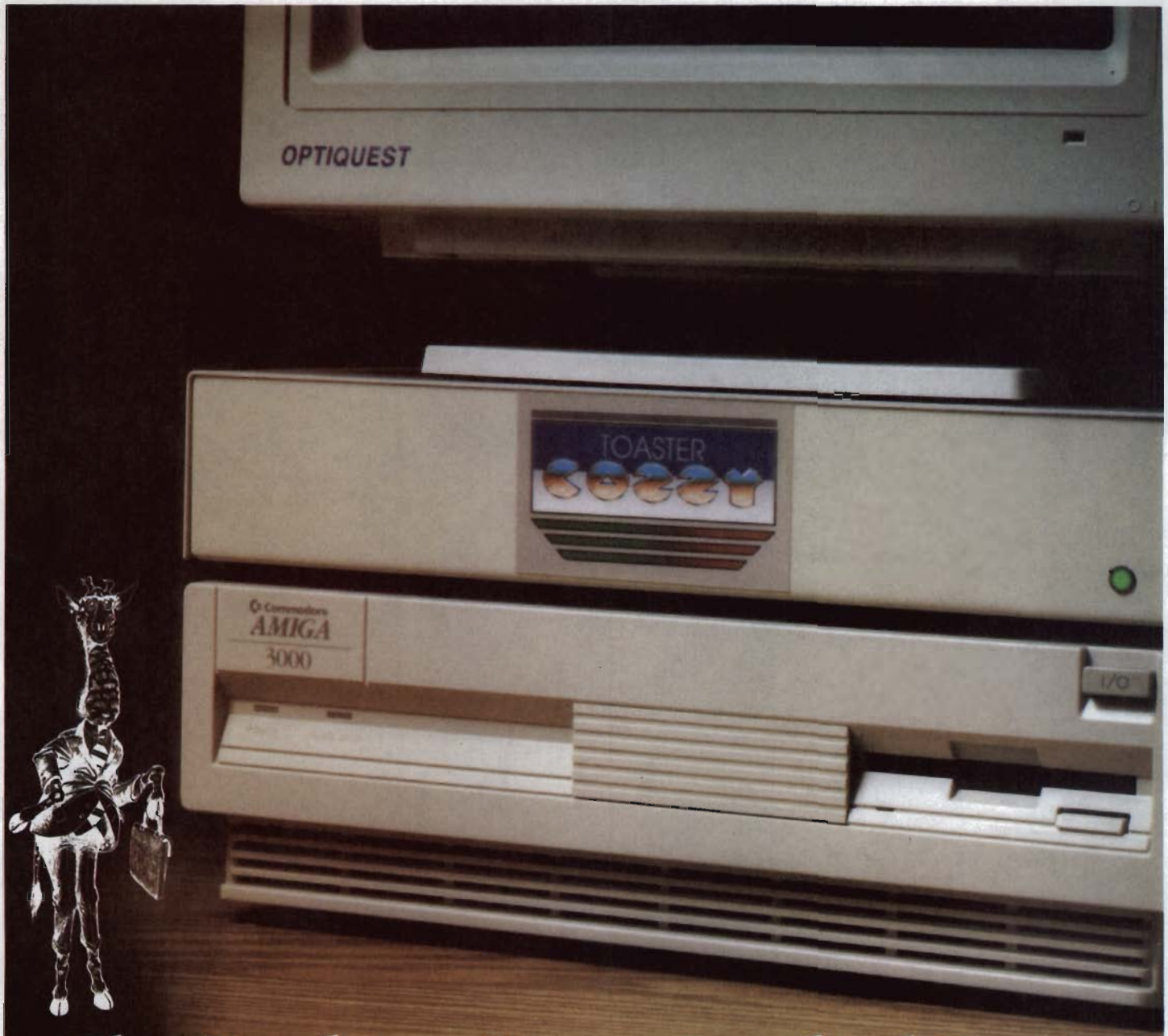

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About the Cover

The cover art was created by Paul Safr creative director of MEDIA Innovations, with Caligari24, the new 3D modeling, rendering and animation program from Octree Software. It is entitled *Cybernetic Assassin*, and took about three hours to render as a 2,048 x 2,048-pixel image on an Amiga 2000 equipped with a 68040 accelerator and 12 megabytes of RAM. Final cropping, file conversion, alteration of aspect ratio and touch-up was done with ASDG's Art Department Professional. Paul used a DMI Resolver board to preview test renderings at 2048 x 2048 resolution on a Hitachi 21-inch flat screen monitor.

The scene contains over a quarter of a million polygons. The Assassin model was created using Caligari24's Free Form Deformation function. This works by forming a simple lattice around an object. By pulling and pushing the lattice points, you mold the underlying object like putty. It's an easy way to create organic shapes such as the Assassin's skull, jawbone, and breastbone. The program can also load and save objects from Imagine and LightWave 3D.

The project took over a month from start to finish. Other indispensable products used to complete the project were Giga-Mem from Innovatronics, DCTV Paint from Digital Creations, Pixel 3D Pro from Axiom Software, Imagemaster from Black Belt Systems, and ARexx. The same image was rendered at 6,000 x 4,500 resolution for a poster. Also, as the Assassin model is fully articulated, there will be an animation using it as soon as Paul finds the time.

Paul Safr
VP/Creative Director
MEDIA Innovations
644 1/2 Richmond St.
London, Ontario
Canada N6A 2G6
(519) 434-3210

InterChange Plus - How to get from Here to There.

Syndesis Corporation announces the release of InterChange Plus version 2.0, the latest version of its essential system for translating objects between 3D modeling programs.

InterChange Plus includes Converters for LightWave objects and scenes, Imagine, Turbo Silver 2.0 and 3.0 objects (including Terrain landscapes), VideoScape 1.0 and 2.0 ASCII and binary objects, Sculpt 3D and 4D scenes and scripts, PAGErender objects, Vista DEM landscapes, Atari ST CAD-3D models, structured drawing formats such as Professional Draw, Aegis Draw, and ImageMaster ISH custom shapes. Most Converters both import and export.

Now it's easy to move objects between Imagine and LightWave. Convert a multi-object, hierarchical Imagine object into a LightWave scene for Toasting. Turn LightWave scenes into Imagine objects for raytracing. Each LightWave object becomes a sub-object in Imagine, linked properly to its parent and children. All geometry moves easily between both programs, including lone points and edges, polygons and triangles. All surfaces and textures are translated with great accuracy, including RGB color, reflected and transmitted color, smoothing, specularity, glossiness, refraction and surface names. InterChange automatically generates accurate surface names such as "ROOF: light red" from Imagine triangle colors. LightWave surfaces become Imagine "subgroups," making it easy to select and adjust similar triangles within Imagine objects.

InterChange Plus includes the InterFont Converter, a program that makes it easy to generate 3D text objects. InterFont uses outline-based fonts to make 3D objects, automatically generating precisely aligned text in the size and justification you want. Choose from one of 23 InterFonts, enter the text you want, set its height, curve smoothness, extrusion depth, and destination file format. Click a button and InterChange creates a ready-to-use 3D text object. No more auto-tracing or aligning pre-made letters!

It doesn't stop there. InterChange Plus also includes Tools for manipulating and adjusting 3D models, including a Scale Tool for precisely sizing objects, a GridSnap Tool for re-aligning the points of an object, and a Point Reduce Tool to remove excess points from an object. InterChange makes it easy to batch-convert dozens of files at once, too, even if they're in different formats. The new Surface Converter makes it easy to extract and alter surface attributes from one object and map them to another. The Statistics Converter translates any object to a readable text file for detailed study.

All the limits are gone. Automatically convert objects with endless numbers of points, edges and faces. InterChange uses less memory to convert an object than it takes to render it. It uses your numeric co-processor and runs under AmigaDOS 1.3, 2.0 and 3.0.

Syndesis also sells Converters for AutoCAD DXF, 3D Studio, Wavefront .obj, and Digital Arts .AOB objects, with more formats to come in the future. Are you curious about converting AutoCAD DXF objects? For $10, we'll send you the manual for the DXF Converter manual plus an article that describes some of the ups and downs of converting DXF drawings. It's refundable if you buy the DXF Converter.

Can you depend on InterChange Plus? Is it a professional product? NewTek, Inc. chose Syndesis Corporation's products to be part of the Toaster 2.0 system. LightWave now loads AutoCAD DXF, Wavefront .obj, Swivel 3D and 3D Studio objects because of Syndesis conversion technology. InterChange Plus is the perfect complement to LightWave and Modeler, making it possible to import *and export* objects in other formats from clients, friends, or add-on 3D object collections.

InterChange Plus retails for $99.95. Mention this ad, and you can get it direct from Syndesis for just $69.95. Upgrades are just $50. For more information, write Syndesis, N9353 Benson Road, Brooklyn, WI 53521, or call (608) 455-1422, or fax (608) 455-1317. VISA and Mastercard accepted. International orders welcome. Dealer and distributor inquires are welcome, too.

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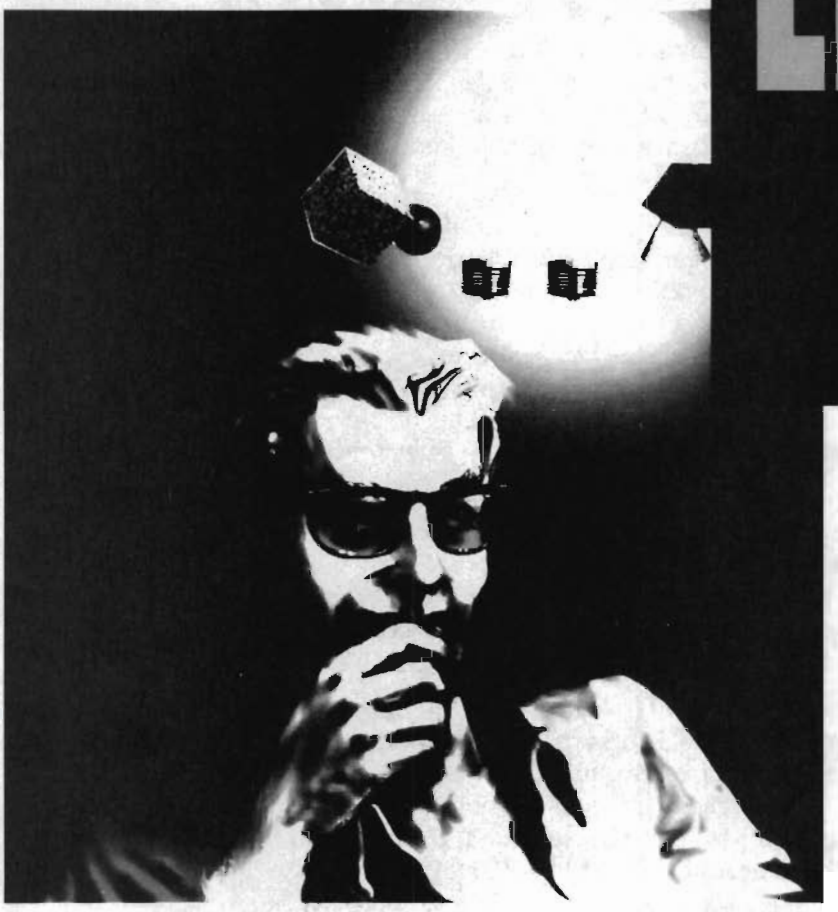
Lighten Up



Techniques for LightWave 3D Users

Welcome one and all to this, the latest and greatest edition of Lighten Up. Plenty of exciting news this month, so let's get right into it.

First, did everybody see the segment about NewTek on The Discovery Channel's Inventions program? It ran on the 17th of November and gave some insight into the minds behind the Toaster. Of course, the most interesting part for me was the animation that led up to the segment.

Imagine, if you will, an old metal toaster, smudged with fingerprints and the wear and tear of time. Now, imagine this toaster coming to life, popping up toast and jumping around. All of this happens in one of the most realistic renderings I've ever seen come out of LightWave. A little bird told me that Nutopia performed this feat with that new super-duper version of LightWave that we've been hearing rumors about.

Now then, into LightWave. I've learned some important lessons in the last few months which can dramatically improve the look of your animations. Let's start with lights.

White Light Or No White Light?

Have you ever noticed that lights are rarely true white? LightWave defaults all lights to a color value of 255,255,255, or full white. When rendered, scenes often look very good with these settings, but try dimming them all down to a slight amber color (around 255,220,190.) This gives the scene a more natural look that can really surprise you.

Are you looking for a place to buy really high quality objects for use with LightWave? Give ViewPoint Animation Engineering a call and they'll send you a beautiful catalog containing literally hundreds of great objects. This place isn't just a Toaster start-up company—they've been making objects for the big boys like WaveFront, Symbolics, and others for a long time. If you haven't caught on yet, think about the fact that you can buy wavefront quality objects and use them in your Toaster! Of course, everything has its price and that price usually ain't cheap. The Honda Accord object shown in Figure 1 runs $500 for the exterior alone, or $800 with interior. Also, ViewPoint sells objects in a number of resolutions. This Accord is in Hi Res (21,955 points/20,082 polygons), but the objects that ViewPoint donated to the Toaster 2.0 software (Galleon, Porsche, Mozart, and Mack Truck) are Low and Medium Res. Don't let those objects stop you from calling for the catalog, however, because they are not up to ViewPoint's best quality. Plus, ViewPoint

digitizes real-world items using a proprietary 3D digitizing system, so they can make them as detailed as you want (for a fee).

The only real problem I found with the ViewPoint objects was the fact that they weren't set with pivot points for the wheels, doors, etc. and all of the surfaces are given unusual default colors. According to ViewPoint, that's due to a flaw in their conversion software that they are looking into.

Nothing's Perfect, Thanks!

If you've ever looked closely at items around you in your everyday life, you've probably noticed that they usually aren't perfectly clean very often. In almost all of the LightWave animations I've seen, things are. Now this isn't bad (heaven forbid something shouldn't be clean!), but doesn't help the realism of the scene. Use Fractal Noise Diffusion Maps to add scuff marks to your items. Both the roadway and the land around it in Figure 1 were created with this technique.

Jaegersoft, makers of the Amiga game Fighter Duel, have come up with a whole new reason to play the game. While you fly your fighter around the screen at 30 frames per second, the program can save a LightWave motion path of your flight. Since the game takes into account things like gravity, you'll get that feel in the motion path when you apply it to an object, camera, or light. Interactive, real-time motion creation—what's next?

Do you record animations to your hard drive? How are you re-displaying them when you go to tape? Did you know that you can have LightWave handle the whole process for that, too? Once your animation is saved as a numbered sequence of images or Framestores, clear the Scene and use Load Sequence from the Images area to select the name of on of them (Remember not to include any of the frame numbers in the requestor!). Next, put the sequence into the Background Image, set the appropriate number of frames in Scene, set up to record, and render. LightWave will load and display each image, and cue the VTR after each one. On my 28Mhz 68040 system this takes about three or four seconds per frame to load and display. Just another reminder that you can do a lot of stuff in LightWave.

When you're modeling an object to scale, the first thing you should do is generate a box on layer 1 that describes the volume of your object. Once you've done that, begin working on layer 2 to build your object with a layer one background showing rough proportions. Save this box when you are finished and use it as a quick re-drawing "stand-in" for the real object when setting up a scene.

I had a question come in recently that interested me. David Thompson of Don Brown Productions in Orange, Ca. was working on a scene involving a street. His problem was how to make the road look...well, like a road. The strip of road you'll find in the Landscape objects directory will work just fine, in fact that's the one I used in the picture. Change the surface defining the pavement (RoadPavement) to include a Fractal Bump Map. Set the Texture Size to .1,.1,.1, and the Amplitude to 75%. This will give the blacktop a nice bumpy look. Next, add the oil streaks with a Fractal Diffusion Map. Set the Texture Size to .4, 1, .4, Texture Value to 50%, and Contrast at .8. Finally, a Fractal Specularity Map with a Texture Size of .15, .15, .15, Texture Value of 30%, and Contrast at .5. Make sure to apply these three maps to the road stripes as well.

Figure 1

Lots of new products have arrived here at Mach U., but I haven't had a chance to look at them yet. We're finishing the online editing for Taming The Wave: Exploring NewTek's LightWave 3D which should be on the shelves by the time you read this. For the curious, the training package met with a delay when we decided to add another half-hour to the program, and a second exclusive Broadcast Font 3D, and more. Plus, special thanks to all of you who pre-ordered and have waited patiently. I'm sure you'll agree it's worth the wait. By the way, with these changes, the suggested retail has gone from $99.95 to $119.95, so you got a good deal if you pre-paid.

At any rate, future installments of this column should find coverage of the following: ASDG's Morph Plus, Mannikin Sceptre Graphics' TexTiles, Pop Arts' 3D Fonts, MasterPiece 3D Fonts, Virtual Reality Labs' VistaPro, New Horizons' ProWrite 3.3, and the list goes on and on. I've said it before and I'll say it again—it's tough to keep up with this exploding market!

Well, that about wraps it up for this installment of Lighten Up! If you have any hints, tips, comments, suggestions, etc., or would like to see your product covered here, please contact me at the Gun for Hire address below.

One last piece of advice: Don't ever give up experimenting with areas of LightWave that you don't understand. Just recently I have found areas of LightWave I was never much interested in, but that lent my work a whole new level of professionalism. The concepts that you read about in this and other columns like it should only be taken as something to get your creative process started. There are a world of possibilities within the current version of LightWave that haven't even been explored. Good luck, and write!

Contact Information:
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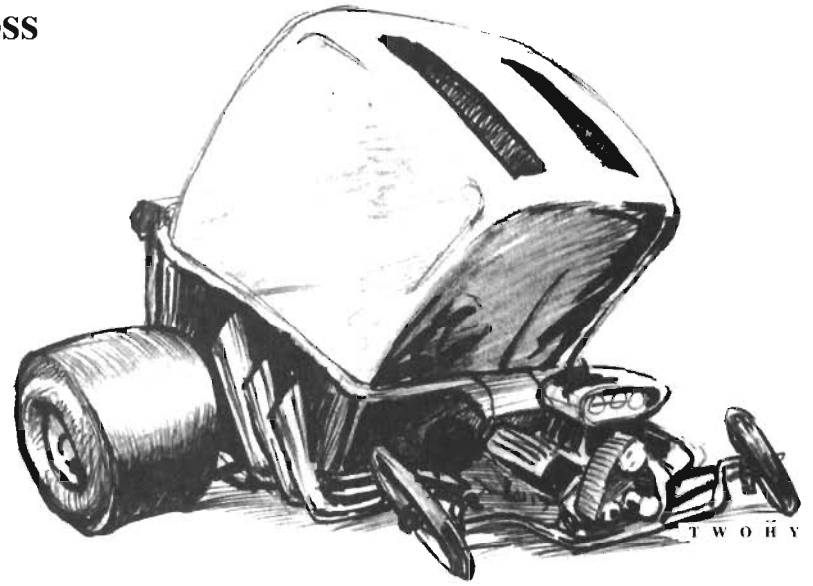
Toaster Tricks



Welcome back to Toaster Tricks. This month we'll take a close look at creating more complex motion in LightWave with spline controls. In the original LightWave, there was no easy way of making an object speed up or slow down. You had to change the number of frames between keys or perform other tricks which didn't always look quite the way you might like. With the release of LightWave 2.0, we were introduced to spline controls. Actually, LightWave has been using splines since its introduction, but we never had a way to control them. Spline controls open up a new way of changing object motion.

So, what exactly is a spline, one may ask. Simply, a spline is a curve. In LightWave, items travel along curved line paths between key frames, as opposed to straight line paths (also known as linear paths). If you have an object starting at the twelve o'clock position on a clock and four more key frames at three, six, nine, and back at twelve o'clock, the object will travel around the clock in a slightly circular path by default. Changing the key frames to linear spline movements will cause the object to travel in straight lines from one key to another.

There are three different types of spline controls. To explain how each of these controls work, we'll perform an animation experiment. Enter Modeler and create two objects: a sphere with a radius of one meter (center at 0,0,0) and one-meter cubic box (center also at 0,0,0). The sphere will be our spline "guinea pig" and the cube will be our control subject (no splines). Save these two objects into your Objects directory and then go back to LightWave. Don't worry about surface names, as we won't be using any.

Back in LightWave, clear the current scene if necessary, then load the two objects. Once the objects are loaded, enter Layout.

The objects should be located at the center of the grid. Choose camera view (F5). Select camera as the current item and move it to 0x, 2y, -7z. It's easiest to choose numeric input and type these values in. After moving the camera, the grid and the objects should be at the bottom of the Layout window. Make sure the camera is still the selected item and create a key at Frame 0. This and all other key frames should be made for the selected item only.

We are going to create a short 30-frame animation of the sphere bouncing off of the grid. Make sure you are on Frame 0 and select the sphere as your current item. Select Move and then Numeric Input (n). Move the sphere to -3x, 4y, 0z. Once moved, the sphere should be in the upper left corner of the screen. Create a key for the sphere at Frame 0.

Click on the Go To Frame button (g) and type in 15. The sphere should still be in the upper left. Make sure your sphere is still the currently selected item and click on the Reset button. This will put the sphere back in the center of the grid. Once the sphere is back at 0, 0, 0, create a key frame for it.

Hit the g key to bring up the Go To Frame requester again and type in 30. Now move the sphere to 3x, 4y, 0z. This will move the sphere to the upper right hand corner. Create a key for the sphere here.

If you now click on the Next Key button to cycle through the key frames for the sphere, you should have keys at frames 0, 15 and 30.

Exit Layout and save this scene as SplineTest. Now, in order to apply the exact same motion path to the cube, enter the Objects panel and select the sphere as your current object. When you have the sphere selected, click on the Object Motion button. Once inside the motion panel for the sphere, click on the Save Motion button and give the motion a name such as SpherePath. Click on the Use Motion button at the bottom of the screen to exit this panel.

Now select the cube as the current object in the Objects panel and enter the Object Motion requester for this object. Click on Load Motion and load the sphere motion you just saved. Clicking on the Use Motion button applies the exact same motion to the cube.

Reenter Layout and you will see that the cube is right on top of the sphere. Click on the Make Preview button to make a wire frame preview of this animation. When you play the preview back, you will see that the sphere and the cube both move exactly the same through the key frames.

Now, let's talk about the spline controls. First, the basics:

1. You can only access the spline control button (bottom right of Layout screen) when you are on a current key frame for an item (all items; camera, lights and objects, can have spline controls).
2. All spline control values range from a low value of -1.0 to a high value of +1.0. Any values between these endpoints are acceptable.

Let's deal with one control at a time:

Tension

Tension is used for slowing down or speeding up an item along its path. This is also known as ease in/ease out. It helps to think of tension as a large spring. When your hands are on each side of the spring pushing in to compress it, you are creating tension within the spring. The more you push, the more tension the spring has and the slower your hands move. This is high (above 0) tension. Whenever a key frame has a high value for tension, the item slows down as it approaches that key. Low (below 0) tension causes an item to speed up as it approaches the key frame. With no tension at key frames, items move along their motion paths with constant speed. You generally use a high tension value for the beginning and ending frames for a logo. This will cause the logo to start moving slowly then speed up and finally slow down as it parks in its final spot. Without using tension controls, your logos will slam into place unnaturally.

Press the g key and go to frame number 15. Make sure the sphere is the currently selected item and then click on the Spline Con(trol) button. Type in 1 for the Tension setting and leave the other two alone. Remake the preview.

When you play the preview, notice how the sphere moves along a different spline path than the cube. Also notice that at frame 15, the two objects are still at the same place. This tells you that the actual positions at the key frames never change by changing the spline controls. Only the curved paths that the objects take to get to the keys are affected. It helps if you click through the frames one at a time to see how the spline path has been changed. With a high tension, you can see how the sphere goes through the key frame slower than the cube and just the opposite with a low tension.

Continuity

Continuity determines how continuous the motion of an item is. If you drop a rubber ball onto a hardwood floor, it will bounce back quickly when it hits. This is a sharp change of motion. LightWave would see this as a low or negative continuity value. If you use a high (between 0 and 1.0) continuity, the item's motion becomes "too" continuous and it will appear as if the item is riding a roller coaster at the key frame with the high continuity value (try it!). In almost all cases, you will want to use negative continuity values to provide sharp changes in motion. If you want your ball to bounce back quickly when it hits the floor, you would want to set a negative tension value and a negative continuity value for your "bounce" frame.

Again at frame 15, change your tension for the sphere back to 0 and make continuity equal to -1. When you make this preview, notice how the sphere seems to bounce off of the grid. This is a sharp change of motion. Also notice what happens when you make the tension value negative at this point as well. Making the continuity equal to 1 will cause the 'roller coaster' effect mentioned above.

Bias

When you are biased you are for or against something—you lean towards one side or another. This is also what it means to use the bias spline control in LightWave. If you use a low (negative) bias, the motion peaks before it gets to the key frame with the negative bias value. Using a high (positive) bias will cause the motion to peak after the key frame. You'll notice that the key frame positions never change, just the curved motion path between them. A negative bias at a key frame will create more "slack" in the motion path coming into that key, whereas a positive bias creates more slack outgoing.

Get back to frame 15 and change tension and continuity to 0 and type in -1 for bias. When you make and play the preview, notice how the sphere "peaks" before frame 15.

Other spline notes:

1. The s key on the keyboard will access the spline controls panel.
2. You do not need to create a key frame after inputting spline values. LightWave will remember what they are.
3. If you have spline values entered for a certain key frame and then you later create a key before this one, you will lose the spline values that were previously entered.

Grid Size

Have you ever had a few objects loaded into LightWave and you try moving one and it seems to just fly off the screen? Well, that's exactly what is happening. The problem here is that you have objects that are very different in size. LightWave's grid always sizes itself to accommodate the largest object in your scene when you first load objects.

Try loading the DC10 (in the Aviation drawer) and the computer chip (found in the Computer drawer) into a fresh scene. If you go into Layout and check the grid size, you will see that each grid square is 20 meters. Go into the top (XZ) view and select the computer chip as your current item. See that little white speck? That's your chip. Zoom in by pressing the period key about 20 times. Now when you try to move the chip slightly it will fly right off the screen. Any time you move an item in layout, the movement snaps to 1/100 of the grid. In the case of this scene, the chip moves in increments of .20 meters (1/100th of 20m). In order to move it along smaller units, you need to either move it numerically or resize the grid to a smaller size. When you resize the grid down, the objects appear to be getting bigger (if you are looking at them from any view except camera). Actually, you are just zooming in closer to the objects. If you look at things from the camera point of view, you will notice the view is the same but the grid is smaller (makes sense, doesn't it?). Now with a smaller grid size, it's easy to move smaller objects without having them fly out of view.

If you now try moving the DC10, however, you will quickly notice what's going on. Since you snap to 1/100th increments of the grid size, moving large objects to a small grid quickly becomes tedious. All you need to do is change your grid size again.

You may have also noticed that changing the grid size also changes the relative size of the camera and lights in your scene. Looking at a small object on a large grid may make the object appear to be "inside" the camera. It's not really. The lens of LightWave's camera is not really at the end of what appears to be the lens sticking out from the front, it's actually at the center point. It is the same point that the camera pivots around when you rotate it.

Modeler

The other day I was talking to a friend who has been using Imagine for modeling objects. He was a little confused about the center of rotation of objects modeled in Modeler. As I was explaining it to him he asked me why it wasn't in the manual. A quick check of the manual for Modeler revealed that he was absolutely right! There isn't any mention of how to define the center of rotation of an object in the manual. So, here's how to do it:

The center of rotation (or pivot point) of an object is determined by the black crosshairs that are in the center of every view when you first enter Modeler. To change the point

about which an object rotates, simply move the object (in all views) so it is lined up the way you want it in relation to the black crosshairs. For instance, in order to have the apple object (found in the Food directory) rotate about its center, move it so the black crosshairs are in the middle of the object from all three views. Saving the object this way will assure that the pivot point is in the center. When you first load an object into LightWave, the pivot point of the object loads at the center of the grid (0,0,0). In the case of our newly saved apple, it would appear half above and half below the grid. If you load the original apple object, you'll notice that it loads on top of the grid. If you rotate this apple, however, it rotates around the bottom of the apple.

In case you're starting to think I should change the name of this column to LightWave Tricks, I'll talk about some other parts of the Toaster:

CG

This trick comes from Jim Norris at Alpha Video. He had some CG text that contained mathematical equations and needed to use subscript and superscript letters. Here's how he did it: He first went into CG and created the text without the subscripts. After rendering the page to the preview buffer (F9), he entered ToasterPaint and grabbed the image out of the buffer (from the Preferences menu). After the image was loaded, he then returned to the Switcher (leaving Paint in memory) and reentered CG. It was then a simple matter to create a framestore page using the image loaded in Paint as the background. Going into two-monitor mode from CG (Alt-Help) allowed him to see the CG interface over the preview output and place his sub/superscripts exactly where he needed them.

ToasterPaint

Here's a great way of quickly creating 3D-looking boxes or frames: Go into range mode and set up a nice range of colors (I prefer a light and a dark version of the same color). Make sure that the lighter color is in the left range box and the darker color is in the right range box. Use the point hotspot and move it into the upper left hand corner of the hotspot area. Draw out a solid rectangle and make sure that the light color is in the upper left. Now move the point hotspot to the lower right corner of the hotspot selector and draw another rectangle completely inside the first (make sure it's smaller than the first one!). You will now see what appears to be a 3-dimensional frame. If you move the hotspot back to the upper left and draw a third rectangle (again inside the second) you can finish off your "frame" with a nice inside panel.

That's all for this month, join me next time for more Toaster Tricks...

John Gross is a Video Toaster graphic artist employed by Alpha Video in Minneapolis, MN.

Tips, tricks techniques and questions can be sent to

John Gross
Alpha Video
7836 2nd Avenue South
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Digital Creativity

Digital Creations, a company made famous by both the Supergen Genlock and DCTV, is about to surpass its own efforts yet again. The scheduled January release of their paint program Brilliance will hail a new era in Amiga graphics, painting, and animation. Brilliance will support all of the new enhanced features of the A-4000 series and beyond. One of Digital Creations' primary goals in getting into the Amiga paint wars was to produce a feature-laden paint and animation program that would be faster then any other similar Amiga software. I am going to get an early copy for review purposes, so I'll be able to tell you what I think very soon.

The Essence Of It All

Steve Worley's Essence software arrived the other day. Essence is a utility that allows Imagine and Turbo Silver users the opportunity to create a whole library of original algorithmic textures and bump maps. We all know Steve as one of the most creative artists and animators on Impulse's Imagine. This module adds over 65 new effects to the Imagine texture libraries, of which the most fascinating are:

Counter: a way to add an animated numerical LCD counter (speedometer, timer, etc.) to your animation.

Fractal Noise: produces many animated organic looks.

Swirl: a spiral-based surface map that can be wrapped.

Veined Marble

Contact Steve at Apex Software Publishing, 405 El Camino Real Suite 121, Menlo Park, CA 94025 or call 415-322-7532.

DEVCON

The next Amiga developers' conference will take place in Orlando, Florida from January 26th to 30th, 1993. Developers from around the world will be there. Some of the sessions will include introducing the 3.0 software, the 68040/68060, developer's showcase, best software/hardware certificates for 1992 and more. Call (407) 351-2420 for more info on attendance and costs.

Books

The new KIPI (Knowledge Industry Publications, Incorporated) technology bookshelf has been released for the Fall of 1992. Books include a long list of titles very useful to creative Amiga video people, including: Audio Post-Production, Corporate Video, Interactive Multi-Media Design, Video Editing and Post Production, Mastering Television Technology, and many more selections. Call them at 1-800-800-5474 or send a fax to (914) 328-9093 for details on purchasing titles.

Playmation

If you've heard of this new animation package and think it is being developed by some new-to-the-world team of programmers, think again. Playmation is a vigorously upgraded version of Animation: Journeyman from Martin Hash. Journeyman is actually being discontinued along with all of the other Hash Amiga utilities. All energies are now redirected to Playmation. The story behind the name change is that the Will Vinton Studio (California Raisin Claymation) people saw Journeyman running at a show and fell in commercial love with it, allowing Mr. Hash to use their prestigious name in the upgrading venture. Anjon & Associates is the marketing arm, and can answer your inquiries about up-

grading and so on. The word is that the rendering engine is many times faster than the Journeyman version, and a host of other features have been added. Playmation is not an Amiga-exclusive product, but runs identically on all three major platforms: Amiga, IBM, and Apple Macintosh. The files are all the same, so that using any or all of these platforms in your animation work is encouraged when necessary. There is also a rumor that this software may become the front end of the famous Pixar Renderman software in the future. You must have a hard drive, a minimum of five megs of RAM, and a turbo machine to play with Playmation. I hope to be receiving a copy in short order, and will keep you informed. Contact Anjon & Associates at (800) 377-8287.

Looking For A Helper?

This message goes out to any Amiga developers seeking some qualified programming help. I recently received a letter from Boyd Edmondson, a December '92 graduate of SouthWest Texas University in the math and computer science program. His credentials include writing in C, Pascal, basic and Assembly, and he is a certified Commodore developer (the owner of Nebula Software). He maintains membership in a long list of academic honor societies. This looks like a person worth keeping in the Amiga creative environment. Interested parties may contact him at (512) 326-2162.

Toasty

Ken Byrd of Byrd's Eye Software is just about ready to release the updated version of his ToastMaster series of products in a new package called ToasterVision. ToasterVision will include both Toastmaster and the new WipeMaster modules. There will be an onboard Toaster Framestore compressor that is up to 1000% faster then the present version. Sequencing capabilities are offered, as well as the possibility of designing and using 16-color Toaster wipes! It also saves 256-gray level pictures, making it compatible with the new Amiga 4000 series. Other enhancements and additions abound.

ProFills

Volume 2 is out and worth investigating. ProFills is a utility that lets you design and create amazing background screens and textures at the click of a button. The package from JEK Graphics sports one of the nicest interface screens around; real eye candy to play with. The idea behind ProFills is to fill the screen with high quality textures that can be used as either background screens or as texture wraps. All that is stored in the library are tiny brushes, carefully designed to fit together seamlessly when tiled on a screen. You can use the nicely designed library of brushes that come with the package or create your own from scratch. There are gadgets for every resolution and size needed, and even a separate gadget to toggle on a special "match" mode which allows for the generation of perfect left/right top/down tiling for wraps. This package produces such high-quality results and is priced so low ($49.95) that I recommend that all Amiga artists/animators/videographers invest in it. (JEK Graphics, 12103 S. Brookhurst, Suite E-125, garden Grove, CA 92642-3065 714-530-7603).

Aladdin 4D

Aladdin 4D, the brand new upgrade to what was Draw-4D Pro from Adspec Programming, is shipping. The manual is as great as the software offering clear examples of the almost infinite Aladdin 4D options. Adspec's marketing strategy is targeted straight at owners of other Amiga 3D/4D software as well as at new users. The package sells for $499.00 for first time users. D4D-Pro owners can upgrade for only $99.00 and D4D owners for $169.00. If you want to send Adspec a photocopy of your manual cover or original disk from another Amiga 3D/4D product, you can get this software for $219.00. Add $4.50 S&H to all orders. For info call Adspec at (216) 337-1329. Also get on their mailing list and subscribe to their wonderful disks-included newsletter. I have made no secret of my admiration for this product for Amiga video professionals and 3D hobbyists alike.

Morphologism

ASDG has just released its superlative MorphPlus software. It seems that morphing has become the latest buzz word in Amiga computer circles. MorphPlus is an easy-to-use example of what the Amiga does best, and is produced by one of the best developers around as far as quality and service. It sells for $295.00, but ADPro owners can get it for $140.00. You've gotta have WorkBench 2.0 for this one. Those still using WorkBench 1.3 and lower DOS software should probably upgrade as soon as possible anyway, because the future is going to require at least that. Since the latest ADPro software has had the new Amiga graphics modes for some time, they are positioned very nicely for the A-4000 series of computers. Just to point this out, they have coined the term "retroactive upgrade." Speak with Gina Cerniglia at ASDG (608-273-6585) for more info.

A Nice Time-Saving Product

John Rogers of Mediascape in California has a great utility product for saving video folks time on Deluxe Paint IV animation projects. For $49.95, he'll send you his Flight Paths software on three disks (including a set of color fonts). Flight Paths provides DPaint IV Amiga animators with instant Move requester paths, many that you haven't seen before. You just plug in your logo and off you go. Call 916-339-1984 for more info.

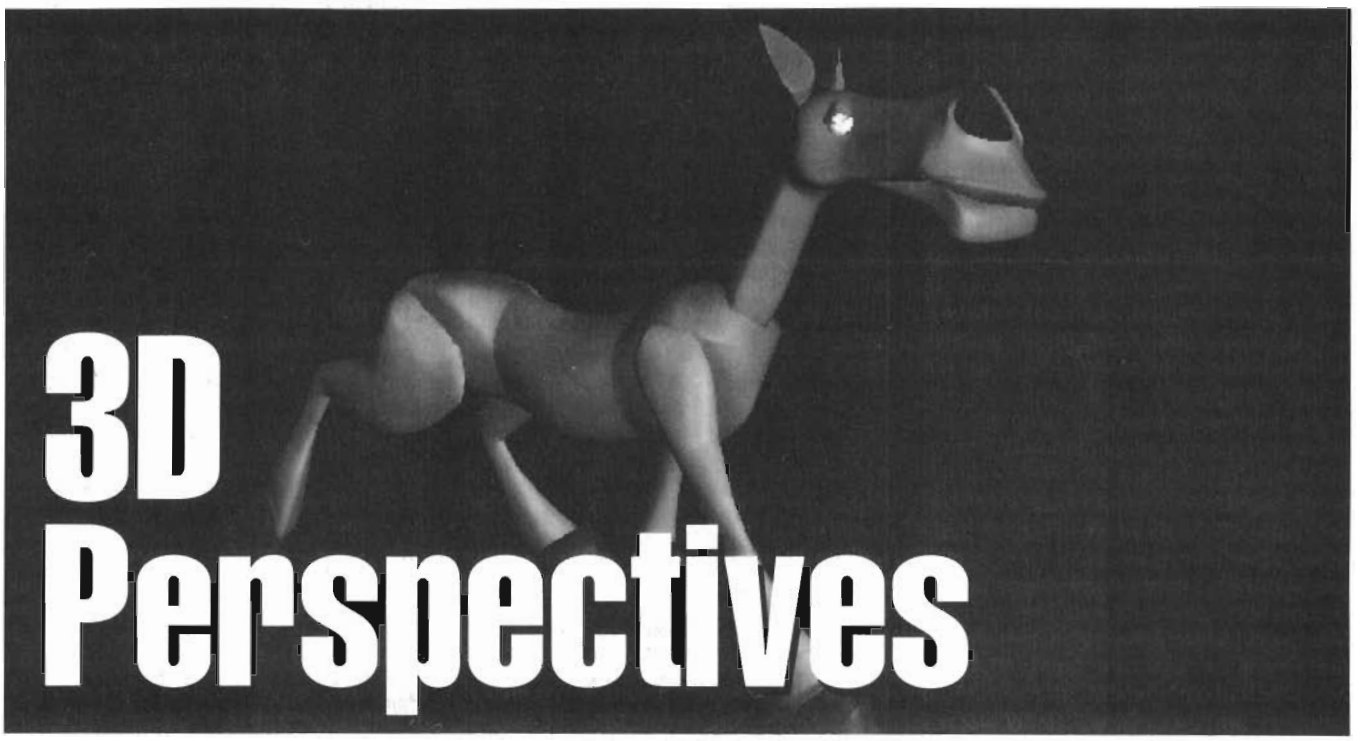
Where Are They Now?

The Amiga graphics/animation market is pretty fat. There are a lot of software packages out there that make the Amiga the artist's and animator's choice, but there is a sad vacancy. About four years ago a Canadian company called MindWare released a beautiful piece of software called PAGErender 3D. It had some wonderful tools that no other package before or since has been able to incorporate, such as spherical and tetrahedral coordinate systems, object arrays, easy-to-use twist and bend functions, and much more. One day they just disappeared—poof!—without a trace. Not only were they superlative Amiga developers, but true caregivers in the community. Where are they? Can they be invited back? I can just imagine what their software would be like now, writing to DCTV and all of the 24-bit hardware, not to mention the new 4000s. If they read this, I want to personally ask them to return and upgrade their marvelous PAGErender 3D software for the millennium. If anyone knows how I might contact them, or one of their captains, Bob Maludzinski, please let me know. Their work would fit right into where the Amiga is headed.

The Future as History

It looks like digital television, video compression techniques, and a host of other technical advances in the world of broadcast video may make their first appearances in the near future at PBS stations. Compression schemes of 5:1 could open up the airways to a super glut of new offerings. One we should definitely lobby for is a 24-hour Amiga channel. Can you imagine it?

Well, that's all for now. Next month I hope to list a number of shareware disks that Amiga video artist/animators will find useful in their work. Until then, ENJOY! See you in ROMulan space.



3D Perspectives

Welcome back to the monthly column on all things three-dimensional for the Amiga. We've got a range of topics to cover this time, from the great new character-animation program Playmation, to InterChange Plus, to a preview of Caligari 24, a couple of public-domain goodies, a mini-tutorial, and more. Let's go!

Playmation

I've been spending more and more time with Playmation from Anjon & Associates lately—in fact, it's rendering in the background as I type this—but I've yet to experience a tenth of this program's capabilities. As with all software of such extreme depth, there's a sharp learning curve, and time constraints prevent me from becoming familiar with it more quickly.

Playmation is the result literally of years of programming by one Martin Hash, previously responsible for the Animation: Apprentice and Animation: Journeyman and related products for Amiga computers. There's also a version for Microsoft Windows, and files are mostly compatible. Playmation consists of five programs; Sculpture, Character, Action, Direction, and Render, plus a Display program for playing back HAM animations created by Render in the custom Hash format. All these multitask together well, although there's no provision for transferring data directly without the use of disk files. Also, there are no front/back gadgets, so you must use the keyboard to switch between screens.

For those familiar with Imagine, Sculpture is like the Detail editor in that it lets you build and alter shapes. Character replicates the Detail editor's surface editing and hierarchical structuring capabilities. Action, used to edit three different types of character animation, is most like Imagine's Cycle Editor, although far more powerful. Direction is similar to the Stage editor where scenes are built, and Render, a true ray tracer, is analogous to the Project editor, though far less versatile.

Sculpture

Sculpture is where experienced hands at Amiga 3D modeling experience the first big culture shock. Instead of polygons, you have patches, which are three- or four-sided surfaces made by connecting splines. Splines are curved lines connecting two or more knots or vertices, each of which controls the curvature of the spline in its vicinity. The more knots in a spline, the curvier it can be. You're basically modeling with curves, which can be a real blast after being restricted to straight-edged polygons for years. The parts created here are called segments.

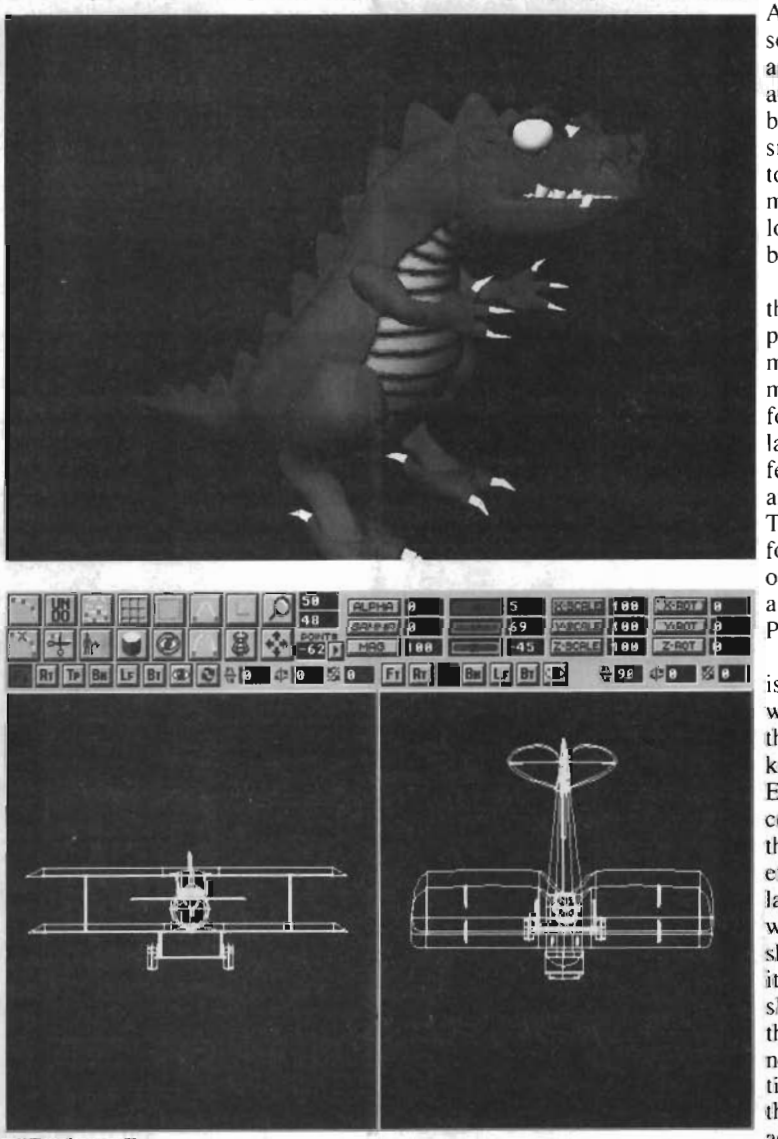
Most view and object manipulation controls are available from a panel across the top. Under this there are two windows side by side, showing your choice of a combination of wireframe views from the front, back, right, left, top, bottom, and a perspective view. You can build, connect, and manipulate splines by clicking and dragging. Similarly interactive is the method of adjusting each knot's curvature in three different settings; Alpha, Gamma, and Magnitude, roughly equivalent to LightWave's splines' Tension, Bias, and Continuity, although not necessarily in that order. Other functions let you group knots for interactive moving, scaling, and rotation. Other modeling functions include the usual Lathe and Extrude, plus Clone, Cut, Delete, and (thank you) Undo. If you need a sharp edge on your object, it's a button-click away. For those who require precision, there is an optional grid with optional grid snap.

Character

If you're building a human character, Sculpture is where you'd create the parts; head, arms, legs, feet, and so on. Character is where you'd put the segments together and define their surface characteristics. You know, the head bone's connected to the

neck bone, and so on. In fact, in Playmation's lingo, this structure is called a Skeleton! So it's all quite intuitive; you just load the parts in the parent-child order you desire, repositioning, resizing and re-orienting as you go. Segments are represented in Character's single window as bounding boxes by default, although each and all can be shown as wireframes and hidden as well. Selection and manipulation are accomplished via a point-and-click interface. If things get too hairy you can select parts by name via a cycling requester in the upper right corner, although with a lot of parts finding the right one could take a while.

Character's Attributes section lets you assign each segment a solid color, procedural texture, or texture maps in various ways. Interestingly enough, you can define ambient (general, directionless) light on a segment-by-segment basis. Other basic adjustable attributes for each segment include Transparency, Roughness, Specularity, Mirror, and Index of Refraction. Procedural textures, defined by equations built into the program modified by user-supplied variables, include Marble, Pebble, Wood, Cloudy, Eroded, the ever-popular Checker, Brick, Bozo, and more. External images in any IFF format, including 24-bit, can be applied as color maps, bump maps, transparency maps, diffuse maps, or specular maps. They can be applied flat, spherically, or cylindrically (no user size or position adjustment, although tiling is available). Environmental mapping, in which the object appears to be reflecting the image while moving through it, is available as an option with any of the wrapping methods.



"Sculpture"

Action

Action is the most complex of Playmation's modules, simply because it offers the greatest number of possibilities for character animation, or internal motion within a character. This is only fair, as realistic character animation is by no means a trivial procedure. Basically there are three different types of character animation in Playmation, all of which use keyframing for definition. In keyframing, the user sets the peaks of the action, determining in which frames they occur, and the program takes care of the motion during the in-between frames. For example, in a hand-shaking sequence, both characters first raise their hands by bending their arms at the elbow (keyframe), then extend them forward by rotating both the shoulder and elbow joints (keyframe), then pump by bending the elbow up and down (keyframe for up, keyframe for down, loop sequence). In Playmation, the three types of motions can be combined for truly complex and expressive character animation.

The above example would be accomplished in Action via skeletal motion, which is accomplished by scaling, rotating, and translating segments. During this, all of a parent object's children follow suit. For example, if a cartoon cat's head balloons outward and then flies upward following the explosion of a cigar supplied by a "friendly" cartoon mouse, all of its movable parts such as eyes, ears, nose, and so on, come along for the ride.

When Popeye flexes, we expect to see a mighty bulge pop out of his normally pipestem-like upper arm. This would be impossible to accomplish in Playmation with skeletal motion, so we would use muscle motion instead. Remember that object in Playmation are made of curved lines, which can be adjusted in many ways. Action lets you set up morph sequences of adjustments of an object's curves, so that creation of a bulging bicep, a breathing torso, or a curving smile become simplicity itself to create. Muscle and skeletal motion can be saved and loaded, and thus easily moved between characters.

Splines are also used in the third type of motion employed in Action, called spine motion. Any spline in a segment can be defined as a spine, following which any manipulation of the spine spline affects the entire segment and any of its skeletal children. This could be used to make, for example, a slithering snake, or a character with bendable arms like Gumby or the Pillsbury Dough Boy.

All motion in Playmation is controllable by channels, which are essentially splines that control aspects of the keyframe motion over time. Ease, or acceleration and deceleration, can be applied to the motion of splines, skeletons, muscles, and bias, the latter useful in rare instances when you want to change a shape's curvature rather than its position. For example, in skeletal and spline motion there are nine different channel splines, for position, rotation, and scaling on each of the three axes. Splines can be adjusted interactively in the channel window. This is a powerful but easy-to-use feature.

Direction

Once you've built your characters and determined their internal motions, you need to choreograph their motion through the scene, as well as set up lighting and lighting motion plus camera characteristics. Spline paths are used for all of these, and in all cases ease can can be applied via channel controls. Light types include distant, point, spot, and cone spot, all with or without shadows.

In typical use you add a spline of one or more points, adjust it if necessary, then while it's selected click on a button that sets it to be a character (a load requester appears), a light, the camera, or a light or

camera target. You can view the scene from any of the six sides, a perspective view, the camera, or even from a light's point of view. Setup is easy and intuitive.

Render

Once you've saved a choreography file from Direction, you're ready for the final product; a still or animation as created by the Render program. There are two ways to run Render. If you double-click on the WorkBench icon, you get a point-and-click interface that renders HAM 320 x 200 and 80 x 50 animations in the proprietary Hash animation format. Options include shadows and reflections (ray-tracing), antialiasing, ambient light, and a background or haze color. There's also a miniature sixteenth- size option, as well as the ability to set the start and end frames.

If you run Render from the Shell or CLI, you get the additional options of generating 24-bit frames at any size. For example, this command line:

```
Render -w736 -h482 -a
q -s1 -e3 chor:fish.cho
anim:testfish.iff
```

renders the first three frames of the fish choreography as 24-bit IFF antialiased DCTV-resolution files and saves them in the Anim: project folder. The frames are called testfish1.iff, testfish2.iff, and testfish3.iff.

Which brings up an interesting point. The assignments Chor: and Anim: are not made via AmigaDOS Assign commands, but in a special text file named Projects.hsh in the Playmation drawer. You can set up as many of these "projects" as you like, but Playmation won't let you use any file not contained in an assigned project location, and you can't refer to projects via AmigaDOS unless you make the same assignments independently with Assign.

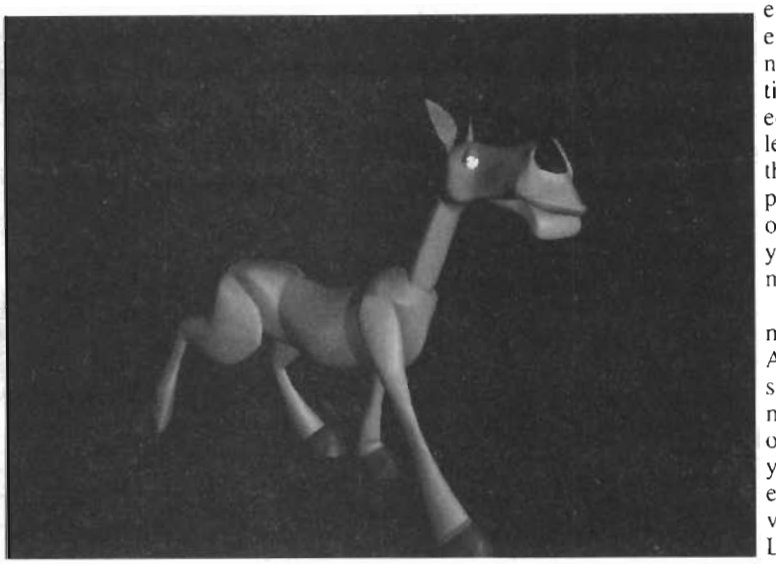
Conclusion

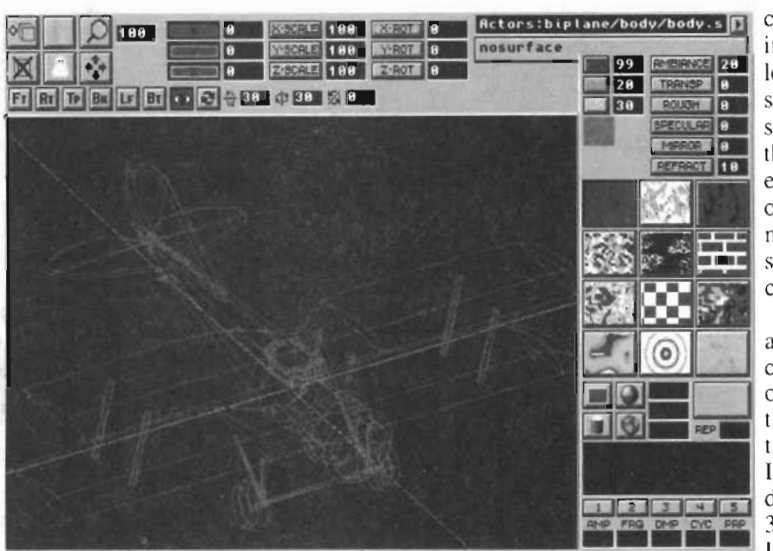
I've been pleased with the quality of the 24-bit rendering I've seen from Playmation so far, and I plan to create a good deal more of it in the months to come. There is the occasional rendering glitch, and the program could be faster, but overall the results look good. Look for Playmation tutorials coming soon in this column and possibly elsewhere in AVID. If you want to create character-oriented 3D animation with smooth curves, bright colors, and fluid motion, Playmation is the first program you should look at.

Anjon & Associates, 714 East Angeleno, Unit C, Burbank, CA 91501 (800) 377-8287

InterChange Plus

If your emphasis in videomaking is on 3D graphics, you probably know that the Amiga sports a fine variety of such applications, from stand-alone modeling programs to full-blown systems for modeling, rendering, and animation. You may also know that object formats for these programs are largely incompatible; for example, if you save an object from Imagine's modeler, you can't normally expect to be able to load it into, say, LightWave 3D. Similarly, although there are similar 3D programs on other platforms such as MS-DOS machines and Apple Macintosh, Amiga programs cannot normally use data from these programs and vice- versa.





"Character"

InterChange Plus is a single solution to a wide variety of data incompatibility problems imposed by this situation. In essence, it's a "de-Babelizer," allowing all supported 3D programs to "speak the same language" and thus exchange data easily with each other, bringing a higher level of civilization to the world of 3D software. The reason for its necessity is simple; no one program does everything. While one modeler might have a great magnet tool for gross manipulation of an object, its point-editing capabilities may be less desirable. If you can use the strengths of a variety of programs during the creation of objects, it stands to reason you'll be able to make better models.

InterChange Plus is a modular program, much like Art Department Professional. Although it can do many different things, you only need to load the parts you're going to use. For example, if you want to convert between Imagine and LightWave, you'd only load the program and those two conversion modules, making startup faster and using less memory. One IconX script which comes included starts up the program plus all the converters, and you can easily modify this to load only the converters you normally use. Another way to start InterChange Plus and converters is via ARexx.

InterChange Plus is really easy to use. Say you've come across a dusty old disk of Sculpt 3D objects and there're a few you want to try in Imagine. Just run InterChange Plus, then double-click on the Sculpt 3D and Imagine converters. In the InterChange Plus window, select Imagine as the output format, then use the file requester to find the object directory and double-click on each of the object files you want to convert. Then set the output directory, click on the Convert button and sit back and wait. The program prints messages telling you what's going on, but they usually fly by too quickly to read fully.

Other supported object formats are: LightWave object and scene, Turbo Silver, VideoScape, PAGErender, Professional Draw, Aegis Draw, and Interfont, a special 2D and 3D structured font object format created by Syndesis, including 20 fonts. You simply enter up to five lines of text from the keyboard, and the program converts it to 3D and extrudes it. There's also a

Surface converter, which eases transferring surface types between object formats, and a Statistics converter, which creates a text file listing an object's points, edges, and faces.

Imagine and LightWave are probably the most popular Amiga 3D programs. While both support structured (i.e. hierarchical) objects, the design approach varies so widely between the two that until now nobody has undertaken conversion of them. Suffice to say InterChange Plus does it, and does it well, converting between LightWave scene files and Imagine grouped objects, including creation of long descriptive surface names.

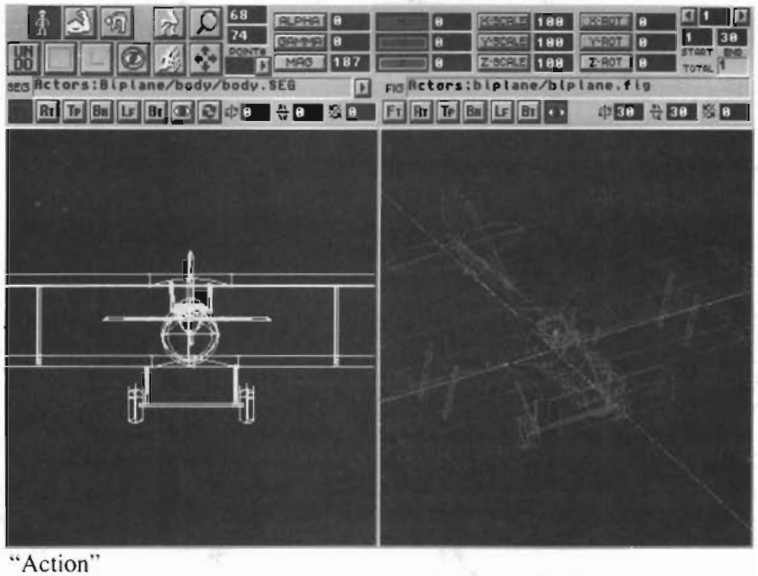
A useful converter for ImageMaster (Black Belt Systems) aficionados is the ISHAPE converter, which reads and writes the custom region files used for specially-shaped image-processing functions. Normally these must be created with a text editor, but now you can draw them with your 3D editor and convert them with InterChange Plus. Also included are converters that can read, but not write, Vista DEM (digital elevation map) landscape files and CAD-3D (Atari ST) files. In addition, there are tools used to eliminate duplicate points, scale objects, and snap vertices to grid points.

AutoCAD is the most popular drafting program, and it's great for building architectural models. If you have a client who has a model in the form of an AutoCAD DXF file, you can render it with any Amiga 3D software with the help of Syndesis' add-on DXF converter. It comes with three great-looking models—a man's head, a hot rod, and Venus' torso—plus several pages of good advice on the perils of AutoCAD conversion.

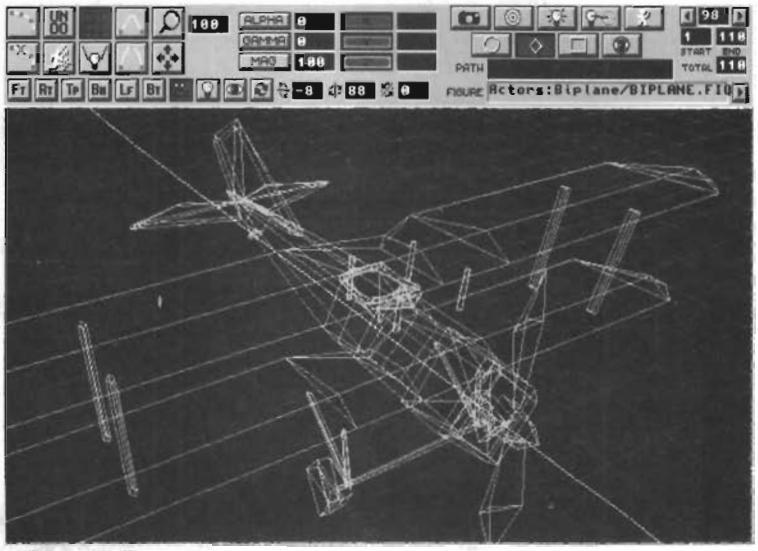
Another worthy new add-on product from Syndesis is the TIO Imagine converter. TIO stands for Toaster Input/Output; LightWave 2.0 comes with several converters, supplied by Syndesis, that let it load non-native format objects, including AutoCAD, 3D Studio, and Wavefront. Now you can also load Imagine-format objects directly into LightWave with the new TIO module. If you load a grouped object, it's fused together into a single object, losing the stucture. If you prefer to retain the structure, use InterChange Plus to convert it to a scene file. Aside from that understandable limitation, it works great.

InterChange Plus and the rest of Syndesis' products are fast, powerful, simple and easy to use, and they work well. What's more, they're reasonably priced, and should pay for themselves in less than a single job. I can't think of a higher recommendation. If you do 3D, you'll probably have a use for InterChange Plus sooner or later, so why wait? If you already own InterChange or InterFont, you can upgrade at a reduced price.

Syndesis Corporation, N9353 Benson Rd., Brooklyn, WI 53521 (608) 455-1422.



"Action"



"Direction"

Problem—Solution

One of the topics I like to cover in this column is rendering-related problems and their solutions. For example, if you use DCTV and are getting weird colors when rendering in LightWave, try disconnecting the DCTV unit—it worked for me! Recently I encountered a strange problem while using the new program Aladdin 4D from Adspec Programming—slow rendering. While my 68040 accelerator usually renders several times faster than the fastest 68030-based Amiga, I found that Aladdin rendered several times slower than the 50 Mhz 68030-based 2000 at the office. I conferred at length with Aladdin author Greg Gorby over the phone, but neither of us could figure the problem out. Apparently mine was the only '040 that had this problem. Finally I contacted Progressive Peripherals, who make my '040 card. I didn't have much hope at this point because the only problem was with this one particular new program. I shouldn't have waited. In no time flat their ace troubleshooter, Jim Trascapoulos, put his finger on the problem.

The Progressive '040 card for the 2000 can be configured via jumpers (small connectors on the card) to make all, part, or none of its memory available to the system for use when running under the standard 68000 processor on the motherboard, and for communicating with the system when running the 68040. The board comes configured to use two megabytes of the 32-bit RAM for this purpose, but that means that only 14 megabytes of a card configured with 16 megabytes of RAM is available as a single block of memory. This became a problem recently when I needed to load a large cover image into Art Department Pro, so I reconfigured the card to make no memory available to the system and all 16 megs of 32-bit RAM as a single block. There didn't seem to be any problems with this, so I left the board in that configuration. Well, one of the first questions Jim asked me was about the board's memory configuration, and when I explained the situation, he recommended I restore the two-meg configuration. I did, and now Aladdin is about twice as fast as the 50Mhz '030! General system speed is improved and I have more Chip RAM as well. So if you have an accelerator, and have changed the factory configuration in any way, and are experiencing inexplicable software problems, try restoring the default settings. The more advanced and complex our systems become, the more obscure things there are that can go wrong. But in the long run it's well

worth the frustration to able to accomplish the wondrous things we can do with these amazing tools.

Public Domain 3D Icoons

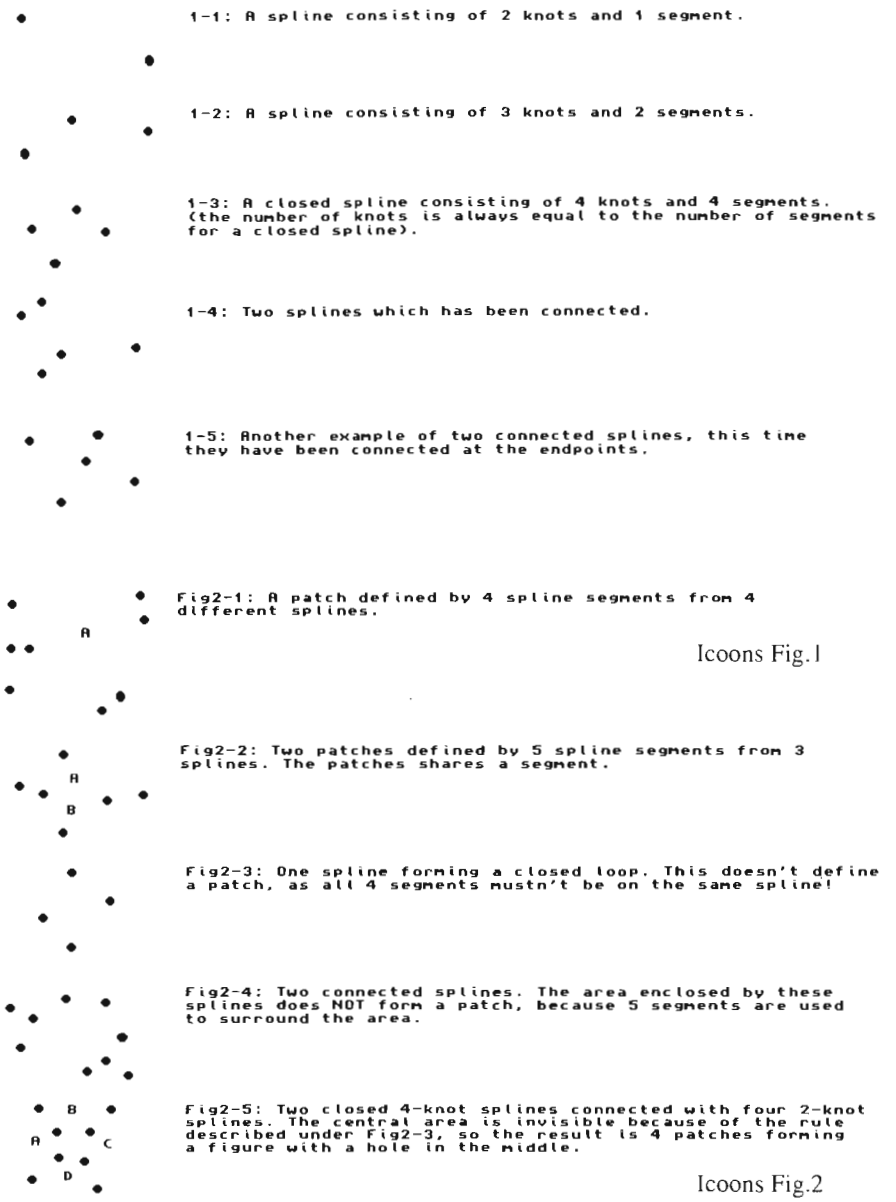
Some of the best things in life are free, and two of them appeared on Portal (20863 Stevens Creek Blvd., #200, Cupertino, CA 95014, (408) 973-9111) only days before the deadline for this column. Icoons and ISL are two impressive programs that every Imagine user should look into.

ICoons is a spline-based object modeler that can load Hash-format objects created by the programs Animator: Apprentice, Animator: Journeyman, and Playmation. It saves objects in TTDDD format, which must be converted to Imagine format with T3DLIB, a shareware program by Glenn Lewis.

A spline is basically a curved line. To the computer it's described by a complex mathematical function, but the beauty is you can manipulate it to your heart's content without knowing 2 + 2 = 3 (right?). You can combine splines to model complex objects such as cars and airplanes much more easily than with traditional polygon-based techniques.

Martin Hash hasn't made his object format available, so ICoons author Helge Rasmussen wasn't able to use the same type of splines. The Kochanek-Bartels splines used by Rasmussen pass through their control points and are adjustable by varying the three parameters tension, bias, and continuity (sound familiar, LightWavers?). The spline-model equivalent of a polygon is called a "patch" and is formed by connecting two, three, or four splines or spline segments. See Figures 1 and 2 for some examples—these are included with Rasmussen's documentation. The name of the program comes from the fact that these are also known as bicubically blended Coons surfaces.

How's the program to use? Well, if you've ever used the Sculpture program in Animation: Journeyman or Playmation, you've got a good idea. While it's not a twin, it's quite similar, while adopting ideas from other programs as well. Instead of two windows each with switchable views, you have the standard four- way tri-view with an adjustable perspective view in the upper right, similar to Imagine (see Figure 3). Instead of a control panel up top, Icoons uses standard drop-down menus, most with keyboard equivalents. You generally start with the Add command, which lets you draw a simple spline with two endpoints or "knots" connected by a segment. Once you've drawn a spline, you can add curves by inserting additional knots, which can be manipulated interactively in three dimensions. Splines can be connected in two ways, creating either a "peak" (sharp angle) or a smooth curve at the join.



Icoons Fig.1

Icoons Fig.2

Other editing commands let you divide splines and delete knots. There's no Undo, and alas, no Cut/Copy/Paste. There's a full complement of grouping commands including drag-box selection. Groups can be scaled on any combination of the three axes, rotated around the "world" center, and moved, either interactively or via numeric keyboard input. The program's interface is quite well-designed. Other commands let you adjust the views including a grid and grid snap option, and save and load objects in an internal format as well as those mentioned above. And of course there's rendering, with various options including Gouraud and Phong shading.

There's more, including terrific documentation (with illustrations and a tutorial yet!) but you'll just have to download ICoons to find out. You'll also need Glenn Lewis's shareware conversion software. For this and lots of other great free software, just use your modem. You don't have one? Get one. It's like having (literally) gigabytes of information at your fingertips—it increases your computer's power by several orders of magnitude.

ISL

One of the best things about Imagine is its marvelous interactivity. The ability to easily set up scenes and animations by positioning, scaling and rotating objects in three dimensions on the screen in the Stage editor saves most users countless hours of painstaking trial and error required by the script-based interface used in older programs. However, sometimes you need more precision than you can get with the interactive interface. For example, in certain types of animation an object's angle and position might need to be described explicitly in every frame. Normally, this would require

dealing with countless small requesters to input the data via Imagine's graphic interface, resulting in a considerable amount of frustration and wasted time.

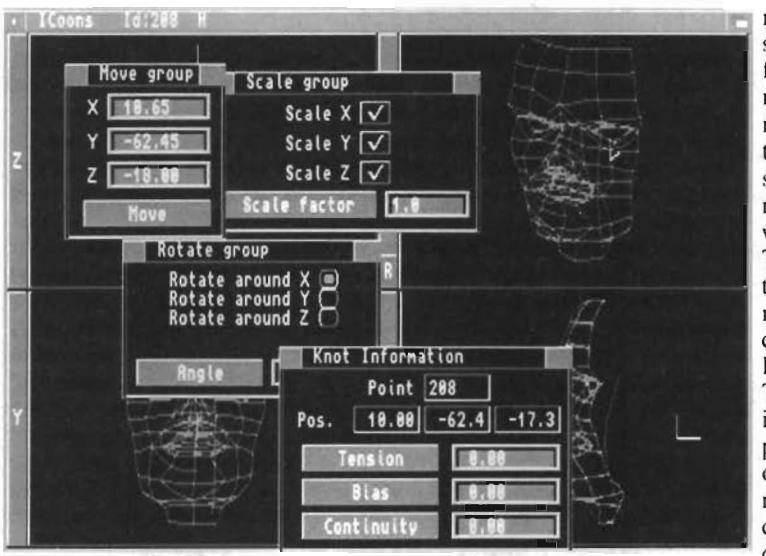
Although you can set up a scene or animation completely within the Stage editor, all staging information is present within the Action editor as well. This is what gets saved, in coded format, in the "staging" file saved as part of each Imagine project. ISL is a wonderful free program by John T. Grieggs that translates the staging file into an English-like script, which you can edit with a text editor or word processor, then convert back into an Imagine-compatible staging file. Of course, once you know the language (Imagine Staging Language, that is) you can write staging files from scratch, or even write programs to create staging files! If you've ever had to use the Action editor to individually change the paths and/or file names for 20 objects because of a disk reorganization, you'll appreciate being able to do it quickly and easily in your favorite word processor. Fire up that modem and start downloading!

If for whatever reason modeming isn't practical for you, for the above products and lots more interesting low-cost software contact DevWare (619-679-2825) or other mail-order public-domain vendors. I can't guarantee they'll have them, but they seem to have everything else, and if they don't I'm sure they'd get it for you.

Caligari 24

I've just gotten a sneak peek at Caligari 24, and it looks pretty exciting. As you may have heard, Octree has implemented a new policy of including all the features (and more) of the previous high-end version of Caligari in each new release of the low-end version. Thus purchasers of Caligari 24 will get for their few hundred bucks what others have paid a couple thou for until just recently.

One of Caligari 24's sexiest features is called free-form deformation, a sort of super-magnet tool that lets you create natural-looking curves and bumps in objects with great ease. This was used by Steven Menzies to model the amazing flower featured recently on the cover of Amiga World. When you enter this mode a bounding 3D grid in either a box or cylindrical shape appears around the object. You can subdivide the grid, plus move, rotate, and scale it interactively. You can select one or more points on the grid, then move, scale, and rotate them. Each grid point exerts a sphere of influence halfway to each adjacent point. Any object vertices within this sphere respond in a logical way to manipulation of this point. Thus, if you pull a point out from the side of an object, a bulge appears on its surface if the surface contains the required number of polygons. One handy command permits automatic subdivision of such a surface if necessary. There are also automatic smoothing options to avoid pointy bumps. If you've got a powerful machine the Realtime option lets you see the deformation as you drag the grid points.



Icoons Fig.3

Like LightWave, Playmation, and Imagine, Caligari 24 supports interactive keyframing, in which you just go to the desired frame, manipulate an object, and set the frame as a keyframe for the object. Paths between key points can be straight lines or splines. In addition, Caligari provides a Time Editor, somewhat analogous to Imagine's Action editor, with horizontal bars showing the location and duration of different events. There's one big difference, though; here you can adjust keyframes just by dragging their bars—how nice!

Another vast improvement in Caligari is the ability to use IFF pictures as image maps. I'm told that coming soon is bump mapping and multitasking. Watch these pages for more coverage of Caligari 24, including tutorials!

Octree Software, 1955 Landings Drive, Mountain View, CA 94043 (415) 390-9600

Imagine Reflection Mapping

James Hebert writes the Slices column in our sister magazine, Video Toaster User. In the August/September 1992 issue, he described a dramatic LightWave technique in which reflections appear to move across the front of an object; in this case, a logo. It's accomplished in LightWave by setting the reflected image as a reflection map on the logo, making the logo parent of the camera, and then rotating the assemblage. Thus the reflections move pleasingly across the front of the logo, which itself appears to remain stationary.

Reader Terry Musgrove asks if this effect can be accomplished in Imagine. Well, it's no problem if the object can be moving. Just go into the Action editor, click on the Globals actor timeline, and enter the path and filename of the image to be used as a reflection map in the box next to Global Brush Name. Then just set the object to rotating and you'll get the effect.

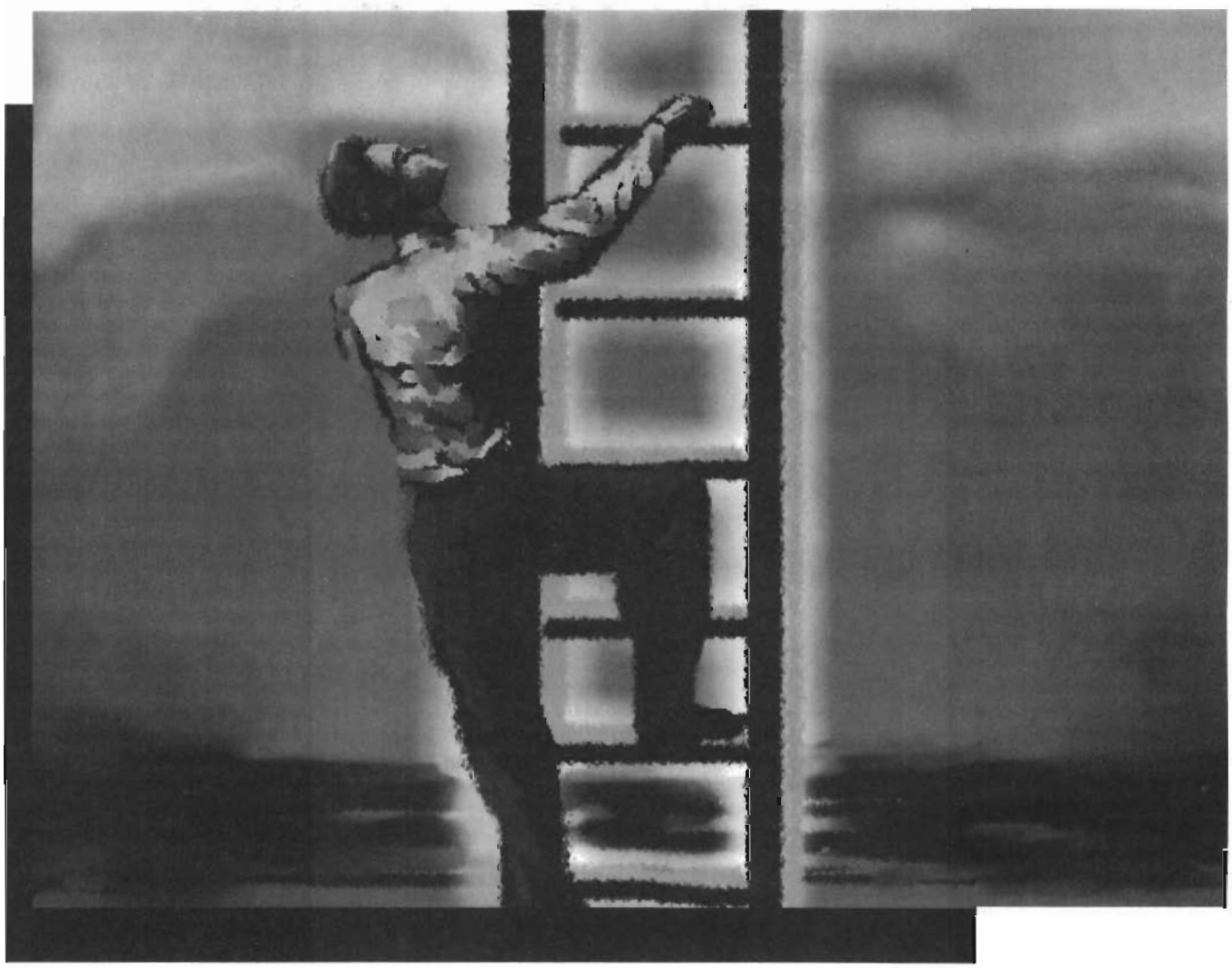
To replicate James' technique exactly in Imagine is a somewhat different kettle of fish, though. To get the movement of the reflection, you must rotate the object, but for the object to appear to remain stationary, the camera must move in a circle around it while tracking it perfectly. The best way to accomplish this is for the camera to be made the rotating object's child, as in LightWave, but Imagine doesn't permit this. The closest way to replicate it is to use two closed circular paths, one very small for the object to follow, causing it to rotate, and a larger one for the camera to follow, orbiting the object as it rotates while tracking it. I tried this and nearly got it, but there was still a bit of wobble, perhaps due to rounding-off errors.

Here's an outline for trying this in Imagine. Go into the Imagine Detail editor and add a closed path. Press F1 to pick it. Note its oval shape, then select Edit Path from the Mode menu and note that there are two vertices. Press Right Amiga-A (Pick All) to pick both, then select Fracture from the Functions menu to subdivide both sides. Make sure the grid is on, enlarge the Top view, and position the vertices at grid coordinates so the path is as close to circular as you can make it. Scale it on the X and Y axes so it's two or three times bigger, save it as LargePath, then use Transform to make it very small and save it as LittlePath. Assign the reflective logo object to LittlePath and the camera to LargePath (adjust the path size or camera focal length if necessary). Use the Action editor to have the camera track the logo object, and to set the Global Brush name to your reflection map. In case you missed James' column, a good one that's easy to make consists of several diagonal white streaks blended into a back background. Good luck, and if you come up with an improvement on my technique, please let me know!

That's about it for this month. See you next time with lots more news and tips. Enjoy the holidays!

Scala MultiMedia

©1993 by Matt Drabick



Scala MultiMedia, also known as Scala MM200, is the latest addition to the Scala family of Amiga video titling and authoring software from Digital Vision of Oslo, Norway. Packed with features, the program offers an easy-to-use visual user interface for most screen composition and editing functions. Scala MultiMedia also offers 25 new page wipes and transitions. Some of the transitions resemble DVE (digital video effects) moves found in dedicated video hardware. Both page and text wipes are possible, allowing the background and the foreground text to be wiped on and off screen independently. Scala MultiMedia can key text over an incoming video signal or send out full-screen images using a genlock. Included with the program are 17 fonts of varying sizes, 59 overscan IFF background images and 70 symbols that can be used for creating text screens.

Setting Up

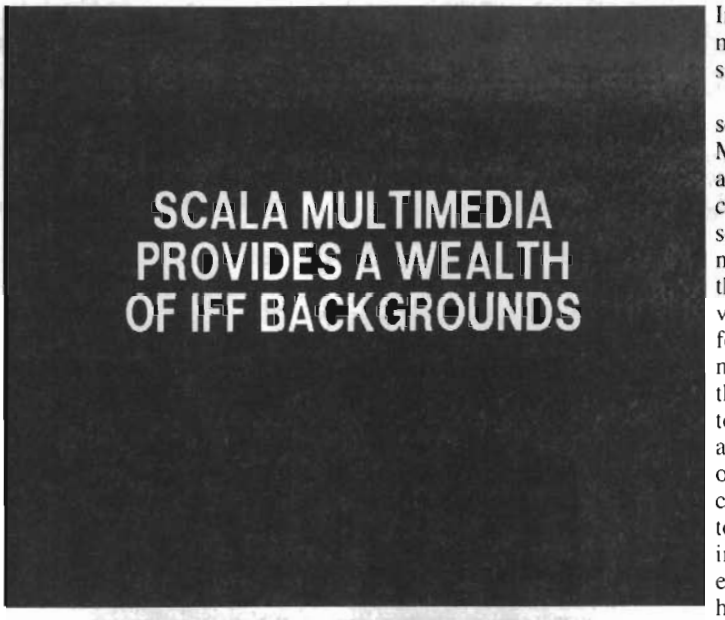
Scala MultiMedia is distributed on eight disks. While it's possible to run the program from floppy disk, for best results it should be installed and run from a hard drive. Scala MultiMedia requires WorkBench 1.3 or higher, a megabyte of

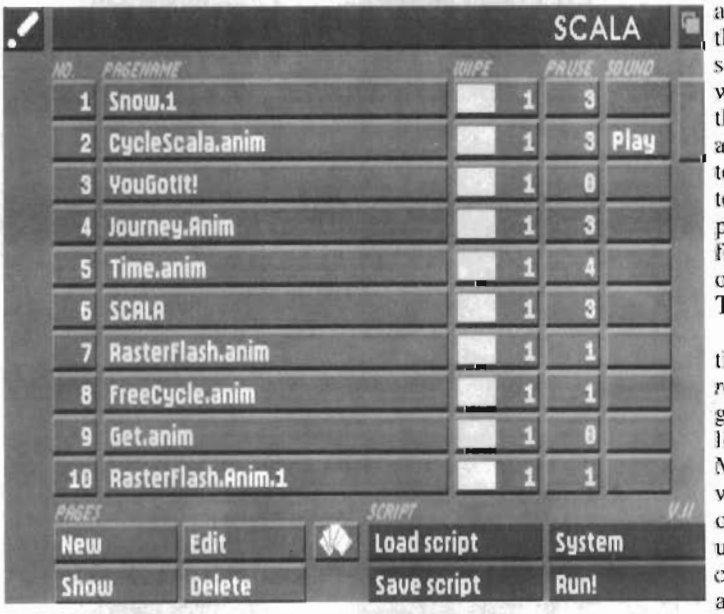
Chip RAM and at least two megabytes of Fast RAM. Some of the new special-effects transitions require two megabytes of Chip RAM. An accelerated CPU (68030 or 68040) is highly recommended for playing back scripts with animations. Scala MultiMedia uses a dongle (called the Scala key) that plugs into the mouse port between the computer and the mouse as copy protection. The dongle must be present for the program to work.

Installing Scala MultiMedia onto a hard drive is easy with the included installer utility. You will need about nine megabytes of hard-drive storage for the program and support files, plus 650K on your system partition for all of the included fonts. If you're strapped for space, the installer lets you choose which support files to copy. Once installed, files are neatly organized into various drawers (scripts, backgrounds, animations, symbols, music, etc.) on your hard drive. An extensive library of high-resolution, overscan IFF background images is available to choose from, including a field of grass, a blue sky with clouds, blue velvet and other fabrics, various tile and checkerboard patterns, paper textures, stone textures such as pebble, brick and granite, even a page from a newspaper stock report. The IFF symbols library includes various lines and arrows and a variety of small brushes or clip art of everyday objects such as a car, bus, boat, train, church, airplane, telephone and train. All of these images and symbols can be used to help create title screens.

Scala Scripts

Scala MultiMedia is a script-driven program. A script consists of a list of pages that can be played back using automatic timing or user-controlled mouse clicks. A page is simply a title screen with or without an IFF background and any associated transitions for the text and background. Animations created with DPaint, etc. can be loaded as pages as well but can't have transitions assigned to them.





Images can be accompanied by music and digitized audio samples.

As complicated as this may sound, creating a script with Scala MultiMedia is easy to do because a graphic user interface is used to create both the pages and the script. Once the program is running, the user is presented with the main menu screen which provides a point-and-click interface for working with the script. The main menu screen can display the names and attributes of up to ten different pages at a time using a vertical list. If a script consists of more than ten pages, the user can simply scroll through the list to see the other pages. Attributes include the name and number of each page, the wipe to be used, how long the screen should pause and display itself before showing the next page, and any music or sound samples to be played back with the page. At the bottom of the screen are buttons for loading and saving scripts, creating a new text screen or editing an existing text screen, deleting or showing a page from the script, and a button for playing back the loaded script or scripts.

The Interface

When the New button is activated, the program displays a requester for loading an IFF background image from the image library included with Scala MultiMedia. IFF images created with DPaint, Scenery Animator, other image libraries, etc. can be used as well. Alternatively, a solid color background can be generated. Scala MultiMedia supports all current Amiga interlaced resolutions with or without overscan. 16 colors at 640 x 400 pixels, 64 colors at 320 x 400 pixels, and 4 colors at 1280 x 400 pixels are supported. Note that while the color palette is very limited, at 1280 x 400 pixels Scala MultiMedia provides true 35ns broadcast-quality resolution thanks to the reduced pixel size. The program also supports the AGA chip set and the new display modes (7, 8 and 18-bit modes at up to 1280 x 400 pixels) supported by the Amiga 1200 and 4000.

Once the screen resolution and color depth has been selected, the Edit menu appears as a control panel occupying the lower third of the screen. This menu is

used to create and edit title screens. If an IFF background image is loaded, it is displayed behind the control panel, which can be hidden temporarily while working on the bottom half of the screen. While capable of generating a solid-color background, Scala MultiMedia doesn't have any options for creating color gradients or wallpaper backgrounds. Future versions will have improved background generation capability, along with the ability to rotate text, another feature missing from the current version.

The Edit Menu

The Edit menu makes it easy to select text attributes. The font and size, text color, and an outline or shadow can be selected by clicking on the appropriate button on the control panel. Text can also be "extruded" for a 3D look. The Palette function offers a secondary control panel for changing the foreground or background colors using RGB sliders. Palettes can be saved and reloaded for later use. The Layout button presents another secondary control panel for selecting the direction of the light source for shadows, the amount of antialiasing applied to text, character spacing, shadow depth, etc. Text can be automatically centered, left-justified or right-justified and can be underlined, italicized and boldfaced as well.

Attributes are applied on a line-by-line basis per title page, meaning that each horizontal line of text can have a different color for the text and shadow or even use a different font, but a single line of text can't be made up of words using different fonts and colors. For example, in a line of text that says "Produced by," the word "by" can't be light blue if "Produced" uses white. Once all of the text has been added to a page, it can be moved anywhere on the screen on a line-by-line basis. After creating a page of text, the user can go back at any time and change the font, text color, and any other attributes of any line of text.

Text Transitions

Once the title page has been completed, each line of text can be assigned a transition wipe. A special panel appears, containing small black-and-white icons that represent the various available wipes. By default, all text lines on a page will appear together at the same time as a simple cut. Each line of text can have an on-screen and an off-screen transition applied to it. Using the previous example, the line "Produced by" can fly onto the screen from the left side of the screen, land in the middle of the screen and pause for five seconds, and then fly off the screen in a different direction. The same transition can be used for all lines of text on a page, or different transitions can be used for each line. The speed of the transition can be varied as well, and a preview button lets you test the transition. Transitions include a variety of horizontal, vertical and circle wipes, pixel dissolves, text scrolls and crawls, etc. Transitions normally occur one line at a time, but a special "chain" command can be used to make several text lines appear simultaneously using the same transition. IFF brushes can be made to fly on and off the screen, etc., using the same transitions.

After a page has been created, it's added to the script. The first line of text from each page is automatically used as the page name, or the user can type in a different name. Text pages can be saved as IFF files as well. By clicking on the "Save and New" button, the page is added to the script and the edit screen reappears with the background and page attributes still intact but with the page cleared of any text. This saves the user having to reload a background image, load the font, set the screen justification, etc., every time a page is created and then added to the script.

The multimedia capability of the program provides for true desktop video productions using only an Amiga and associated playback units outputting to a VCR or other recording device.

Page Transitions

Once all title pages in a script have been completed, the next step is to assign a transition to each page. Clicking on the Wipe button displays a special panel with all page wipes, similar to the one used for text line transitions. The same wipe can be used for every page in a script, or different wipes can be used for each page. The user can set the speed of each page transition and the delay time in seconds before the next page appears. Pages can be manually advanced using mouse clicks while the user watches their monitor. Script playback can be automatic as well, with values in seconds as the delay time before the next page appears.

All Scala MultiMedia's page transitions are very high in quality, and some are nothing less than stunning. Pages can be poured onto the screen, rolled up or down the screen like a piece of carpet with the text always visible, pushed onto the screen from the left or right side, continuously scrolled from the left or right direction, rolled from one page to the next as if the images were drawn on the faces of a cube, or flattened only to reappear as the next page. Scala MultiMedia can also perform a true dissolve between a pair of two-bitplane (four-color) images that looks as if it were performed on a video production switcher. Traditional transitions such as vertical and horizontal wipes as well as a simple cut between images are included as well. The wipes included with Scala MultiMedia alone are worth the price of the program.

Editing of completed scripts is easy. Pages can be added, deleted, and respositioned within the script. For those users who prefer icons for editing their scripts, Scala MultiMedia's unique Shuffler function can create monochrome thumbnail images of each page, which replace the text list. Up to 112 thumbnail images can be displayed at a time, with scrolling available to see more.

If necessary, multiple scripts can be loaded and played back consecutively. Scala MultiMedia supports multitasking, making it simple to move between it and other other programs such as Deluxe Paint to create an animation or a custom background image. ASCII text files can be imported, useful when a client wants to type his own screen credits. The program supports both scalable and color fonts as well as color cycling. Finally, Scala MultiMedia offers a "Snapload" feature. By using both dynamic and static buffering plus the included diskANIM utility for compressing animations, it's possible to play back animations of unlimited length with limited amounts of memory. Because the program is always looking ahead and preloading what's next, even the longest scripts play back flawlessly. For creating an opening title sequence with some very slick special effects for your next video project, consider using Scala MultiMedia. You can even use the program to play the opening theme song.

Scala Versatility

Befitting its name, Scala MultiMedia supports external devices such as CDTV, MIDI instruments, Sony and Pioneer laser disk players, and the Canon XapShot using "EX" program modules for controlling external devices. Future EX modules will provide support for VCRs as well. Combined with Scala MultiMedia's capabilities to create text screens and play back both still images and animations along with Amiga-generated 8-bit sound (both IFF samples and SMUS, Soundtracker and DSS song modules), the multimedia capability of the program provides for true desktop video productions using only an Amiga and associated playback units outputting to a VCR or other recording device. When used on the new AGA Amigas with 256 colors or even 262,000 colors (HAM-8 mode) at resolutions up to 1280 x 400 pixels, Scala MultiMedia should prove to be a very interesting program indeed.

Scala MultiMedia
by Scala, Inc.
12110 Sunset Hills Road
Reston, VA 22090
(703) 709-8043

Video Graphic Goodies

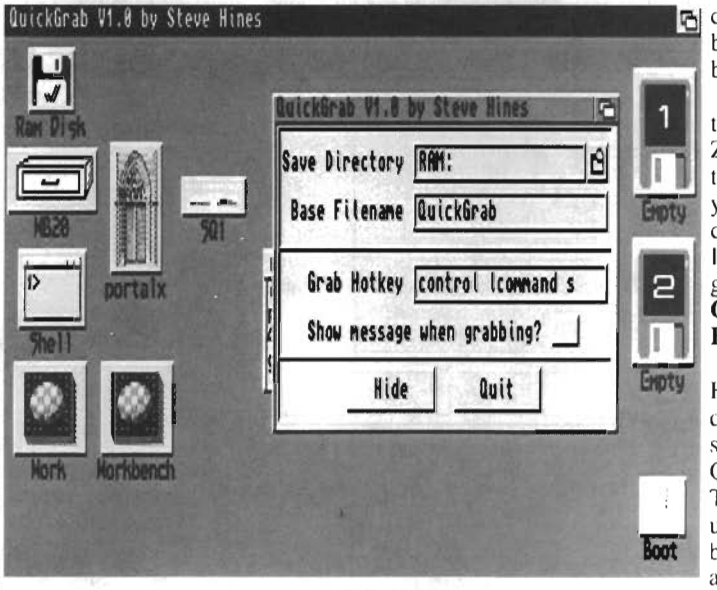
© 1993 by Harv Laser

With the advent of WorkBench 2.04, 2.1, 3.0, and the new AGA graphics chipset that comes in the Amiga 4000 and 1200 models, many developers are hard at work cranking out fresh utilities to deal with these new machines, operating systems and display modes. Some of your favorite time-tested darlings, such as picture viewers, animation players and screen grabbers might not even work anymore, let alone handling new modes, so it's time to point you towards their next-generation replacments.

Besides, new utilities are just fun to play around with. Often you'll discover that they have significant features and capabilities which aren't immediately obvious. Thus, a careful and deliberate eyeballing of each program's documentation files is a must before you just dive in to play with them.

Anecdote time: I'll bet you too have been in a situation where you've used some Freely Distributable program for ages, and always used it the same way, and then find yourself with Amiga-owning friends at your side who, as they watch what you're doing, will say, "Hey, dummy! Don't you know that if you hold down both mouse buttons and press these two keys, that FrozzBlaster won't just display the picture, but will wrap it onto a sphere and play happy birthday music while it backs up your hard drive!?" (An extreme example, but you get the idea). At times like that, the best you can usually manage is to slap yourself in the face as you quote Homer Simpson: "D'oh!"

Yup, time marches on, but fear not; you don't have to feel left out in the cold or ignore these new programs just because you don't have an AGA-equipped Amiga yet. Many of you have recently upgraded from Workbench 1.3 to 2.04 or the just-released 2.1, and need some revised tools because your older ones stopped working. The ones I'll mention this month work fine in 2.04 and 2.1, but they provide even more features under 3.0 with AGA chips. I'll cover some AGA-only utilities in a future issue.



"But what about an AGA upgrade path for us!?" bemoan the legions of the faithful. Well, keep in mind that as you read this, the Amiga 1200 with 3.0 and AGA has just hit the stores at a suggested retail price of under $700. Although no company has announced any method to upgrade older Amigas to AGA-level graphics, the A1200 itself can be thought of as a rather inexpensive upgrade path/add-on for your current older Amiga system.

Instead of selling your 500, 2000, 2500 or 3000 and scraping up enough additional cash to buy a 4000, you could instead buy a 1200, and network it to your current hard-drive-equipped Amiga with the free Parnet software and cheap parallel cable as detailed in my column in the last issue of AVID. You'll find Parnet on Fred Fish Disk #400, an easy number to remember when the time comes to get it. Your 1200 with WorkBench 3.0 and the AGA chipset will then have access to the resources of your existing machine, and in the process you'll be getting a complete "backup" computer with a speedy '020 brain and good portability to boot.

As usual, all programs mentioned will be found in the Amiga Zone on the Portal Online System, and probably/eventually on your local BBS, other commercial services, anonymous Internet FTP sites, and user group collections.

QuickGrab V1.0 by Steve Hines

Hines is the proprietor of Holosoft Technologies and the developer of the Graphics Workshop paint package, and QuickGrab is his latest creation. This tiny (17K) freely-distributable program is a "screen grabber." It runs under 2.04 and up as a commodity and simply lets you save to disk as an IFF file the front-most screen on your Amiga. QuickGrab hides in the background until you need it. Then anytime if you see a screen in a running program or display that you want to save to disk as an IFF image file, you slap a couple pre-defined "hot keys" and the deed is done.

Here's a list of QuickGrab's significant features:

- Grabs and saves ALL graphics modes, including 8 bits.
- Saves the screen display modes properly. Old grabbers filter out modes like DoubleNTSC, NTSC-Super-Hires, Super72.
- Properly grabs and saves new-for-3.0 interleaved bitmaps.
- Uses the Commodities Exchange routines in 2.0, so that Hotkeys/popkeys don't conflict with other programs. This

is certainly not true of non-2.0 grabbers.

- Loads from Workbench with a full complement of ToolTypes, so that QuickGrab can be installed in WBStartup easily.
- Has gadget interface that allows you to set the save directory, base filename, and grab hotkey.
- Is able to successfully grab screens even if they are closed during the grab.
- Small and efficient. Totally 2.0/3.0 compatible (and will not run at all in Workbench 1.3 or below)

No other free-standing screen grabber I'm aware of has all these capabilities.

You could use QuickGrab in concert with ViewTek (see below) as a powerful pair of utilities to, for example, load and view a JPEG compressed 24-bit image in HAM-8 mode, and then save it off to disk. The possibilities are virtually endless. QuickGrab's source code is available from its author by request.

Viewtek 1.00 by Thomas Krehbiel

Krehbiel is one of the partners of Nova Design, the company responsible for GVP's CineMorph and ImageFX packages. He's also the author of the slick Rend24 graphics utility discussed here previously.

ViewTek is, yes, yet another picture displayer and animation player, but it knows how to handle many formats that most of your old standbys, such as SuperView, don't, specifically IFF24, JPEG and GIF formats. It's always a pleasure to stumble upon a new utility like this for which you don't have to ask yourself the question "Now, let's see here—which graphics formats will crash this program?"

If the built-in picture display capabilities of your favorite directory utility program can't deal with the kinds of pictures you want to view, just put ViewTek in your C: directory and have your directory utility call it for your viewing chores.

I tried out ViewTek with many types of files I keep on my hard drive, and it handled all manner of brushes, animations, and graphics file formats I threw at it with ease.

ViewTek really has no interface except for its file requester. Feed it one or more files to view and it'll try to make sense out of them and display them the best way it knows how. Color JPEGs and GIFs will be converted to HAM and displayed on the fly. If ViewTek senses it's running on an AGA-equipped Amiga under 3.0, it'll use HAM8 mode instead. The distribution archive contains two additional versions of ViewTek, one with less overhead but which can't handle JPEG and GIF, and another which displays directly on GVP's IV-24 card.

Here's ViewTek's partial features list:

- Shows most ILBM's (including 24-bit ILBM's).
- Shows most GIF format images.
- Shows most JFIF format JPEG images.
- Shows most ANIM Op-5 format animations, with support for different palettes for each frame.
- Supports SHAM, CTBL, and PCHG images.
- Full support of ECS/AGA display modes (i.e. shows 256-color GIFs directly, shows 800 x 600 HAM animations, etc.). At this writing, this is the only anim player I know of that does.
- Supports viewing contents of clipboard.
- Iconifies to a Workbench AppIcon.

Like QuickGrab, ViewTek sports a large number of tooltype and command line switches. This is another very versatile little widget you won't want to be without, and again, like QuickGrab, the program automatically enhances itself when run under 3.0, but is still quite useful to 2.04 and 2.1 users.

Video Graphic Goodies is a regular AVID column about low-cost and free useful products for Amiga videographers. Author Harv Laser is well-positioned to know about such things, being the coordinator of the Amiga area on Portal, a national information service. Contact Harv via this publication, or directly via these online addresses:

Portal: harv
Internet: harv@cup.portal.com

Syncing Up With S.A.M.

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Recently, I had the good fortune to receive a new Amiga synchroniza tion device from Black Knight Peripherals called S.A.M. This time in AVID's Audio-for-Video installment, we'll look at S.A.M. in some detail. We'll also compare S.A.M. to some of the other similar devices already on the market. And, we'll discuss in some detail the definition and structure of SMPTE time code, and some of its real-world applications in the production and synchronization of professional music, dialogue, and sound effects for video.

S.A.M. (an acronym for SMPTE And MIDI) is a combination MIDI interface and SMPTE/MIDI time code generator and reader. S.A.M. is an extremely well-built piece of professional Amiga audio/video hardware. The unit is housed in a heavy metal case, just under six inches across, two and one-half inches high, and six inches deep. S.A.M.'s front face has four lighted, high quality surface-mount switches. These allow the designation of MIDI/SMPTE functions or serial-pass through, as well as the manual selection of SMPTE time code input and output options. S.A.M. functions as a full-featured MIDI interface; the back panel has five standard MIDI jacks. The unit provides one MIDI In and four MIDI Outs. The back panel also has two quarter-inch phone jacks for the input and output of SMPTE time code signals to tape.

S.A.M. connects to the Amiga's serial port with a standard RS232 cable, with a pass-through connector provided to plug in an additional serial device. Since the serial cable isn't permanently attached to S.A.M., whatever length of cable is best suited to your computer/music setup can be used. With most every other Amiga MIDI interface currently on the market, you are limited to placing your MIDI interface, on the average, within about six feet from the computer. But by using a separate serial cable, rather than an attached one, S.A.M.

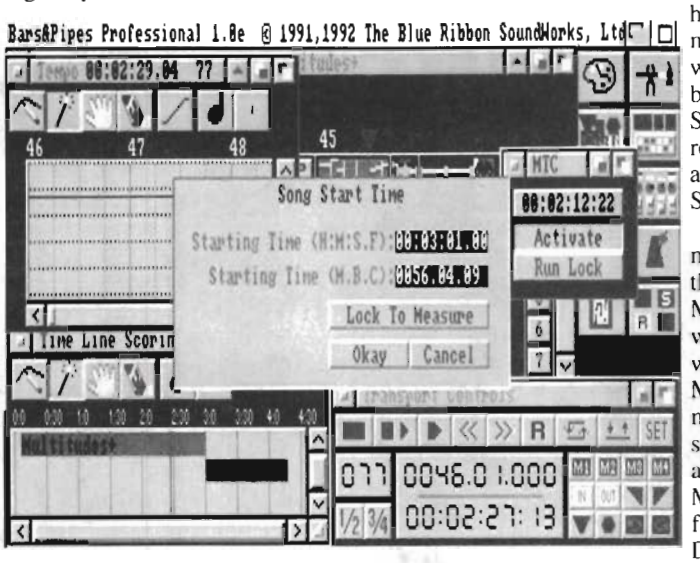
allows the interface to be moved away from the Amiga.

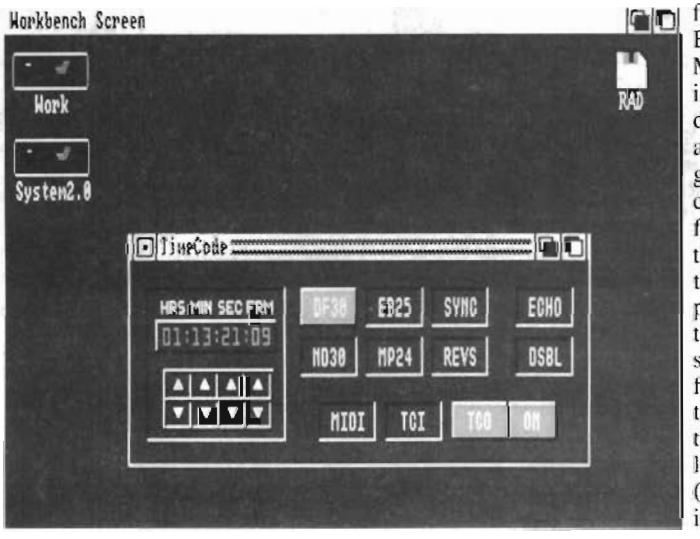
A Word About SMPTE Time Code

SMPTE time code is a universal set of standards used by an ever-expanding array of editing and production equipment to synchronize machine functions with audiotape, videotape, and/or film. In older, voltage-controlled synchronization systems, an audio sync tone maintained a continuous voltage for speed reference, while start/stop signals were sent to trigger sequential events. SMPTE time code communicates information on the exact address or location on tape to any other machine which reads the same SMPTE time code format. Within the SMPTE time code specifications, four different frame rates are used, with each format being utilized in specific applications. 24 frames per second (fps) is the rate used in motion pictures, 25 fps is the PAL-European standard, 30 fps is the original black-and-white television rate, while 30 fps drop-frame (29.97 frames per second) is used for U.S. (NTSC) color television.

SMPTE offset time represents a time reference setting relative to 00:00:00.00 measured in Hours, Minutes, Seconds, and Frames. SMPTE time can either be written to tape with an offset included, or it may specify a point at which playback of a sequence or sound cue should begin. Setting a SMPTE offset time allows any designated location on the tape to be accessed, whether writing to or reading from tape.

SMPTE time code is produced at S.A.M.'s output jack in the form of an audio signal which contains precise timing address information. This SMPTE signal must first be recorded onto one of the audio tracks on your video or audio tape recorder. Hooking S.A.M. up to your tape deck is easy. Cables connect S.A.M.'s SMPTE Out jack to the audio input on your tape machine, and the tape deck's audio output jack to the SMPTE In. (By the way, if you are recording sound effects, dialogue, and/or music for your soundtrack onto a multitrack audio recorder, you should always lay down your SMPTE track on one of the outside tracks to avoid any possible crosstalk between audio tracks. Also, all Dolby, DBX, and other noise reduction circuitry must remain off when recording or reproducing SMPTE signals.) Normally, this SMPTE time code is recorded onto the entire length of the tape. Once you have recorded a set length of time code, you are restricted to that time length (or less) for any synchronized editing of audio or video. Much like laying down a continuous blackburst control track before video insert editing can be accomplished, you cannot add additional time code to the original ending point. Since you can always set a SMPTE offset time to start at any specific location on the tape, it's always better to have too much rather than too little time code recorded to tape.





This audio time code track or "SMPTE stripe" then becomes the controlling clock for your Amiga, synchronizing the playback of your sequencer or hard-disk recorder with frame-accuracy to the tape's SMPTE time code track. S.A.M. can read and write all formats of SMPTE time code. (24, 25, 30, or drop-frame can be selected through software.) S.A.M. also has the ability to read time code and remain in sync whether the tape is moving in the forward or reverse direction over a wide range of speed variations. Unfortunately, most consumer level VCRs shut off the audio output signal whenever the tape is being previewed or scanned at slow or fast speeds. However, most professional editing systems allow the audio track to be heard even at relatively high and low rates of tape movement. If you fast-forward or rewind the control tape, and then begin to play again, when the SMPTE timing information is received, the computer "chases" and then locks to the current SMPTE time.

Since S.A.M. actually communicates timing messages with the computer through the use of MIDI time code, it can be used with other Amiga music software products which also utilize MIDI time code, but which may not directly support the SMPTE standard. This allows virtually any music software which uses MIDI to be synchronized with frame accuracy to a video source. Direct support of synchronization functions varies widely within different software products, as manufacturers implement MIDI time code in a number of different ways.

The Software

S.A.M. comes with a disk full of useful utility programs. Bill Barton's Public Domain MIDI library (version 2.0) is included, along with a set of developer's tools, including C and Basic source code for program development. Also included is a set of diagnostic tools for the testing and monitoring of the flow of MIDI data though the interface. The TimeCode program controls remote operation of most of the front panel's switches. It also allows the specification of frame rate, as well as time code input and output functions. The Reverse setting allows time code to run in reverse (very convenient for calculating hit points for special audio effects). The Echo option allows MIDI time code to be read from tape while being simultaneously transmitted through the MIDI output, while the Sync setting allows the SMPTE code produced by S.A.M. to be locked to the Amiga's frame rate (although S.A.M.'s own crystal-locked time code is inherently much more stable). Another program called AnimBeat plays standard Amiga animation files synchronized to SMPTE time code. The programs on this disk do not monopolize the serial port, but instead share access to a standard MIDI library. This approach makes it possible for different programs to multitask with other applications and simulta-

neously remain in communication with the same MIDI port.

The RexxTime tool allows the transmission of SMPTE time code messages to other programs which also use ARexx. Internal communication and synchronization is made possible, allowing sound, graphics, and animation software to be locked to tape and synchronized with SMPTE time code. Multi-media and presentation programs such as The Director can be made to wait for messages at the ARexx port. Theoretically, any number of Amigas could also be networked and locked together in perfect time.

In Sync With Bars And Pipes Professional

Included on the S.A.M. distribution disk is a directory containing Tools and Accessories for Bars and Pipes Professional. These allow the seamless integration of S.A.M.'s SMPTE/MIDI time code information into the Bars and Pipes Professional program environment. With S.A.M., the real potential of some of the most outstanding synchronization features of Bars and Pipes Professional really shine. B&P Pro implements SMPTE/MIDI time code extremely well, and when used with S.A.M., provide a dynamic system for the synchronization of sound and music with video. Add a SunRize AD516 or AD1012 hard disk recording system (for CD quality sound), along with the Tools and Accessories provided for its use with Bars and Pipes Professional, and you have a tremendously powerful, complete professional platform for the composition, recording, editing, and playback of audio for video.

In the real world of editing sound for video, SMPTE time code is indispensable. With S.A.M., it becomes possible to lock music and sound cues to video with true frame accuracy. When used in conjunction with the Tempo Map and Time-Line scoring features of B&P Pro, it becomes a very simple process to create a complex musical background, complete with tempo changes, from any number of separate sequences.

Details Of The Process

The first step in preparing to put together a soundtrack for video is prerecording the audio track of your videotape with SMPTE time code. The time code transmission can be initiated in either of two different ways: with S.A.M.'s TimeCode program, or by twice pushing the MIDI Time Code Out button (labeled "MTCO") on the front panel. (If you're editing on a 3/4-inch or better system, you can lay down your black burst control track at the same time that you record the SMPTE stripe.)

In this case we'll just assume you've already created the pieces of music you intend to use for your video. The songs and/or segments can be composed with whatever music software you prefer to use. I compose with a broad spectrum of music software. This tends to add variety of the types of music I compose. I frequently use two or more programs on the same piece of music, as each program lends itself to different style of musical content. I may start composing a song with M, which tends to produce very structured, syncopated, sequences, save the song in standard MIDI file format, and then import the song into Bars and Pipes Professional to add extra rhythm or melodic parts. But for now, we'll assume we've already finished a few segments and saved them as songs in the B&P Pro format. These musical segments can be as simple as a fanfare or drumroll two measures in length, or as intricate and complex as a full MIDI orchestration of a five minute song.

Let's say you're producing a promotional videotape for Hydro-Electric Resources. Say, for example you wish to use a short rhythmic sequence for the opening credits and logo, which begin at 00:00:30.00. The opening titles last fifteen seconds, followed by another fifteen seconds of black. Five seconds before the opening serene forest scene fades in from black, the music should begin with a long sustained chord played by a sampled orchestra woodwind and string section. After twenty seconds, the visuals suddenly change to a wide river flowing through a forest clearing. The graphics slowly evolve as the river approaches the rapids, and after 20 seconds, you hit the rapids. The rolling white water scene continues for 20 seconds before cutting to the new dam. First, we need to construct a hit list for starting times of the various music segments, and note the exact SMPTE times of any tempo changes. At 00:00:30.00 the logo music sequence begins and plays for its entire 17-second duration. By now, the credits have faded to black. Silence is maintained until 00:00:55.00, at which time the orchestral sample slowly fades up five seconds before the opening scene. At 00:01:20.00 the main river theme begins at a tempo of 60 beats per minute. The theme continues to play and at 00:01:40.00 the tempo starts to rise, and after 20 seconds the volume fades as the voice-over begins.

Bars and Pipes Professional provides a window for what Blue Ribbon Soundworks calls Time Line Scoring. It provides a means of loading any number of Songs and placing them on a grid, which graphically represents each song with a bar of the appropriate length for the time scale set for the grid. The starting times for these songs can be precisely edited to match the visual cues you wish to enhance with sound. In the case of the Hydro-Electric Resources video, the separate songs, i.e. Logo Song, Opening Chord, and Main River Theme are loaded in the Time Line Scoring window, where they can be precisely placed at the appropriate SMPTE times. The Tempo Map window allows the tempo change to be introduced with the same degree of accuracy. And, with Bars and Pipes Professional, after the entire musical score is constructed in this manner, another Accessory called Mix Maestro can be used to digitally adjust the pan and MIDI volumes of each separate track.

The Real Advantage

A couple of issues back, I reviewed SyncPro, another new SMPTE/MIDI time code synchronization box from Blue Ribbon Soundworks. I found that SyncPro performs exceptionally well, although it requires the use of a separate MIDI interface for its communication the Amiga. While SyncPro is connected, the In and Out on both the MIDI interface and on SyncPro are tied up, so in order to input data from your MIDI keyboard, cables must be rerouted. And since SyncPro connects to the computer via MIDI cables, rather directly to the serial port, SyncPro also requires an external power supply. S.A.M. addresses that drawback by connecting directly to the serial port, drawing its power from the Amiga, and providing an excellent MIDI interface in the process. Currently, S.A.M. is available only directly from Black Knight Peripherals. This powerful audio/video synchronization tool sells for $199.00.

Again this issue I'll repeat the free demo offer for new (and old) AVID readers. And I can add demo versions of Video Music Box and the new SuperJam! demo to the list of working demo programs. If you'll send me up to six blank 3.5 inch disks, along with the appropriate postage, I'll provide those demo programs, as well as the M 1.0 demo, the Bars and Pipes demo, B&P Pro demo, and the Synthia Professional demo free of charge so you can try some of these dynamite music and sound programs for yourself!

S.A.M. is distributed exclusively by Black Knight Peripherals, 255 W. Moana #207, Reno, NV 89509. (702) 827-8088.

SyncPro and Bars and Pipes Professional are manufactured by The Blue Ribbon Soundworks, Ltd., 1293 Briardale Lane NE, Atlanta, GA 30306, (404) 377-1514.

AD1012 and AD516 (hard disk recording systems) are from SunRize Industries, 2939 S. Winchester Blvd., Suite 204, Campbell, CA, 95008, (408) 374-4962.

Jaxon Crow has recently released his first tutorial videotape on producing Sound for Video projects entitled AMIGA MUSIC FOR VIDEO, Volume One. Jaxon can be reached for questions or consultation at: Neon Tetra Productions, P.O. Box 876, Hot Springs National Park, AR 71902, (501) 321-1198. Please call or write for a free catalog of our audio and video tapes.

MorphPlus and the Animated Logo

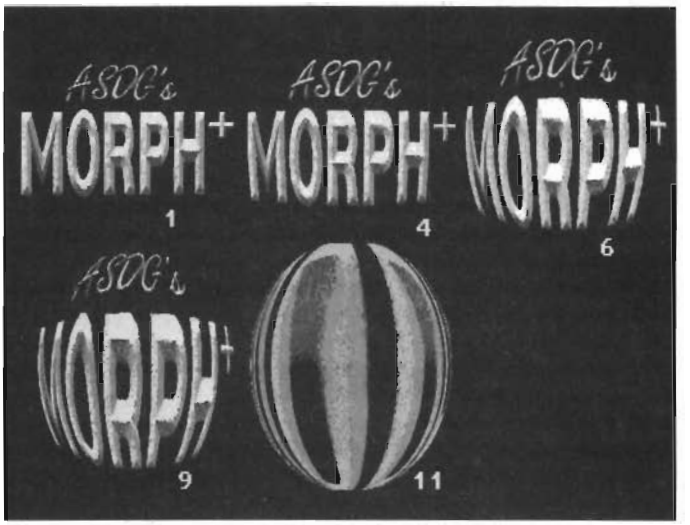


Figure 1

By now, you've at least heard of (or better yet, read a review of) ASDG's MorphPlus package. MorphPlus the program actually consists of a number of operators that look like upgrades to ASDG's Art Department Professional package, and in fact if you place MorphPlus in the same drawer as ADPro, you can use the MorphPlus operators in ADPro and vice versa. These operators perform some neat effects when applied to 2D logos, producing results that appear to transform 2D graphics into 3D, either as stills or animations. Here are some that I found very useful in my Amiga 3D animation work, though I realize that these ideas barely scratch the creative surface of what is possible with this new software.

It's possible to batch-animate in MorphPlus by using the ASDG module "FRED", but I prefer to apply effects on each frame by hand. That way, I can control sudden impulses to change the direction of an animation the instant the idea arises, though it does take a longer time to accomplish. I prefer this creative freedom whenever it can be incorporated. Though I'll walk you through some animation effects useful for video logo movement, remember that these effects can also be combined in an almost infinite array of choices to create yet more bizarre alternatives.

Doin' the Bloat

A "bloat" is an animated look that can be very effective and novel for a logo. Imagine your image pasted on a flat 2D surface. Suddenly the surface expands towards the viewer, and the flat plane becomes a sphere. naturally, any graphics on the surface will be stretched and pulled. I designed a little MorphPlus logo in DPaint IV in eight-color Hi-Res as the initial step in this exercise. I stayed with eight colors because the piece was to be played back on an Amiga 2000, and 16-color Hi-Res animations play back too slowly.

Another interesting application of this effect is to pick up the bloat as an animation brush, and fill the screen with these animations while staggering their frame 1 placement. This makes the entire screen look like it's being punched from behind, or somewhat like a bubbling pool of lava. Experiment continually to make discoveries of your own.

This first effect is achieved with the Sphere operator. Selecting this operator presents you with a screen that allows you to control every sphere axis through sliders which affect a visible grid. When you think you've achieved the look you want, a Preview gadget shows you how your image is affected. Very different animation effects can be achieved if you choose to continuously work on one loaded image rather then reloading the same starting image as the effect varies over time. In Figure 1, I applied varying and larger degrees of the sphere effect to the same original image, so that the effect was made ever more obvious over time. One of the great things about working in the MorphPlus environment is that you can preview changes, but they're not applied to the image until you leave this requester and

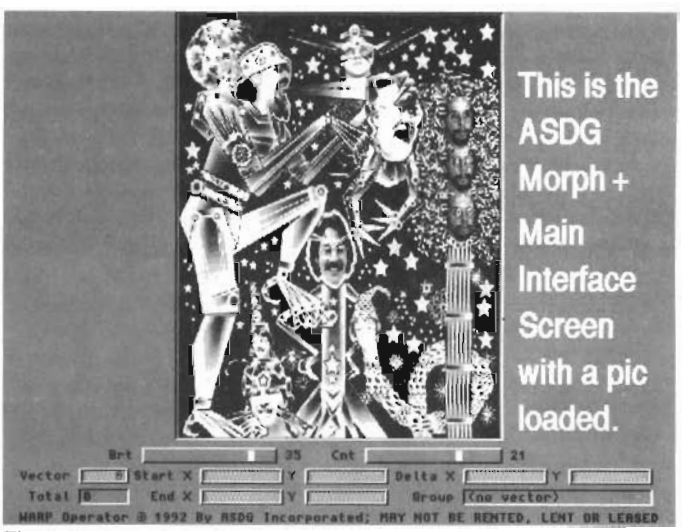
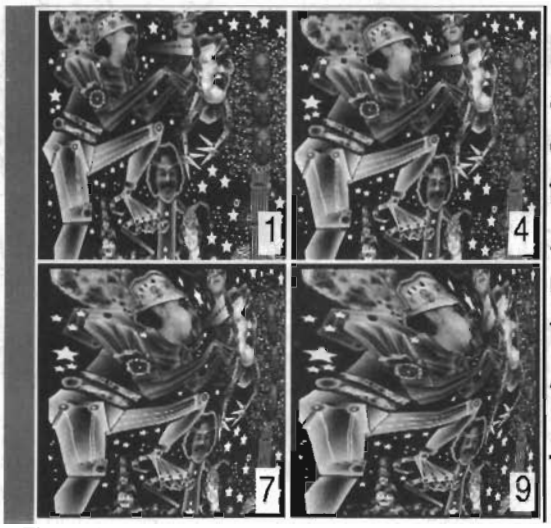


Figure 2



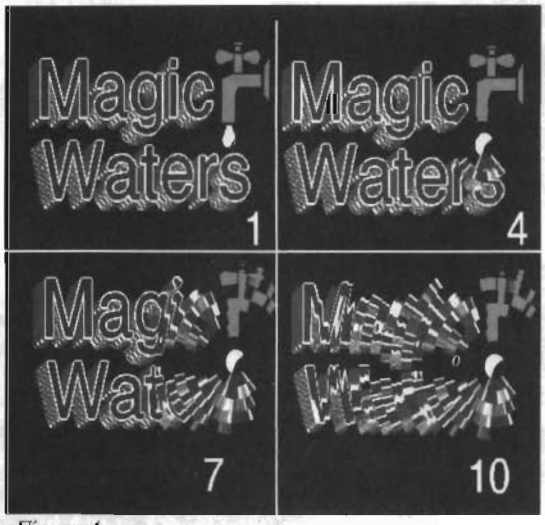
Here is a series of Stills from an Anim using the ASDG "Warp" Tool.

Figure 3

actually "execute" them (target them to the image in memory). Even then, if you're not satisfied with the results, just load in the image from disk again and go back to the Sphere requester. The settings last used will be there to greet you. This effect, by the way, is almost hypnotic when animated.

Warp Speed, Scotty

Figure 2 shows a picture I use as a poster loaded into the main Warp screen. I used this graphic because it is complex enough to demonstrate to you the full implications of the Warp effect over time. The method of operation is simple, though it's good to experiment as much as possible to achieve intuition. "Warping" an image with this software is akin to seeing it printed on a rubber sheet while the medium is poked from behind with a pencil, at least that's the way the manual describes it. You know what? It's true. Just look at the animation frames depicted in Figure 3. As far as a logo screen goes, I think the best application with this tool would be to apply it to an animated background, and to let a static logo image sit on top of it. Remember, at times it is best not to animate the logo directly, but instead to achieve mesmerizing movements through animating either a surrounding backdrop or another image in the composition.



Samples from an animation showing the Morph + Ripple operator on a logo.

Figure 4

Water, Water, Everywhere

MorphPlus' "Ripple" effect is one of its nicest features, but absolutely must be played with to understand and use. It is more complex than other operators, because it has more variables. I couldn't resist designing a logo for this demonstration. Maybe it's for an organic water distributor, or even a plumbing corporation. The Ripple operator interface made it easy to place the start of my ripple, the place where the "pond" is impacted, at the drop of water emerging from the faucet in the design. It's just a matter of moving the mouse while the central target moves on screen. It's the rest of the process that takes a bit of time to understand. As with the previous example, I kept loading the same image each time to create my animated frames, and used a non-automated technique.

Before we go any farther, allow me to define some of the wave terms for you. There are really only four that you must be able to have some grasp of to use this effect creatively with some expectation of the results. They are Speed, Period, Amplitude, and Phase. A wave's Speed is just that, how fast it moves across a surface. I used a speed of 20 for this animation. Speed is a measurement of how many pixels are covered from frame to frame as the ripple propagates. Period is defined as the distance (in pixels) between two wave crests. For this example, I set the period at 20. Amplitude, in this operator, sets the wave height, thus affecting the degree of distortion in the image. In this example I set the amplitude to 3. The last item is Phase, which is the way the wave or ripple starts at the center as either an open area (0 or 180), an inverse "hole" (270), or at a maximized "height" (90). It can also be any value in between. I chose 270 for this animation.

Although I've achieved some spectacular results on still images with this operator, it was really designed to give you animated results over time. For this demonstration, I kept working on the same image, instead of loading in the initial graphic as I did in the two previous demonstrations. By simply advancing the frame numbers and generating the images and saving them to disk, I was able to create the animation in Figure 4. The more colors the image has, the more "liquid" the results. On an image with less colors like the one represented (16 color Hi-Res), the wave looks just like a distortion on a single frame. But when you see the animation, aye!...that's the ticket.

But Don't Forget

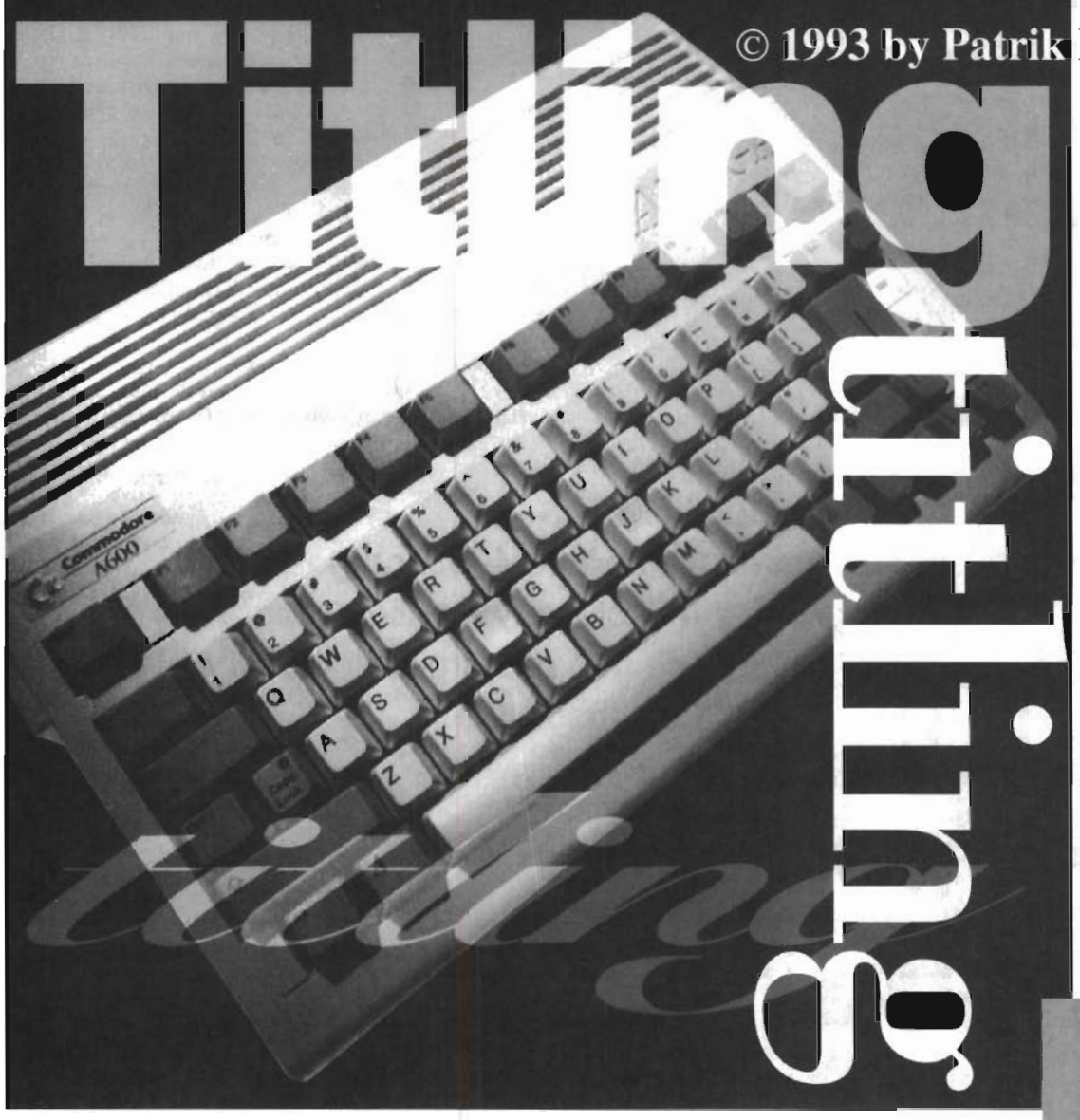
One of MorphPlus' special capabilities lets you operate on an image in many ways at once. In MorphPlus as in ADPro, this is accomplished by creating a simple ARexx batch script, or (if you're more artist then programmer) by working in a slower, step-by-step fashion. Either way, remember that you can use an infinite number of alterations on the same frames when creating an animation. For instance, you could apply a perspective, a ripple, and a spherical operator to each frame, creating the appearance of a complex 3D animation with 2D imagery.

Now here's a suggestion that bends reality and interest a little further. What about applying these operators to images, saving out the animated frames as IFFs, and then taking the single-frame animations and applying them as texture sequences in your favorite 3D animation program? Imagine a spinning 3D logo upon whose surface a warping rippling effect is animated. The prospects are dazzling. This kind of image wrapping is supported by Impulse's Imagine, ADSPEC's Aladdin 4D and NewTek's LightWave 3D, among others.

In conclusion it must be observed that here we have yet another set of tools useful to the video imagemaker and designer, as well as the video animator. These tools point out the growing value of the Amiga in the video working environment, the quality products being marketed by ASDG, and the unlimited creative potential of Amiga videographic pursuits. Any AVID subscriber who wants to see these animations and own the disk, should send $12.00 to: Eyeful Tower Communications, 15 Rockydale, Bristol, Vermont 05443. Not a subscriber? Then send $15.00. ENJOY!

MorphPlus
ASDG
925 Stewart St.
Madison, WI 53713
(608) 273-6585

A600 Tidbits



New Amigas are out. After several years of sloth-like behavior from Commodore's design team, the company has virtually exploded with new models. In just a few months, the number of Amiga models has nearly doubled. The eagerness with which Amiga enthusiasts have greeted the new AGA chip set should not be surprising, considering that they have been anticipating such a development for quite a while. In fact, it would be difficult to imagine the Amiga remaining a viable platform for much longer without such improvements.

Unfortunately, the release of the Amiga 4000 and 1200 with their AGA capabilities will cause many people to completely bypass the potential of the unassuming A600. The purpose of this article is to call your attention the A600's excellent capabilities.

The Potential of the Amiga 600

The A600 is a nice little machine. Not only is it compact, it already includes many extras that most people wind up cramming into their A500's anyway! It includes the Enhanced Chip Set with the two-meg (Chip RAM) Agnus and the 2.0 operating system. It comes with one megabyte of memory standard, with a second megabyte easily added. The A600's PCMCIA slot has all the

potential, and more, of the A500's bus connector. The A600 also has the option of adding an internal 40-megabyte hard drive. Compared to a standard A500 with an external hard drive, the A600HD occupies roughly half the desk space, a nice bonus as it gives you more room on your desk for junk and clutter.

As acknowledgment of the fact that many people will be viewing the output on something other then an RGB monitor, there are now two alternatives. Braving the "game machine" stigma, the A600 includes an RF output to connect it directly to a standard television set. This eliminates the need for a clunky RF modulator, making it easier to transport the machine between locations. The other alternative is the composite video output.

The Composite Potential

The A600's composite video output supplies a color video signal easily digestible by most consumer video equipment. By using the AV inputs available on nearly every VCR, it is easy for the novice to dabble in computer graphics without the need for spending two hundred dollars or more for even a "hobbyist" quality genlock. In a side-by-side test I conducted, two 1084 monitors were connected to a 600 running a European game demo. One of the monitors was connected to the conventional RGB port, and the other was fed the composite signal. The quality of the images on both monitors was amazingly similar. Using European graphics stacked the deck a bit, as they are designed for people who regularly use televisions as their monitors, but you should be using the same considerations in graphics intended for video. When the demo was replaced with a word processing program, the difference between the RGB and the composite images was more evident. The point is that the composite output is of high enough quality for many home and professional uses.

Remember that this is an encoder, not a genlock. By itself, the A600 cannot overlay computer graphics on an incoming video signal. It also has no room for internal expansion cards. This precludes use of such traditional computer-assisted video paraphernalia as time base correctors, internal genlocks, 24-bit display boards, and the Video Toaster. Does this mean that the A600 is useless for today's desktop video production? Don't bet on it.

Too Much Hype?

Though the marriage of the Amiga computer and video production is a strong union, both existed without the other's help for some time. While the Amiga has enticed many computer hobbyists to try their hands at video production, others with established video production services have been recently drawn to the Amiga because of its reputation as a powerful video machine.

Unfortunately, because of all the hype, many videomakers assume that doing video with the Amiga requires a Video Toaster, unaware of the many functions (e.g. character generation) for which videographers have been using it years before the Toaster's release. Many have already invested in video mixing devices that perform keying and switching effects similar to the Toaster's. If you are outfitting a video production facility from scratch, the Video Toaster is the obvious choice for an all-purpose production tool, but if you've already invested thousands of dollars in equipment that duplicates many of the Toaster's functions, you would understandably be hesitant before saddling yourself with a Toaster. If you use a video mixer and are hesitant about working with an Amiga, consider the following.

With programs such as Broadcast Titler 2 and computers like the Amiga 600, we have reached a level of quality that need not apologize to anyone...

A600HD Super Titler

The presentation of text is intrinsic to almost every video production. The quality of character generation is a major concern whether conveying educational information or simply rolling credits. Text generation is such a basic part of video production that it is not surprising to see several programs attempt to produce broadcast-quality titles out of our little video machine.

Arguably the best of the current crop of software titlers is the Super Hi Res version of *Broadcast Titler 2* from InnoVision Technology. This program comes with so many features and functions that to list them all would become tedious. It can't animate titles in 3D, but it can perform just about any other trick you've ever seen done with text. Taking advantage of the A600's Super Denise chip, it has an equivalent resolution of better then 35 nanoseconds, definitely in the broadcast-quality ballpark. Hardware requirements are an Amiga with the Enhanced Chip Set, 1.5 megs of memory, and a hard drive or second disk drive.

So, see what you think of this system: A two-megabyte A600 and Broadcast Titler 2 installed on the hard drive with 50 resident fonts. An Amiga with two megabytes of memory can display up to 200 pages of text. The text can be entered manually or read directly from an ASCII text file. With screen resolutions of up to 1472 x 480 pixels, more information can be presented legibly with smaller fonts. It is possible to convert existing Amiga bitmapped fonts to Super Hi Res through use of the separately available enhancer software. This gives you access to the hundreds of fine fonts available commercially and through the public domain.

Think of it; studio-quality character generation in a device smaller than most typewriters. This could be very convenient for on-location shoots, as it is self-contained with the built-in encoder and the software installed on the hard drive.

Laying Over the Overlays

If you really need to, you can still place Amiga graphics over external video. You could use an external genlock, or you could create your Amiga graphics using a color you can "key" out with a video mixer. The composite video signal emanating from the back of the A600 can be treated like any other video source, except that it does not require time base correction and will always give you first-generation quality.

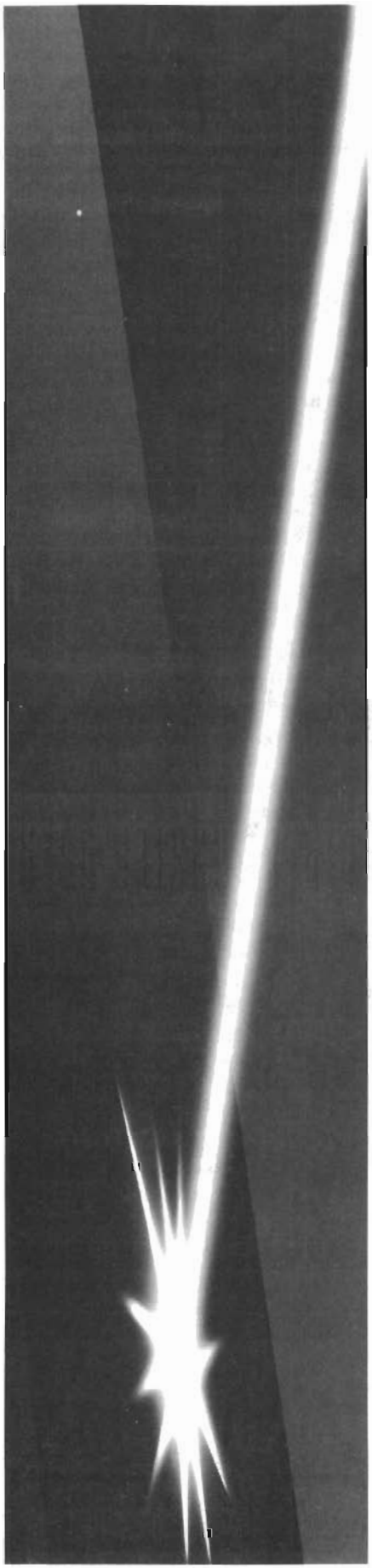
Of course, you are by no means limited to doing titling only. Anyone owning an Amiga should also have Deluxe Paint IV (I believe Deluxe Paint should become part of the operating system), which can be used to create mattes, backgrounds and animated graphs.

What's Next?

The aforementioned AGA chip set is sure to spawn some truly awesome graphics software. Your decision is whether to take a chance on riding the cutting edge of technology, or continue with a proven quality tool. With programs such as Broadcast Titler 2 and computers like the Amiga 600, we have reached a level of quality that need not apologize to anyone, and will continue to serve the professional video producer for years to come.

Commodore Business Machines
1200 Wilson Drive
West Chester, PA 19380,
(215) 431-9100

InnoVision Technology
1933 Davis Street
Suite 238, San Leandro, CA 94577
(510) 638-8432



Single Framing the Infrared Way:

A Hands-On Review

© 1993 by Jose Burgos and Diana Medina

Anyone that's ever tried to create marketable animation on a limited budget knows it's a difficult task. As a 3D animator with little equipment and even fewer funds, I challenged myself to find an inexpensive way to produce animation. The answer came with my purchase of a Mega Midget Racer 25 Mhz 68030 accelerator with eight megabytes of RAM, which allows faster animation playback. I'd been selling HAM-mode stills and animations in on disk for a while, but the quality was acceptable only to a few Amiga-based video studios. The first breakthrough came when I acquired a prosumer JVC HRD970U VHS deck and DCTV. I was now running animation in DCTV's millions of colors and recording with an SVHS AG450 camera (which I had access to) or the JVC-VCR, both in real time. With this equipment I was able to make a little extra money, but I dreamt of the day I would be able to make a bid on a major animation, like a super exploding, spinning, shining logo—you know, the usual stuff. The problem was that on my equipment any detailed or busy information I processed onto the screen ran unevenly, even the shorts. This happens because of the slow screen refresh rate at DCTV's 736 x 482 resolution, and it looks pretty bad. As prospective customers wouldn't try me without a faster-running test animation, I considered buying a Syquest removable hard drive and sending out the disk to be single-frame recorded, but that would have been too expensive if clients requested changes. I kept these options in mind, however, as I sought a way to record test animations before sending my files out to a service (upon client approval) with a script for recording.

The Transporter/Airlink Solution

After considering and rejecting several options, I finally hit upon a workable system. I discovered Transporter by Merlin's Software (listed at $248). I had read the ad for Transporter numerous times but remained unimpressed. I didn't realize that this system, along with Airlink (listed at $50), could record to any infrared-controlled VCR. Being a skeptic, I decided to call Amazing Computers where I was connected to Jeff White, Transporter's programmer. He graciously took the time to explain system calibration step by step, as I will do now for you.

The first thing you have to know is that Transporter is the best script-making program I have ever used. With this program, creating animations on videotape decks or in the standard Amiga (opcode 5) animation format is as easy as using a word processer. It has built-in Loop, Frame Repeat, and Ping-Pong functions, and it can access most frame buffers. This is not limited to viewing files through the frame buffer but also frame grabbing, if the card has the option (e.g. the Video Toaster).

Transporter's ability to single-frame record to an infrared VCR works through a piece of hardware called Airlink. Airlink uses the second mouse port to receive and transmit infrared signals. Once Airlink is running you train it like a universal remote. After pointing to it and sampling the pulses you send the pulses to Airlink's air window

where the gadget corresponds to Pause, Record or one of the other commands. All of this is fully explained in the manual.

As soon as you have Airlink trained and saved, you run Transporter. Remember, these instructions are for calibrating the system before you actually use it. First use Transporter to "disassemble" the supplied sample animation, called Frametest, into separate IFF frames. During the disassembly process a dialog box shows the progress; stop it after about five frames. The next step is to clear your script and load the IFF frames you now have (following Transporter's manual on creating a script). If you use DCTV and don't want to disconnect it to connect a genlock, just connect an RCA phone jack cable from the Amiga's video to the input of the VCR. Don't worry about the display being in monochrome; all you need for calibration is the number displayed in the animation. Next you select "Amiga Display" in Transporter. Now you've reached the transporting section of the program.

Thrilled by my success, I began a demo of a jet flying by a logo...

Calibration

Before you continue, make certain that the control gadgets on the VCR work. If not, switch to the WorkBench screen and make sure the Air window is open. As soon as the VCR is functioning properly, you must find the right delay timings. The Transporter manual suggests "Pause @2 Pause." This means that after the initial string, which puts the VCR into Record, a Pause command is issued, followed by a two-second delay, then another Pause is issued which should take the deck out of Pause, resuming recording. Some VCRs, such as my JVC HRD970U, require that you press Play while paused during Record to start recording again, in which case the delay timing string might look like "Pause @2 Play." This is easy to test using your VCR's remote control. Press Record, then Pause and Pause again. If it doesn't resume recording, press Play. Once you have determined your string, select Begin from Transporter. The frame will display, record for two seconds, pause and repeat for five frames.

Upon completion, rewind and view the test. If all the frames were recorded in the proper order, you're done. If, however, your frames did not record in order (mine didn't) you have to fiddle with the delay again. Begin the process again and watch the screen to see if the frame is being displayed while the unit is recording. If it displays too quickly or vanishes when the VCR starts recording you need a delay before the Play/Pause command. On my setup, I added a delay of 4 seconds (@4) before Play. The string then read "@4 Play @2 Pause." I began again and was recording too much information. Upon investigation, I noticed strange sounds emanating from my VCR as it went in and out of Record. Normally my VCR rolls once while in Record and again when I hit Pause. Then it retracts a little.

I had to add a delay at the end of the string to allow this action to occur. At this point the string was "@4 Play @2 Pause @2." This sequence allowed the deck to roll for two seconds, roll again and retract properly, but it was still recording too much information. This meant experimenting with the middle delay until I found a successful time of 1.2 seconds (@1.2). After testing the entire process successfully several times, I saved my setup. Next, I disassembled the entire Frametest animation and "transported" it with excellent results. Accuracy was plus/minus two frames. Thrilled by my success with the test frames, I began a demo of a jet flying by a logo, designing the script through Transporter. I looped some parts, ping-ponged others, and a 60-frame render from Imagine mushroomed into an awesome 240-frame animation. All the experimenting had paid off.

Start Selling!

Now you're ready to start submitting test animation tapes to clients. I was pleased to discover that Amazing Computers single-frames to tape and accepts Syquest cartridges. If your client approves the test, you can send the Syquest cartridge with the saved script and get your animation back exactly as the customer approved it. You are now ready to record your own super animation, or even a full-feature 30-minute production. Good luck!

If you have any questions, write to me in care of the New York City Amiga User's group, AMUSE, 151 First Avenue, New York, New York 10003.

Transporter, by Merlin's Software, is distributed by Amazing Computers & Videos, 1441 E. Fletcher Avenue, Tampa, Florida, 33612. The phone number is (813) 977-6511. The contact address for Airlink by Geodesic Designs, Inc. is P.O. Box 956068, Duluth, Georgia, 30136. The phone number is (404) 822-0566.

Logo Treatments: Dealing, Doing, and Delivering

The business and practicalities of selling an Amiga graphics service.

© 1993 by Patrik Beck

The Amiga has long been known as a godsend for budget videographers (those with less than a hundred thousand dollars to spend on a graphics workstation). Not only can you get started in Amiga video for less than 1/100 of that, you can run real-time animation. Toasters and wonder boxes aside, the ability to create, run, and easily videotape real-time animation is the true power of the Amiga. The Amiga's most common uses in video are titling and logo treatments.

Logos a'Flyin'

A combination of factors has led to a glut in today's video services market. More high-quality equipment is available to the average Joe Video. At the same time the video medium is becoming a more important form of communicating, archiving, and promotion.

There is nothing like some flashy animation for adding production value to a budget video. For the past two years I have been doing custom animations and logo treatments for local businesses, working both with independent film makers, as well as places with their own in-house production facilities. There are plenty of opportunities to do this kind of work. It is not necessary to have a maxed out Amiga workstation to do professional quality work. *What you lack in hardware you must make up for in ambition and imagination.*

An Initial Setup

We will go into more details later, but all you need to start doing logos is an Amiga with at least a megabyte of RAM, and Deluxe Paint III or IV. This is what is necessary. To make things easier I recommend the following hardware items, in order of importance:

1. Second disk drive
2. More memory
3. Digitizer
4. More memory
5. Hard drive
6. Genlock
7. More memory

Finding Clients

Locating potential clients is as easy as opening up the yellow pages. Look under video production services, tape duplicating and transfer service, video editing, and similar headings to get names and addresses.

The best way to introduce yourself and your services is up to you. One method is to lay out a handsome flyer and mail it to each potential client, keeping a record so you can place a follow-up phone call at a later date. Or you could simply call a likely prospect and say, "Hi, have you ever heard of the Amiga computer?"

Get to know people in the video community. This is networking, and it works; most of your job leads will come from suggestions and recommendations of other people.

Selling Your Service

Once you have persuaded potential clients to meet with you, you must convince them of your worth. It is not enough to tell them, "I can do some really cool amazing stuff, I just haven't done it yet." To sell a video service, you must present a sample of your work. If they have an Amiga available you can bring examples on disk, preferably ready to run from an icon, as you may be nervous and do not need to be flustered by a finicky player program. If no Amiga is available, borrow or rent a professional-quality genlock to get your work on tape.

Be certain that you're showing your best work. It is better to show only a few minutes of knockout material then to have your audience lose interest. I had my first demo taped and edited very nicely by a professional videographer in exchange for doing a treatment of his logo. In any jobs you do, be sure to retain the right to use it for promoting yourself.

Setting a Price

This is tough. The best way to find out the value of a custom animation is to call a place that does it. Ask them about their fees. These days nearly every production house can do some type of 3D modeling and animation, but I was surprised to find out the cost of traditional cartoon cell animation and how hard it was to find someone to do it. To date, my highest paying job has been for an animation of a walking clown.

When setting a price, keep in mind how long it will take you to complete the task. You might start at $5 an hour and base the estimate on that. If that seems like low pay, remember that months from now you will be doing a similar job in much less time because of your increasing proficiency.

Another factor to keep in mind is that your client is working within a budget, but will often pay more if they are facing a deadline. Strangely enough, you can also hurt yourself by charging too little. Human nature makes us want to believe that the more we pay, the better quality we'll get. By offering your services for too little, people may assume that your work is of poor quality. Most logo treatments I have done are in the one to five hundred dollar range.

Doing Logos

I won't tell you how to do logos, but I will tell you how to do them better.

When doing a logo treatment, you must have an example of the logo itself. If you're lucky, you get a nice 8x10 black-and-white photocopy to work from, with lots of straight lines and geometric shapes. More typically, the logo consists of stylized letters, or worse yet, woodland creatures. I once had only the emblem sewn onto a hat to work from.

A warning about logos: Companies are very particular about them. They need to be reproduced exactly, so that they are indistinguishable from the original. If you are working without a digitizer, finding a similar font and changing it is much easier then starting from scratch. NewTek's DigiView digitizer is both economical and versatile for logo work. Even a poorly digitized black-and-white logo to work from helps complete the task much faster. If you are doing emblems, symbols or mascots, a digitizer is almost indispensable.

Recently we received a photocopy of an octagonal logo only an inch and a half wide! Scanning it at 300 DPI gave us a screen image 450 pixels wide, nearly filling the monitor screen. Resolution is a funny thing.

Once you have your properly proportioned logo available to work with, you must decide what you will do with it. If possible, see what has been done previously. Often you will be given a free hand

in creating animations, but sometimes the client will have something specific in mind. If possible, write down what your clients describe and read it back to them. Often it is a case of, "I want you to create what I see in my head." This is not an uncommon situation and is almost impossible to get right the first time. To circumvent some frustration, have the client OK some preliminary keyframes or wire frame animation. This is beneficial to both you and the client.

Are you planning to work in 2D or 3D? I suggest going with your strongest talents, but if you have the brain for it the most powerful animations come from combining the two (5D?). For instance, try rendering a single frame of a complex scene to use as a background for animated characters. Conversely, you might render a single object like a ringing bell or spinning wheel and use it as an animated brush.

Delivering Your Product

If you are starting out on a low budget, ideally you would deliver your animation on disk. That way the client has complete control over the animation playback and has the best possible image quality going to tape. Chances are that if they are using an Amiga in their productions, they have a better genlock then you do. Be sure you know the limitations of your clients' systems. Do they have accelerators? Hard drives? Do they have sufficient RAM to play the animation? Are your clients knowledgeable enough to know how to play the animation the way they want it? There are many people who never use their Amigas for anything but character generation, and Toaster owners who have never used it for anything but its switching capabilities. Your job is not done until you deliver something the client can use.

Getting Paid

Once your client has accepted your work, you should present him with an invoice. Invoice forms can be found at most office supply stores. It should include a short description of the animation, the price, date, and your name. When the invoice is paid, write "Paid in full" on it, date it, and send the client a copy.

Being an entrepreneur is not an easy task. You need to know more than how to perform your service; you need to know how to sell it, promote it and deliver it. If you're unable to find out all the things you need to know on your own, find friendly, knowledgeable people. Always do quality work, because a bad reputation is hard to live down.

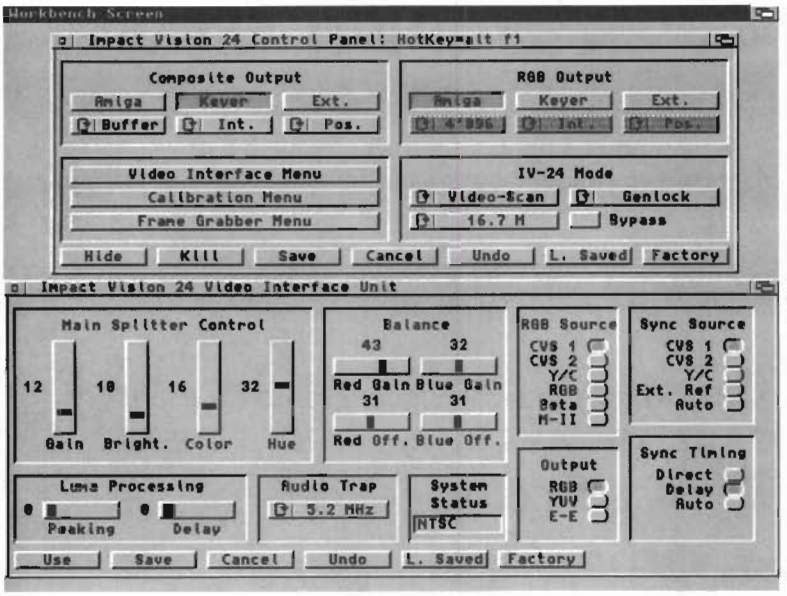
There are techniques you need to know that you will not learn overnight. They require experience and practice. Along the way you will develop styles and invent techniques. Becoming a success in something you really want to do is worth the hard work and late nights.

Good luck!

The IV-24 From GVP

(Part Two)

© 1993 by Matt Drabick



After several months of waiting, I received a VIU-CT color splitter from GVP for my IV-24. As promised in my initial review of the IV-24 in the March, 1992 issue of AVID (Volume 3 Issue 3), this article is an in-depth look at the hardware and software included with the IV-24. In addition to the splitter, now officially called the VIU or Video Interface Unit, new software has been bundled with the board. Because there is so much to say about the VIU and the new software, I will write the promised tutorial article in a future issue of AVID.

With the release of the VIU color splitter for the IV-24, GVP now has a truly outstanding package to offer Amiga video users. Two versions of the VIU or Video Interface Unit are available, the VIU-S and the VIU-CT. Two new programs have been added; an image processor called Desktop Darkroom and a transition program for switching between two video inputs called MyLAD. Macro Paint, the 24-bit paint program originally included with the IV-24, has been significantly improved and is now an exceptional program. The special IV-24 versions of Caligari, a 3D rendering program (minus the animation capability) and Scala, an Amiga native-display titling program, are essentially unchanged. Other programs include control software for framegrabbing and the picture-in-picture display and an extensive control panel utility for setting the IV-24's display options.

Splittin' Images

The VIU-S and the VIU-CT are designed to split a video signal input into its red, green and blue components. Because the IV-24 requires RGB input for its framegrabbing, picture-in-picture display and other functions, it's essential to use a color splitter with the IV-24 when working with non-RGB (i.e. most) video inputs. Both models offer two channels of composite video input, one S-Video (Y/C) input, separate red, green and blue inputs, composite sync input, and an input for a digital or analog key source. Both models offer one composite video output, one S-Video output, and an external keyer output. The VIU-CT, or Component Transcoder model, adds Y, R-Y, B-Y component input for use with Betacam and MII video equipment and also provides separate red, green and blue or Y, R-Y, B-Y output, a composite sync output, and a VGA monitor output. The VIU-S is included with the purchase price of the IV-24 (list price $2199). The more capable VIU-CT has a list price of $499.00 and is well worth the additional cost if you can use its extra power.

Both models of the VIU are professional-looking external boxes that connect to the IV-24 board housed inside the Amiga with supplied cables. LED indicators on the front of the VIU indicate the presence and type of sync input and power status. BNC connectors are used for all of the various video inputs and outputs with the exception of the 4-pin connectors used with the S-Video input/output and the 15-pin VGA connector used by the VIU-CT for feeding an RGB monitor. It's possible to use the two composite video inputs on the VIU as the S-Video input, with the luminance channel of the Y/C signal going to the first composite video input and the chrominance channel going to the second composite video input. Some Super-VHS video equipment, such as distribution amplifiers, uses BNC connectors instead of the more common 4-pin or 7-pin connectors. A serial command bus port using an RJ-type jack is also included for connection of an external analog control device. Among other uses, you can connect an external box with faders to this port for performing manual dissolves between two video sources.

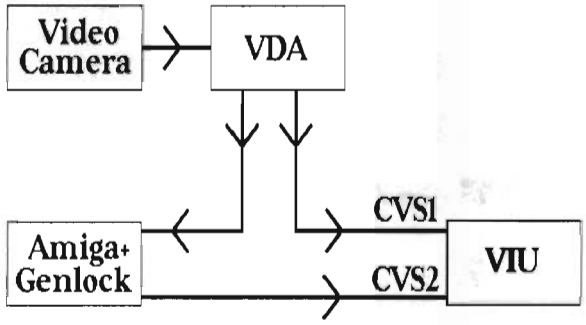
Mixing It Up

Two synchronous or genlocked video sources can be connected to the IV-24 at the same time and have their signals mixed together. This can be either two composite video inputs, or when working with the VIU-CT one composite and one RGB (or component) video input, or one S-Video and one RGB (or component) input. Because the S-Video input shares the same circuitry used by the two composite video inputs, simultaneously connecting an S-Video and composite video input won't work. Regardless of the input signal, with the VIU-CT, composite, S-Video and RGB or component video output are always available. With the VIU-S, both composite and S-Video output are always available. While the video output from the IV-24 is exceptionally clean, the option exists to connect a high-end video encoder to the RGB output of the VIU-CT. Any type of device that accepts an RGB input such as an optical disc recorder can be connected to the RGB output as well.

Unlike most video production switchers I've worked with, which require fully-timed inputs (the phase of the sync and subcarrier adjusted to a master reference), the two inputs used with the IV-24 only need to be genlocked. A TBC isn't necessary when using the output from a VCR. By using a video distribution amplifier (VDA) to split one of the IV-24 composite video inputs into two separate signals, one of the outputs from the VDA can be used as the first video input to the IV-24. The second output from the VDA can be used as the external reference signal for the second composite video input to the IV-24. By simply genlocking the second video source to the second output from the VDA, the input can be used with the IV-24 without

having to adjust its sync and subcarrier phase.

I successfully used the above method to synchronize a VCR and a second Amiga equipped with an inexpensive genlock to the IV-24. I experienced no color shifts or horizontal glitches while performing dissolves and wipes between the two sources. Because the IV-24 permits software control of which input becomes the sync reference (CVS1, CVS2, S-Video or External Reference (blackburst, etc.) or generates its own sync signal if no external input is received), the IV-24 can be configured to function as either a high-quality encoder or a genlock. While the IV-24 accepts blackburst via its external reference input and can be used downstream with another video device such as a production switcher or character generator, the unit doesn't have any internal or external trim pots for adjusting its sync and subcarrier phase relative to an external sync signal. Of course, the VIU-CT's composite sync output can always be used as the master sync source for other video production equipment such as cameras, VCRs, character generators, or chroma keyers in a studio.



Genlocking two video sources with IV-24

It's probably best to use both an RGB monitor and a composite video monitor when using the IV-24 for video applications. The RGB monitor needs to be able to accept a 15.75Khz input. If two monitors aren't in the budget, it's possible to use a standard Commodore 1084S monitor and switch back and forth between the composite video and RGB displays. You'll need a special cable (available from Redmond Cable) to connect the VGA RGB output to the RGB port on the 1084S monitor. Because the VIU-CT can output an RGB signal via three BNC connectors, it's possible to connect an RGB monitor equipped with separate RGB inputs as well.

The Software

Once the IV-24 board has been installed inside an Amiga 2000 or 3000 and the Video Interface Unit connected to the board, the next step is to open the IVCP (WorkBench 1.3) or IVCP2 (WorkBench 2.0 and above) control panel utility programs. Both utility programs are subdivided into four modules or quadrants, one for control over the composite video output, another for the RGB output (which also controls the S-Video output), a third that controls the IV-24 mode, and a fourth module that provides access to three separate menus for the Video Interface Unit, IV-24 board calibration, and the framegrabber function.

The IV-24 mode module allows the selection of either Hi-Scan (31.5Khz) or Video-Scan (15.75Khz) output through the VGA RGB port and the various video output connectors. For video applications such as genlocking and keying the board must be set to the genlock mode, as opposed to the master setting which forces the IV-24 to act as the Amiga's main synchronizing clock. The IV-24 can also be toggled between 12-bit and 24-bit display modes. Finally, a bypass button is included which circumvents the IV-24 altogether and only outputs native Amiga display. When recording video graphics and animations created by DPaint and other similar programs, GVP recommends using the bypass mode.

The composite video and RGB output modules look very similar, with radio buttons for selecting their respective output of either Amiga graphics, keyer, or external video input. When the keyer mode is selected, either an internal key generated by the Amiga or an external key source such as a chroma keyer can be selected. The RGB keyer can be toggled between either 12-bit or 24-bit output and can accept an external chroma key signal. The composite analog keyer can overlay or underlay an external source with the IV-24 frame buffer and passes the combined output as a composite signal. When the composite keyer is set to external either chroma keying or luminance keying can be performed as well. To make things even more interesting, the output of the RGB digital keyer is passed downstream to the composite video keyer. Such a vast selection of inputs, outputs and keying options to choose from gives you the equivalent of a professional two-input production switcher.

The VIU Menu

The Video Interface Unit menu provides a great deal of control over the VIU-S and VIU-CT. The gain or contrast, brightness, hue and saturation of the incoming RGB can be increased or decreased. Color balance controls which affect the red and blue gain and offset of the incoming RGB source are also included, providing for white balancing after the fact from videotape or a live camera feed. The incoming RGB source can be selected from either of the composite video, S-Video, RGB, Betacam and MII inputs. The sync source can be selected from either of the two composite video inputs, S-Video or external reference (blackburst) inputs. When using the IV-24 to perform transitions between two inputs, one of the inputs must be defined as the sync source and the other input defined as the RGB source. With the VIU-CT another cluster of buttons affects the RGB output via its three BNC connectors, selecting between RGB, component (Betacam or MII) or E-to-E (the incoming RGB or component video is passed through the board without any processing). A very nice feature is the two luma processing controls, which only work with the composite and S-Video inputs. Peaking sharpens the image and Delay compensates for any misalignment of the luminance and chrominance channels. Many of the above functions can be controlled using keyboard commands, providing for real-time manipulation of the video signal while recording directly to videotape.

Calibrating Things

The Calibration menu controls the internal signal processing performed by the IV-24 itself instead of the VIU. The RGB input adjustment offers four sliders for changing the contrast and red, green and blue components of the incoming RGB source. The composite keyer adjustment is very interesting, providing for the ability to overlay or key Amiga graphics (both native display and 24-bit) over an incoming video signal or vice versa. Because the composite keyer is an analog device, variable mixing of the two sources is possible, allowing for full or partial dissolves. As an example, a title generated by Scala can be slowly dissolved over a live video background supplied from tape or a video camera. Keyboard equivalents can be used so that the control panel is hidden from view while recording. Finally, a composite output adjustment provides some control over the color phase and R-Y and B-Y components of the composite video output.

The IV-24 can capture images in real-time from an RGB source. The Framegrabber menu provides for the size of the captured image and any image offset. Images can be saved to hard drive or floppy, but for the best results saving to RAM is

recommended. Saving to RAM allows for frames to be grabbed and saved very quickly and is only limited by the amount of free RAM available. An auto-increment function can automatically add an appended serial number to the file name (e.g. image.0001, image.0002, etc.). In addition to capturing and saving images, the framegrabber can be used to freeze the incoming video signal, useful as a special effect. Both capturing images and freezing the input can be performed using keyboard commands.

Finally, at the bottom of the IVCP and IVCP2 control panel and the Video Interface Menu are various clickable buttons which allow for the various settings that are selected to be used, saved, undone or canceled. Other options include Last Saved and Factory, the latter to restore the board to the condition in which it left the factory. The IVCP or IVCP2 control panel can be hidden from view as well to prevent from being recorded to videotape. Pressing Alt and F1 on the keyboard returns the control panel to the screen.

Other Goodies

Two other utility programs, IVView and PIP, are included with the IV-24. IVView is a simple utility for readily displaying 8-bit, 12-bit and 24-bit images using the IV-24 framebuffer, useful for quickly previewing images without having to use the paint program or the IVCP2 control panel. IVView can be run from either the CLI or by using ARexx commands as well as simply clicking on the file to be viewed and then the IVView icon on your WorkBench screen. PIP, or picture-in-picture, is a resizable 12-bit display window that overlays scaled live video on top of a normal Amiga window. The maximum size of the PIP window is 382 horizontal by 242 vertical pixels or about a quarter of the screen. The window can be dragged around and placed anywhere on the screen. At the bottom and right-hand side of the PIP display are controls (which can be hidden and then recalled using the keyboard) that can resize and/or offset the display, freeze the incoming video signal, as well as save the various settings used. Despite being only 12-bit, the image quality is very good, and is acceptable for many video applications. An interesting special effect can be achieved by running the smaller PIP window in the foreground while displaying the same footage as a full-screen background behind the PIP window. The results can be taken out as either RGB or video when using the VIU-CT.

Now included with the IV-24 are two new programs, MyLAD and Desktop Darkroom. Neither is quite finished at this writing, so I had to work with pre-release versions. MyLAD (My Live Action Director) allows for various preset transitions between two synchronous inputs. The program comes with about 50 transitions, including vertical, horizontal, diagonal, rectangular, circle and mosaic wipes. My favorite is the paint brush wipe, which uses a round brush shape to gradually reveal a second image behind the first image. Planned upgrades to the program include the ability to create custom wipes and also vary the transition speed.

Desktop Darkroom is a powerful image capture and processing program, with capabilities comparable to Art Department Professional. Desktop Darkroom can control the various calibration settings of the IV-24 itself as well as the RGB source using the VIU-S or VIU-CT. The program can capture images and store them in memory as 32-bit files, 24 bits for color and eight bits for masking or alpha channel purposes. While the image data is manipulated as 32-bit files, images can be displayed as standard Amiga display modes (low-resolution, high-resolution or HAM) for use with programs like Deluxe Paint. Desktop Darkroom requires a minimum of four megabytes of RAM to run and two megabytes of Chip RAM to display 24-bit images. Machines with less Chip RAM can still process the image data as 24-bit files but won't be able to display them as 24-bit files. The program also requires a hard drive plus an accelerated Amiga (68030 or 68040).

The IV-24 is a high-quality encoder and genlock, performs flawless real-time framegrabbing.

Desktop Darkroom can perform a number of image processing functions that are broken down into two categories called "goodies" and "filters". Goodies include Multiply (the image is split into four smaller but identical images in a two by two array), Divide (a quarter screen image is scaled up to a full screen image with a pixelated look), Flip X, Flip Y, Mirror left, right, up and down, Deinterlace (which removes any motion artifacts from a framegrabbed image), and Gradient (which turns a color image into a gray scale image). Filters include Average, Gauss, Uniform, Kuwahara (turns an image into an oil painting), the ability to create brushes from an image, and add embossed text and standard Amiga IFF images with drop shadows over a 24-bit background. In all, this is a very impressive program that offers the user a lot of image-processing and manipulation capability.

The other major piece of software bundled with the IV-24 is the 24-bit paint program Macro Paint. Happily, Macro Paint has been significantly upgraded and improved since my previous review. While the program offers essentially the same features as before, with the notable exception of now being able to framegrab images and remove any motion artifacts, everything now functions properly. The flashing green tool strip at the bottom has been replaced by a much smaller square toolbox which can be moved around on the screen. Macro Paint offers a complete selection of standard drawing tools. While the foreground, gradient and background colors (plus a handful of other colors) are displayed by the toolbox, a complete palette requester with 64 colors is available by clicking a button on the toolbox. RGB and HSV sliders are available for modifying the palette as well as creating color spreads and ranges. Keyboard commands can be used for many of the program's functions. Planned additions to the program include a color wheel for mixing and creating new colors, and the ability to perform brush wraps.

Macro Paint only works in high resolution with up to 736 horizontal by 482 vertical pixels. The color depth can be set to 4,096, 32,000, 256,000, 2,000,000 or 16,000,000 colors. While five megabytes of RAM are required to run the program, at least eight megabytes of RAM and an accelerated Amiga are recommended. While this may seem like a lot of memory, remember that working with 24-bit images is a memory-intensive process.

Conclusion

For doing high-end video production with your Amiga at a relatively modest cost, the IV-24 is unbeatable. The IV-24 is a high-quality encoder and genlock, performs flawless real-time framegrabbing, can display scaled live video in a normal Amiga window using the PIP function, works in either 12-bit or 24-bit modes, can act as a switcher between two video sources with a variety of wipes, offers real-time image processing of the incoming RGB video source, and inputs and outputs just about every videotape format available when using the VIU-CT color splitter. The software is equally impressive, with an on-board character generator, 24-bit 3D rendering and paint programs, image processing program, and a variety of useful utility programs for making the most of the IV-24's features. This is a very impressive package that bodes well for the future of both the Amiga and GVP.

IV-24 by GVP 600 Clark Avenue King of Prussia, PA 19406, (215) 337-8770, (215) 337-9922 Fax

Redmond Cable Corp., 1731 A1 NE 67th St., Redmond, WA 98052, (206) 882-2009 West, (615) 478-5760 East, (206) 883-1430 Fax

A Superior 3D Object Editing System:

GFX-CAD 3000 and Imagine

Desktop video, animation and multi media are becoming more than just buzzwords in today's computer lexicon. But these subjects are not new to Amiga users. In fact, they are mature concepts. As users exploit the wealth of graphics software, their needs and wants grow. We all want and demand software that is more intuitive, easier to use and more powerful on every subsequent upgrade, and for the most part we get it.

One area that hasn't changed much since inception of 3D software is that of object creation. In most cases, objects are still collections of triangles. While preset shapes such as planes, disks, toroids and other primitives are available for manipulation by a wide variety of tools, the basic structure is still the triangle. No matter how evolved object editing tools become (e.g. bend, twist, etc.), the process is still not intuitive. Wouldn't it be nice to be able to draw an outline in a 3-dimensional space, click on these lines to create surfaces and have a 3D object?

Now there is such a system; GFX-CAD 3000 from Grafx Computing, and Imagine from Impulse, Inc. GFX-CAD 3000 consists of two separate programs, GFXCAD-2D and GFXCAD-3D (CAD stands for Computer Aided Drawing). You can draw outlines in the 2D program, import them into the 3D program, and use a variety of commands to make objects from the outline in three-dimensional space. GFXCAD-3D can then save the 3D object in the Turbo Silver format that can be read by Imagine. The introduction of GFX-CAD 3000 brings to the Amiga a new level of precision and accuracy in 3D modeling.

Real-World Modeling

Recently I modeled and rendered a house from a set of blueprints. The ability to work in real world units (feet in this case) and draw in a natural environment of lines, arcs, and polygons rather than with objects and their associated axes was a necessity, not a luxury. You need professional tools to keep drawings exactly to scale and to generate output in a timely and expedient manner. GFX-CAD 3000 is this front end tool.

To those unfamiliar with the X-CAD products or just not familiar with CAD, please don't think it's too complex, scientific or forbidding. Let me be an example. My first exposure to CAD was through X-CAD Designer, a scaled-down version of X-CAD Pro directed at the "home" user. I had no previous CAD experience. Subsequently I progressed to X-CAD Pro to get more output options. Finally, I needed a way to get precision drawings into a renderer, so I took the plunge into X-CAD3D. Yes, the programs are complex; they have to be. To get the precision needed, thousands of possibilities have to be considered. Input selections, drawing and editing commands, and text attributes all have to be extensive in order to get detailed and accurate output. Any user of 3D software knows about learning curves to get the most out of those programs. It is no different here. So if you are comfortable with the complexities and power of Imagine you should be OK with GFX-CAD 3000.

Some readers might be familiar with an earlier version, X-CAD Pro and X-CAD3D. Complaints were numerous and justified, particularly concerning X-CAD3D. But in the current release bugs have been fixed; no Gurus have visited this writer. Shells have been developed for both programs that makes the interface one of the most advanced in any graphics software. Considering the complexity of a professional CAD system, that is no small feat. There is now a single dongle for both programs. Yes, there's a dongle and I prefer it to looking up key words in manuals. Enough said.

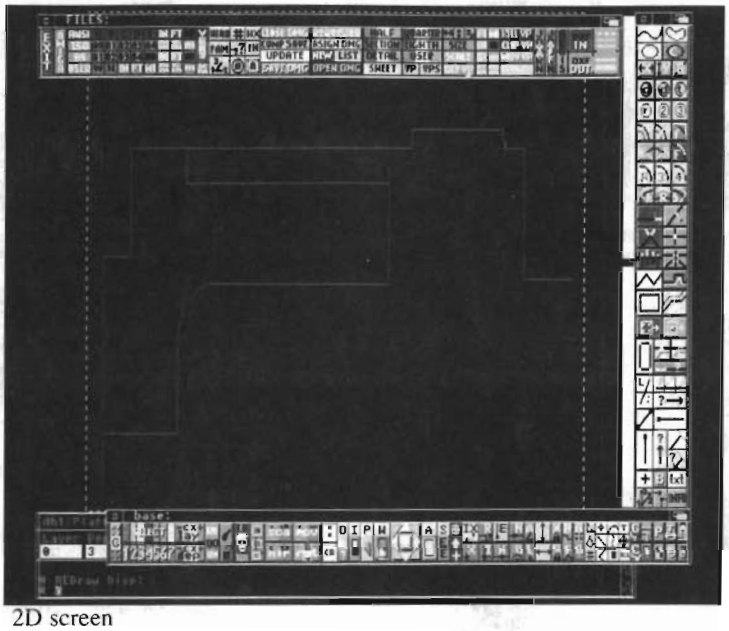
The programs multitask with no problems. While it's a tight squeeze with one megabyte of Chip RAM, all three programs can be open at the same time. To avoid memory problems, I run just two programs concurrently, the 2D and 3D programs, or 3D and Imagine.

The Package

GFX-CAD 3000 consists of six disks, manuals for 2D and 3D, and a dongle. There is a 3D tutorial, but no tutorial for 2D although there should be. Grafx has indicated a 2D tutorial is planned. Installation is automatic. You also get six months of The Amiga CAD Newsletter and telephone support.

For detail work only a high-resolution interlaced screen will do. Since the graphical menu shells can reside on the edges of the screen, overscan should be used to get the maximum view of the drawing area. Both programs use a special palette to minimize flickering. I use a screen of 724 x 464.

Commands use an English-like syntax. An action verb (Draw, Zoom, Delete, etc.) is followed by a modifier or noun (line, window, entity, etc.) and what are called idents, short



2D screen

for identifiers. Idents are the variables that define the noun, such as the length of a desired line. A semicolon is required between the noun and its idents. A carriage return executes the command. An example is "Draw Line: Loc x IX 30 IY 23 (IZ 10 - in 3D)" where a line is drawn incrementally (the I before X, Y, Z) from location x. Location x can be a click of the mouse on the drawing or a host of other location idents. But don't think you have to do the typing! This is where the shells take over. Menu strips containing icons let the user click on the desired action (verb), modifier (noun) and idents icons. Practically all commands can be input with the mouse and these menu icon strips.

Menu strips are organized by function. Drawing and editing functions make up one, and display commands are in another. Text and numerical entries require the keyboard for input. The icons clearly represent their intended functions. While the sheer number of them appears daunting to an untrained eye, these icons are easily recognized after only a short time with the manual. Thus there is a simple command structure and an elegant graphical interface that makes one of the most complex computer applications, CAD, accessible and straightforward.

Commands, Commands, Commands

The sheer quantity of command possibilities, especially in 2D, gives us the precision needed in CAD. Drawing commands include lines, arcs and circles, polygons, text, dimensions (text and graphical notes on the drawing), among others. The idents, especially referencing a point on an existing entity, are numerous: end, mid, near (nearest the click of the mouse on the entity), and intof (intersection of entities). Editing possibilities include Copy, Rotate, Move, Mirror, and Scale. The Break, Trim, and Stretch commands can be used to divide a single entity into two entities, trim an entity to a given point or against another, and to stretch an entity. There are many more to give the kind of exact control not found in any other 3D program.

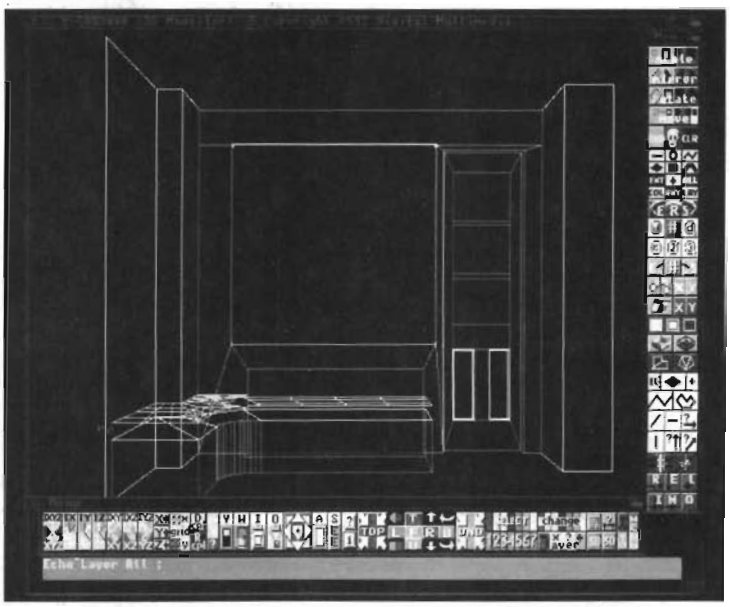
One of the most powerful features is the use of layers. Layers can be thought of as a set of overlaid transparencies each containing a separate part of the drawing. When viewed together, the complete drawing is displayed. But each transparency or sheet can be viewed by itself. Drawing and editing commands only affect entities in the visible layers. There is no need to keep hiding points or entities to see details as in Imagine's Detail editor (with a complex object in Imagine it's often difficult to hide all extraneous points to view just what you want). There are commands to show any desired combination of layers, so any level of detail can be viewed no matter how many layers are used. The importance of this concept cannot be stressed enough. It not only promotes organization, but also keeps complex drawings simple and manageable.

Zoom and Redraw commands let the user enlarge sections of the drawing to fill the display. Modifiers let you zoom up (enlarge), down in increments or by a window specified by the user. Also there is a "Zoom All" to make the whole drawing fill the display. Both programs are fast, but the 2D program is exceptionally fast. The 2D display is fixed at the Amiga resolution of 640x400 to take advantage of the graphics chip set. Thus, redraws and zooms are practically instantaneous, much faster than most CAD programs on other platforms. And this on a plain 68000 Amiga! As mentioned above, use of an overscan screen allows the console window and menus to be placed outside the drawing display on the of the screen. The 3D display size can configured to any size that your monitor supports, the tradeoff being that it is slower than the 2D's. It's still quick, though.

The 3D Program

As mentioned, drawing and editing commands are more extensive in the 2D program. This leads you to use 2D for the bulk of any drawing and 3D to transform those drawings into 3-dimensional models. Outlines, cross sections, and plans are done in 2D and imported into 3D where surfaces are added to the 2D structures, creating the model.

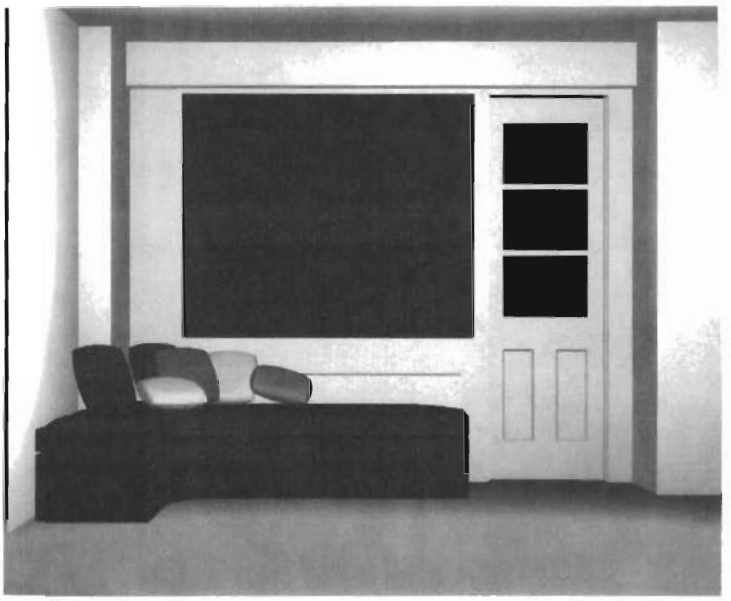
Before getting into specifics of the 3D program, an introduction to some basic user interface concepts is necessary. There's no tri-view, just a full-screen display. It's as if you could manipulate the model in Imagine's Perspective window. The drawing can be rotated about any of the three axes, and you can perform any command in this perspective environment. Unlike Imagine, where you have to pay close attention to an object's axis for functions such as Extrude and Sweep, here you can implement commands in any direction by specifying the desired axis. Instead of keeping track of objects and respective structures (points, edges, faces) here you use layers to keep the drawings organized. In fact, there are no substructures. You only manipulate the lines, arcs, circles that make up the drawing just as if you were drawing on paper, but in a three-dimensional space.



3D screen

Being comfortable in a perspective, three-dimensional space especially while working on a two-dimensional surface (the display) requires some conventions to be understood. A living room is a good example. A two-dimensional drawing of the floor plan is drawn in the 2D program and is quite straightforward. The outline of the walls including such

things as window placement can also be made in the 2D program. Now we wish to import these drawings into the 3D program and make the model of the room. The display in the 2D program is always in the XY plane. The 3D program opens with the XY plane displayed with the Z axis perpendicular to the screen. The command "Add XCAD drawing" (to import a 2D drawing) displays the floor plan on the screen. But people don't look at the world from above, as if in a jet, but from a position on the ground. We look "out" along the XY plane and "up" in the Z direction. So 3D's display is rotated 90 degrees on the X axis. Now, as in reality, the display shows us looking across the floor and XY plane (perpendicular to the screen) and up in the Z direction (from the bottom to top of the display). The 3D program's perspective option provides a more natural view, in which structures get smaller as distance increases. As noted, the display as well as entities or drawings can be rotated independently to create any reference view desired. Then, in different layers, each wall is added and placed on the edges of the floor plan. Thus, the floor is in the XY plane and the walls rise in the Z direction.



3D Surfaces

A surface in 3D is shown as a mesh, like a skin over a frame. Mesh detail or resolution is specified by X and Y values which correspond, for example, to the horizontal and vertical values in an Imagine plane primitive. What is powerful here is that a mesh's resolution can be changed (e.g. for greater precision) without changing the basic entity. There's no need to constantly draw new structures when experimenting with the precision of the cross sections.

Commands to create surfaces are Draw Surface, Srev, and Splane. The Projection commands are analogous to Extrude in Imagine. Draw Surface draws a mesh across any 2 lines or entities. Srev draws a surface created by sweeping an entity around a vector specifying the axis of rotation, like Imagine's Sweep command. Here the vector can be a line in any orientation, not just the Z axis. Splane draws a surface on a common plane (two axes) specified by three or more points.

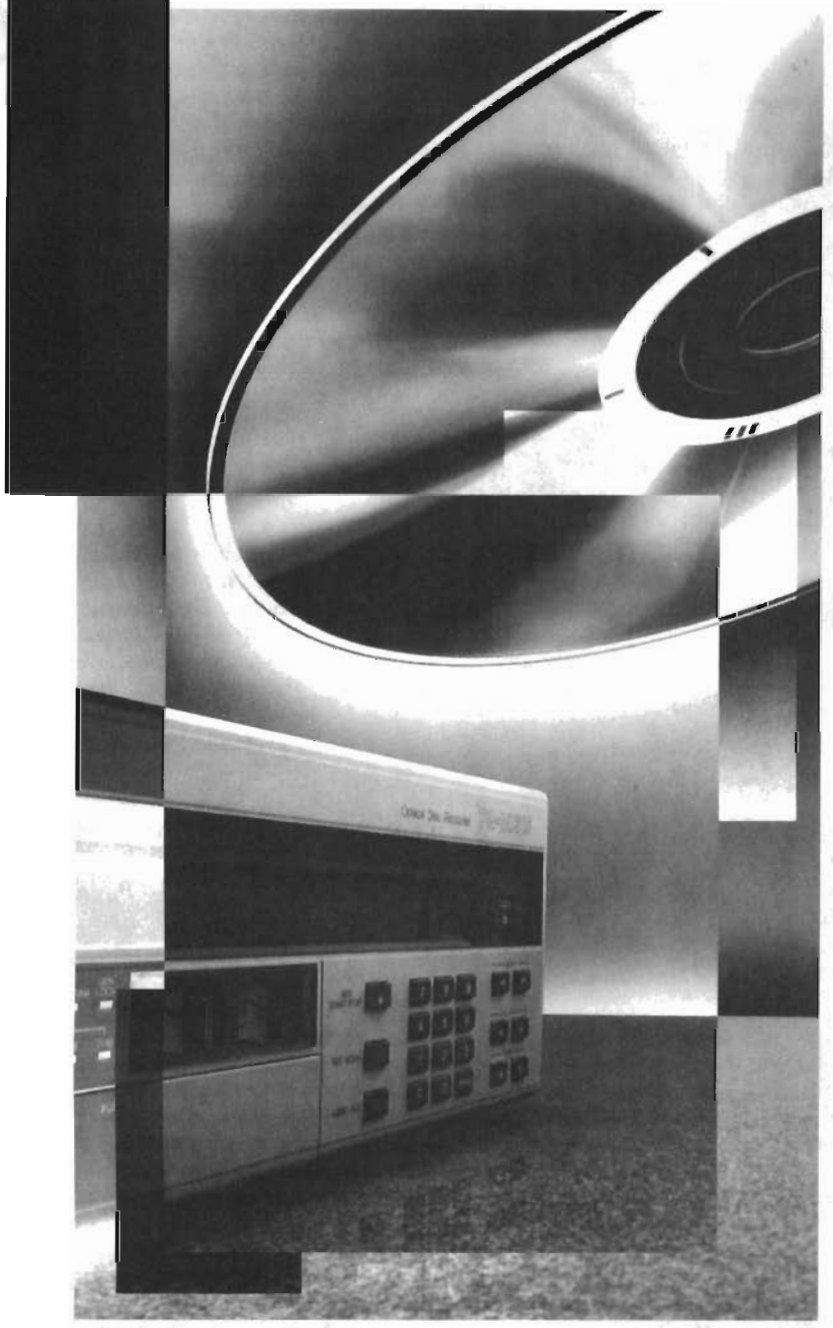
Getting a surface into Imagine is accomplished with the Save Turbo Silver command. This format loads readily into Imagine. Each surface is saved as a separate object with each axis at the origin of Imagine's universe (0,0,0). In Imagine you can either Join surfaces into an object, or keep the surfaces as discrete objects and Group them to have control over all attributes of each surface.

Now for a quick explanation of the example in the screen shots. As mentioned, creation of a floor plan is a straightforward procedure, accomplished drawing a series of lines in the 2D program. It's a pleasure to work in real world units, in this case inches. In 3D the walls were extruded up in the Z direction, except for the back wall with the picture window. That wall and the door outline were done in 2D. The door indentations were done in 3D. The platform outline was extruded to give it its height and surfaces were drawn to give it a top. The cushion top had surface meshes sufficient to be dragged in Imagine to give a fluffy appearance to the cushion. The pillows used a combination of controls in all three programs. While this is a simple example you get the idea that complex drawings, architectural or otherwise, can be done with these programs.

Remember, this is a professional CAD system. With patience and practice you can master GFX-CAD 3000. The people at Grafx Computing have always been courteous and knowledgeable to this user. As we New Yorkers say, check it out!

GFX-CAD 3000
$649
Grafx Computing
6680 Wiltsie Road
Panama, New York
(716) 782-2468

Ted Cohn can be reached on Portal as ted_c



Recording 3D Animations:

A Look at Recordable Laser Technology

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The world of 3D animation is a complicated one indeed. First one must decide which computer to use. While this is not an easy decision, most agree that the Amiga has a tremendous price/performance advantage over the Macintosh and the IBM platforms. Perhaps a more important decision is which software to use. Because there is no one piece of Amiga 3D software that does everything, it's likely that you will end up using several different applications.

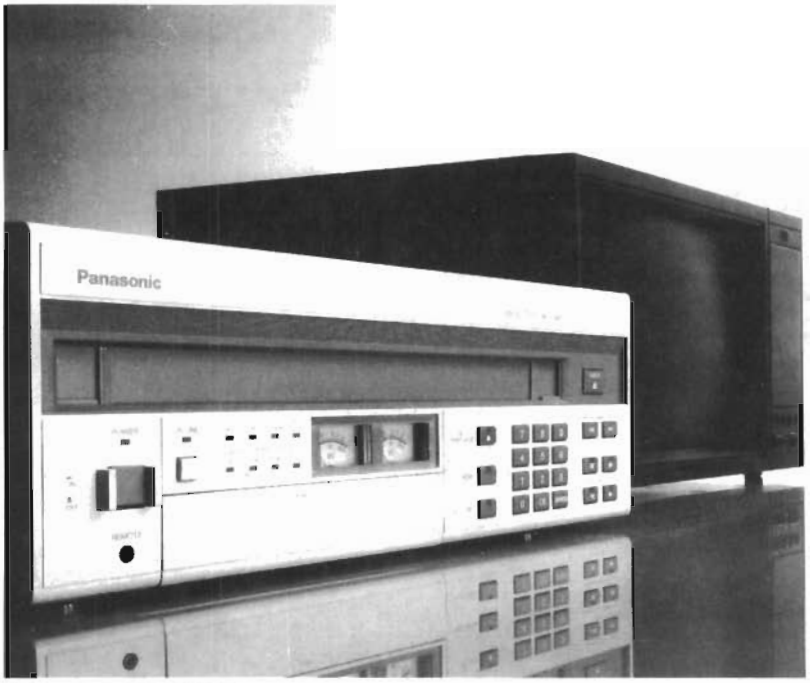
Once the system is together and the first animation has been rendered, you will need to record the frames on videotape. There are many ways to do this; one of the most simple and cost effective methods is to use DCTV (Digital Creations). DCTV can be used to convert the frames to a proprietary format that can be displayed from RAM by the unit and played back as a regular Amiga animation.

This is significant because 24-bit frames are generally upwards of a megabyte in size, too large for any computer to play back at 30 frames per second. DCTV shrinks the frames to approximately 1/10th of their original size, giving the computer less data to manipulate.

This downsizing doesn't come with-

out cost, however. DCTV's output which is a composite NTSC video signal with about four to six million colors. The output of the unit can be easily recorded by any VCR with no frame control hardware necessary. While DCTV is the most cost-effective method of putting 24-bit frames to tape, the quality may not be acceptable to industrial clients.

The more conventional method for laying down frames is by using an industrial VTR capable of frame-by-frame advance. Units such as Panasonic's AG7750 S-VHS editor are popular because they are sturdy, relatively inexpensive, and easily controlled. Control hardware and software, necessary to load frames and advance the recorder, costs as little as $500.00 and goes up from there. The more expensive controllers give you greater flexibility such as control over more different types of editors.



Panasonic TQ-3031F

Despite the relatively low cost (under $6,000), there are various problems associated with this method. Wear and tear on the tape and machines is a big concern. Another problem is that each frame requires 15 to 20 seconds of tape roll time; this can be a time-consuming process. Also, accuracy can be a problem. Controllers have been known to drop frames upon occasion and if you are not aware this has happened, you might come back to find there is a glitch in the middle of your tape and you have to start over. The frequency of these problems tends to decrease when you move to high-end formats such as Betacam SP, but the costs increase accordingly.

Random Access Animations

If you are considering Betacam SP or MII, there is another technology you shouldn't overlook; Optical Laser Disc Recorders.

The principal manufacturers of optical discs are Panasonic, Pioneer, Sony and Teac. All units work on the same basic principle. The biggest misconception about this technology is that it is digital. Nothing could be further from the truth. Recordable optical discs, unlike CDs and CD-ROMs, are analog devices. Audio CDs are created by carving grooves and pits into the disc medium. These peaks and valleys are then read by a playback laser which interprets them as binary codes that can be translated into audio and video information.

Laser-based storage devices such as magneto-optical discs, CD-ROMs and flopticals all use varying methods for recording information but they are all digital devices that store computer data in a manner similar to conventional hard drives. Of course, unlike a laser disc player and a CD player, a computer is required to retrieve information from the above devices. And none of these devices can play back animation frames at 30 frames per second without JPEG or some other form of compression.

Techno Talk

Optical discs may look like their laser disc, CD-ROM and CD counterparts, but that's where the similarities end. Instead of creating pits and grooves, the optical disc uses a phase change method for recording information on the disc. The optical head records the information on the record track by converging or focusing the laser beam, which is being constantly modulated by the video signal.

The beam produces heat and thereby crystallizes microscopic spots on the amorphous surface of the disc. Once those spots are crystallized by heat, they exhibit changes in reflectivity. It is the constant change in reflectivity, dictated by beam intensity which in turn, as I indicated, is modulated by the video signal, that makes this unit an analog device.

Now that you understand how it works (yeah, right), what is the bottom line?

Optical memory disc recorders or OMDRs have many advantages over tape machines, not the least of which is the fact that VTRs are sequential devices and OMDRs are random-access devices. If you have footage at the end of a tape you wish to view, it is necessary to go through the whole tape to find the wanted piece. On an OMDR, every frame is individually numbered, so frame addresses can be specified at random. As with all laser-based recording devices optical head wear is not an issue since the head never actually touches the platter.

Perhaps most importantly for our purposes, it is easy to operate a recorder under computer control. This means that no hardware transport control boards are needed. All of the optical disc units available have RS-232C or RS-422 control boards as a standard feature or an option. If equipped with an RS-232C interface, you can connect the machines for control purposes with a simple serial cable.

I use the Panasonic TQ-3031F because it is half the size of the Sony recorder, and costs much less than the units from Teac and the Pioneer. The TQ-3031F is equipped with composite, S-Video and RGB/sync inputs and outputs. All inputs are transcoded, allowing a composite signal to be separated into an S-Video signal or an RGB signal to be encoded into an S-Video signal. The latter example is of particular importance because the TQ can be used as an encoder for your computer graphics boards.

A Board Decision

Typically Betacam and S-VHS editors do not have RGB inputs, which means that in order to output your 24-bit Amiga graphics, a board with an encoded output must be used. GVP's IV24, Mimetics' Frame Buffer and, of course, NewTek's Video Toaster are the most popular choices at present.

If the OMDR is used, the graphics can be output directly to the unit via the RGB connector on many display boards such as Firecracker (Impulse), OpalVision (Centaur Software) and the AVideo board (INOVAtronics), all of which cost half as much as the aforementioned boards. It should also be noted that the best quality signal that can be recorded is a component signal, in this case, raw RGB with sync on green. S-VHS is not capable of component recording and while the more expensive Betacam format is, a costly RGB-to-Betacam R-Y, B-Y transcoder is required.

Image quality is an important issue when considering a suitable mastering format. Horizontal line resolution is often used as a yardstick when comparing various formats, but this indicator can be deceiving. For example, the Hi-8 and S-VHS formats are typically thought to have approximately 400 lines of horizontal resolution, while Betacam SP has only 380 lines. No videographer worth their salt would argue that S-VHS or Hi-8 image quality is superior to that of Betacam SP, but the numbers would have you think otherwise.

The point is that there are many factors that determine the quality of a recording format, for instance signal-to-noise ratio. All factors must be assessed before an educated decision can be made. Having said that, I can tell you that the TQ-3031F has over 450 lines of resolution in its high-resolution mode. In that mode some 36,000 frames or 20 minutes can be recorded on each side of the disc. In regular mode the unit achieves 380 lines and 54,000 frames or 30 minutes per side.

Graphics recorded at such high resolutions via the RGB input to the TQ-3031F are almost indistinguishable from the original display. The only downfall of the machine is that if it is not clean, frequent dropouts can occur.

Controlled Access

As mentioned previously, no transport control hardware is necessary when writing frames to the TQ-3031F or any other optical disc recorder. With a serial cable connected between the Amiga's serial port and the OMDR, commands can be sent freely to the unit. It is, however, necessary to have software to control these functions.

I am aware of four applications that directly support optical discs. AmiLink editing software (RGB Video) supports the Panasonic TQ-3031F, the Sony CRV-5000 and the Pioneer VDR-1000. ASDG's Art Department Professional (ADPro) has a saver for the TQ-3031F, but you must call ASDG for availability. AmigaVision (Commodore) supports the TQ-3031F and the Sony CRV-5000 and finally, ShowMaker (Gold Disk) has a device driver for the TQ-3031F.

With the help of an ARexx script, ADPro can be used to write frames to the TQ-3031F via the Firecracker (or other supported RGB display board). My company, MEDIA Innovations, has written a utility that automates the process with a graphic interface and uses ADPro and/or FRED as the graphics engine. If interested, please call or write for more information on this utility.

Once the frames are on the disc you may wish to do something more with them. The two presentation programs that support the TQ-3031F are ideal for adding sound effects or other effects to your animation footage. ShowMaker is particularly adept at this since it employs a time line interface. In fact, the demo tape that ships with ShowMaker was created using the Panasonic TQ-3031F OMDR.

The unit's virtually instant access time allows time-line creation of a production and real-time playback. It is a simple matter to synchronize graphic events with audio effects using the time line as a guide. While the potential for ShowMaker as a non-linear presentation system is great, Gold Disk does not seem to be in any hurry to update the package. In fact, the shipping version of the software does not work with the OMDR. If you want a version that does, please call me.

Optical memory disc recorders or OMDRs have many advantages over tape machines, not the least of which is the fact that VTRs are sequential devices and OMDRs are random-access devices.

Other software developers have expressed interest in supporting this technology. Scala, makers of the increasingly popular interactive and presentation software Scala MM200 and Info Channel are aggressively updating their product. They have promised to add support for the TQ in the new year. Black Belt Systems has also expressed interest in adding support for the TQ-3031F to their popular image processing software, ImageMaster.

Dollar Daze

Ah yes, the big question: How much does this baby cost? The Panasonic TQ-3031F costs approximately $16,995 on the street and the double-sided discs cost $350. That may seem like a lot but it is reasonable when compared to MII or Betacam SP. The advantages of optical disc technology are many. You simply have to decide if the advantages warrant the cost of a unit for your application.

Please note that the TQ-3031F is a write-once device; once the frames are recorded, they are there forever. For graphic applications I do not consider that to be a limitation at all, after all, what better way is there of storing past jobs?

Our animation jobs typically use from 2,000 to 3,000 frames and the disc holds 72,000 frames! We charge a nominal fee for disc space that covers the cost of the medium. Our clients are more than happy to pay a bit extra for this technology, given the faster turnaround time we provide.

The Sony CRV-5000, also a write-once device, stores only 20 minutes per side and has no regular mode, only high-resolution. Nonetheless, it is a good unit with a particularly fast access time. The Teac LV-250HC is the most expensive of the write-once units, boasting a luminance bandwidth of 8Mhz.

While Pioneer's VDR-1000 is the newest and the most expensive of the lot, it has many advantages over the rest. For one thing, the VDR is re-writable, which means that unwanted frames can be erased. In fact, discs can be erased and written to as many as one million times! Try that with a video tape. The VDR's other big advantage is that it has two heads, so one can be searching while the other is playing back. This lets the user perform seamless cuts between scenes on opposite ends of the disc. The VDR-1000 costs $39,000, which means you would have to do a great deal of animation to cover the costs of that unit.

Panasonic has a re-writable unit as well; the LQ-4000. This unit can also write and re-write to a disc one million times, but it does not have two heads. Like the TQ-3031F, the LQ-4000 has RGB, S-Video and composite inputs and outputs but it also has a component R-Y, B-Y interface. The LQ-4000 costs $28,000.

The two main disadvantages to the re-writable optical discs are cost of the recording medium and lower horizontal resolution. The LQ-4000's recording cartridge, the LM-A400, holds 54,000 frames and is one-sided only. The cost of an LM-A400 is $1150. The Pioneer VDR-1000 cartridge is similarly high in price. The best resolution of re-writable optical discs is 400 lines, but at that resolution you only get 20 minutes of recording time.

Optical disc technology is constantly improving and prices are coming down. Who knows, there may soon be optical discs for the consumer market, which would surely drive down the price of the medium.

Martin Ricketts is President of MEDIA Innovations, a Canadian company specializing in Amiga-based multi-media presentation and production systems. He can be reached at his office in Canada at (519)-434-3210 Fax (519)434-7466.

Amiga in Puppetland

by R. Shamms Mortier

There seems to be no limit to the number of ways in which the Amiga can be used to enhance the creative energy of professionals in the arts. A good case in point is the Puppet Co. of Washington, D.C.. I suppose this story intrigues me most because for quite a few years, my wife traveled the Vermont communities with her puppet theater, creating joy and mystery for children and an important additional income for our family. We still talk about reviving her efforts, and after speaking with the folks in this article, I am starting to fantasize incorporating my Amiga venture as well. The subject of this interview is Mr. Christopher Piper, the Associate Director of the Puppet Co.

AVID: Chris, can you give us a general background of your company?

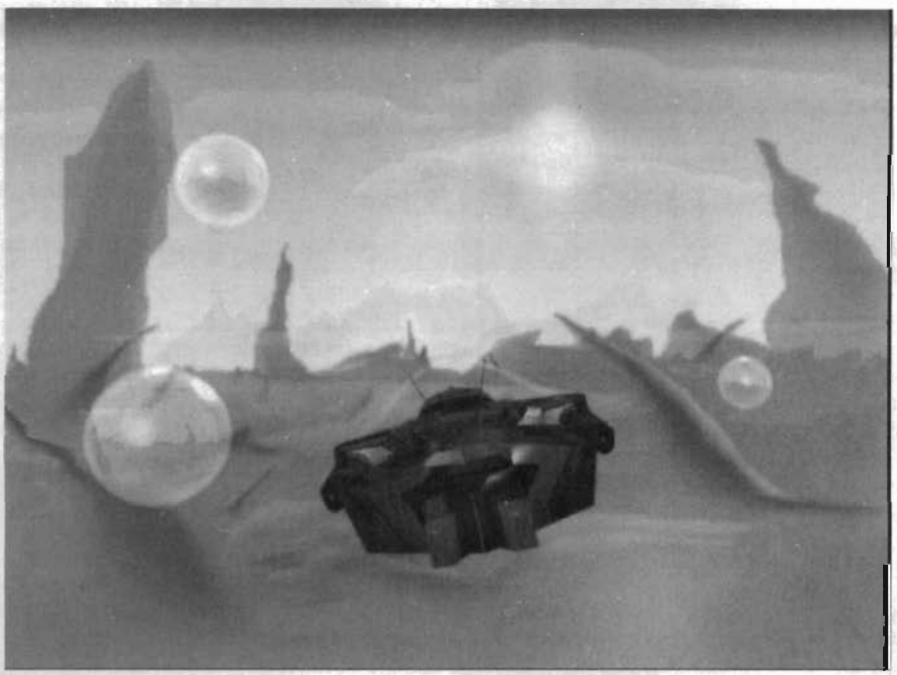
Chris: The Puppet Co. is a non-profit organization that creates puppet theater, especially for children, as an art form synthesizing the visual and performing arts. Hand puppets, rod puppets, marionettes and shadow puppets are used in the fully staged productions of the stories, traditional and original, that comprise our ever-growing repertory. Our theater, The Puppet Co. Playhouse, works in cooperation with the National Park Service, in Glen Echo Park, Maryland, ten minutes from Washington, DC. The 200-seat theater offers ten productions per year, and is host to 80,000 school children and family members annually. It is the only year-round theater on the East Coast between New York and Atlanta devoted exclusively to the art of puppetry. With a full-time staff of four, it currently generates an annual income of $250,000.

AVID: How were you introduced to the Amiga?

Chris: When my associates and I decided, in 1987, that we needed a computer, I was designated The Puppet Co.'s computer expert. My experience with computers amounted to

Allan Stevens and Christopher Piper- Associate Directors (the ones with the beards).

playing with my brother's Apple when it was first introduced, and doing word processing on a housemate's PC clone. I wanted a good word processor, something with which to compose music, and some way of making signs. I soon found that there was no way our little company could afford a Macintosh without going into Chapter 11. A Big Blue clone could handle the word processing at a somewhat lower price, but music capabilities called for expensive add-ons. My mother-in-law suggested I get a Commodore Amiga. She had had hers for a year, loved it, and said it would be perfect for a company like ours. I told her I wanted a real computer.



Wonder of wonders, she is still speaking to me; perhaps, because I ended up buying an Amiga. I had no choice—after much research I found that an Amiga could do what I wanted for a fraction of the cost of other systems. I bought an A500 with one megabyte of memory, a 1080 monitor, WordPerfect, Deluxe Music, and a Panasonic KXP-1080i printer for under $1500 (1987 prices, remember).

AVID: *What does your Amiga/video configuration look like today?*

Chris: Today we have two A500s, and an A2000, all equipped with Mega-Midget Racer 68030 accelerators, humongous hard drives, and WorkBench 2.04. The first A500 is used for interactive multi-media presentations to our students and customers. Using AmigaVision, we outline our season of productions, techniques in puppet making, and make guides for the annual exhibits in our Playhouse. Our second A500 is in the box office, using SuperBase Professional 4 for ticket reservations, WordPerfect for correspondence and scripts, and PageStream and Professional Page for desktop publishing. It has five megs of 16-bit memory, and output is on a Panasonic laser printer. Our A2000 is slated to hold a Video Toaster someday, but meanwhile serves as our graphics and music workstation. It has an 38Mhz 68030 accelerator eight megabytes of 32-bit memory, a MegaChip 2000 two-meg Chip memory upgrade, Grand Slam SCSI card with extra parallel port and additional eight megs of 16-bit memory, 400 megs of storage on 2 Quantum hard drives, DCTV with RGB converter, a second Panasonic laser printer, AMAS 2 sampler, MIDI*Star interface, Supra 2400 modem and SuperGen genlock. Secondary peripherals include two MIDI keyboard controllers, a Roland U-110 PCM sound module, mixers, tape decks, an AG 1960 S-VHS VCR, and an AG-450 S-VHS Camcorder.

AVID: *What about software?*

Chris: Here we use Imagine, DPaint IV, DCTV Paint, and Art Department Professional to create images that we convert to slides that are used for rear-projection scenery. Professional Draw is used for creating posters and art for newspaper and direct mail advertising. Music-X and Bars & Pipes Professional (and sometimes good old Deluxe Music) help create the scores for our productions, including three musicals. We use X-CAD Professional for construction plans, and Directory Opus to keep it all organized.

AVID: *In which other ways are you addressing video with your Amiga setup?*

Chris: While our Video Division is still in its fledgling stages, our experience with the Amiga has been paving the way to a time when all of our productions will be committed to videotape and available for purchase. As a non-profit company, supported almost

entirely by ticket sales, we have had to acquire our equipment slowly and prudently. By planning the acquisition of video equipment based on what we really need as opposed to what we want, and tying that equipment into ways of augmenting our stage productions, we are slowly building a facility that will meet our needs without imposing a financial hardship on our primary activities.

AVID: *Can you walk us through a Puppet Co. Amiga production?*

Chris: Our first production to use the Amiga was The Magic Mirror, originally commissioned by the Smithsonian Institution. The focal point of this fantasy was a huge rear-projection screen flanked on either side by angled mirrors that created a kaleidoscope effect, and an ornate frame around the entire piece. We used a public domain Mandelbrot fractal generator to create the basic patterns we would use for our graphics. We then used DigiPaint III and Photon Paint to cut around the outlines of the various color bands, then pasted, mirrored, recolored and otherwise manipulated the images to create crystal hallways and caverns, a field of icicles, a surrealistic pond under a spread of fractal autumnal foliage, and ultimately a sequence depicting the destruction of the "mirror." Action Graphics, a local production house specializing in Amiga output, transferred the overscan HAM images to slides. We controlled two slide projectors through a variable-speed dissolve unit, which in turn was driven by sync pulses from our music tape.

As tools for the Amiga have grown, so has our ability to improve our technical standards. Our latest and most ambitious production, The Sorcerer's Apprentice, was staged as a medieval alchemist's den. Four remote-controlled gargoyles interacted with Leo, the apprentice, while a live actor played the sorcerer. An eight-foot-high by six-foot-wide arched window built into the stonework provided the frame for 24-bit high-resolution images of an immense stone-arched spiraling stairway leading to the stars. After the script was created in WordPerfect, a simple storyboard was sketched out by hand. Set Designer Allan Stevens provided paintings of the stonework to be used for the walls, which were digitized with DCTV and a Panasonic AG-450 camcorder. The resulting 24-bit image was applied to a model of the stairway and rendered in Imagine with the camera tilted 90 degrees to match the vertical aspect of the projection screen. In the story, Leo dreams of ascending this stairway and flying to the moon. By careful re-positioning of the Imagine camera, the rendered images follow Leo's ascent and flight. Although throughout most of the performance Leo is a three-dimensional, three-foot-tall rod puppet, his climbing the staircase is depicted with a shadow puppet. An articulated two-dimensional cut-out is manipulated between the slide projector and the screen, placing a silhouette of the character in the projected

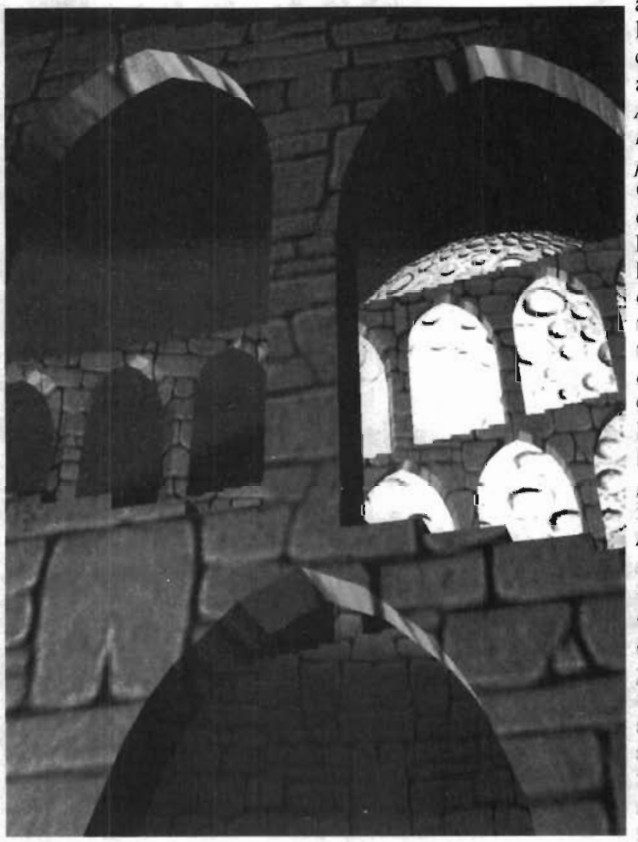


image. This is not only very effective in its own right, it prepares the audience for an upcoming trick. We needed a moment for the puppeteer to move from behind the screen onto the darkened set during the transition from the shadow puppet sequence to the finale of the piece. By digitizing the figure of Leo, and moving and rotating this image within the Imagine rendering, we were able to make a stylized animation through a quick sequencing of slides. The two-dimensional nature of the figure actually enhanced the effect, as it was associated with the shadow puppet. Again, all of this activity was controlled by a sync track on our music tape.

AVID: *And what about the music? We hear relatively little about the use of the Amiga for recording original music tracks compared to other systems.*

Chris: Music is an important part of all of our productions. When we recorded our production of Mozart's The Magic Flute, the cost of studio time and talent was more than $4,000. The cost of recording Paul Dukas' composition was that of the cassette tape (disallowing my time and the cost of the equipment we already had on hand), about $5. While singers, when needed, still can't be replaced, they can be avoided. One of our gargoyles is part of a fountain. He spouts water from his mouth throughout most of the show. At one point, however, he tilts his head back and gargles (yes, a gargling gargoyle) in tune with the music. By sampling my own gargling with AMAS II and using the sample with Bars & Pipes Professional, I was able to create a very comical bit for virtually nothing.

AVID: *Have you received special help along the way from Amiga people?*

Chris: It's amazing how supportive of our work the Amiga community has been. Blue Ribbon Soundworks has been especially generous in their contributions of both software and technical expertise. We are also fortunate to have Buried Treasure, Inc., one of the first and oldest remaining Commodore dealers in the country, lending their full support to our work. Having very strong and helpful user groups and Amiga-supporting BBSs is also indispensable to our success.

AVID: *What current projects are underway?*

Chris: We are presently initiating our latest and largest project; the development of a ten-acre theme park, Whimsey Woods, which will open near Washington, D.C. in the spring of 1994. Whimsey Woods sprang from a musical written using the Amiga, and its buildings were modeled on the Amiga. Promotional materials for it—logos, graphics on coffee cups, the prospectus, and animated walk-throughs—were all created with the Amiga. The Amiga will also be used in several key areas within the park. Perhaps most importantly, it will figure prominently in our information kiosks and our efforts to support the Americans With Disabilities Act of 1992.

AVID: *Any final comments?*

Chris: As puppet masters, we have to excel at many different tasks; writing, composing, sculpting, painting, carpentry, costuming, and performing. You might say we are multi-tasking. The Amiga not only matches our talents, it allows us to experiment and grow. With all the tools and materials we work with on a day-to-day basis, the Amiga helps us to do more, faster, and better.

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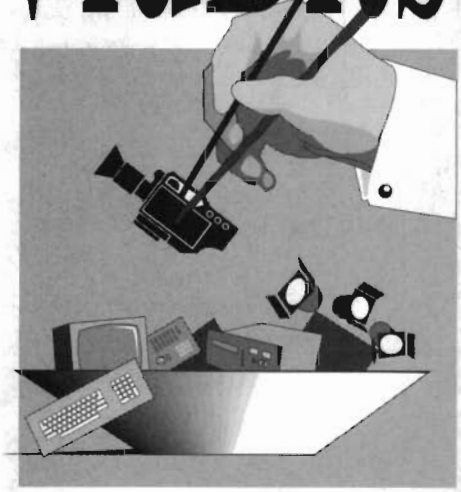
VidBits



Font Flyer

MD Grafix has released Font Flyer, a tool for creating 3D scenes with LightWave 3D. Font Flyer lets the user enter a string of words from the keyboard, select a 3D font and effect, and then creates the scene automatically. Three 3D LightWave fonts are included, but any can be used. Effects include placing the text in various types of circles, arcs, lines, and columns. A special option allows replacement of spaces in the text with a star object. No more boring flying logo animations!

MD Grafix
PO Box 1991
Spring Valley, CA 91977-1991
(619) 463-5853

Gossett Graphics Filters

A new line of standalone filters for improving the signal quality of desktop video is now available from Gossett Graphics. N2S converts NTSC composite signals to S-Video component; S2N is a component-to-composite converter that reverses the N2S operation; and Q2N converts poor-quality component signals to high-quality NTSC composite. Each product is designed to fit into a standard 19-inch video equipment rack.

Gossett Graphics
1169 Burgoyne
Mountain View, CA 94043
(415) 968-4704

ADPro Epson Scanner Driver

ASDG, Inc., publishers of the Art Department Professional image processing and MorphPlus morphing programs, have offered driver software for the low-cost Epson 300C scanner since its introduction. Epson has recently introduced two new high-resolution scanners, the ES-600C and the ES-800C, and ASDG has upgraded their driver software to support these new models (the 300C is still supported). The driver software works with Art Department Professional and MorphPlus for full integrated scanning and image-processing functionality.

ASDG, Incorporated
925 Stewart Street
Madison, WI 53713
(608) 273-6585

Texture City Pro-60 #2

Texture City, long known for their high-quality photo-realistic image libraries, has released Pro-60 #2, their newest collection for Amiga computers. The set includes 60 images in these categories: Animal, Earth, Foliage/Plant, FX, Metal, Rock, Scenic, Space, Stone, Textile, Water, and Wood. All images are 752 x 480 resolution in 24-bit IFF format and are compressed with JPEG. These images can be used by most Amiga graphics, presentation, and video packages.

Texture City
3203 Overland Ave. #6157
Los Angeles, CA 90034
(310) 836-9224

Made For Video

Subtitled The Distribution Solution Book, Tom Flora's new directory is a complete sourcebook for names, addresses and phone numbers of video-related businesses around the world. Listings categories include Feature Production houses, Children's Video, Made for Television, Music Video, Post Production, Stock Footage Library, Video Equipment Sales and Rentals, Video Standards Conversion, Videotape Duplication, Top US and Canadian Video Rental Chains, Top Mass Market Video Retailers, and Videotape Labeling and Packaging. Businesses are listed for the larger western countries, of course, but also for Iceland, Kazakhstan, Korea, Israel, Japan, and many more.

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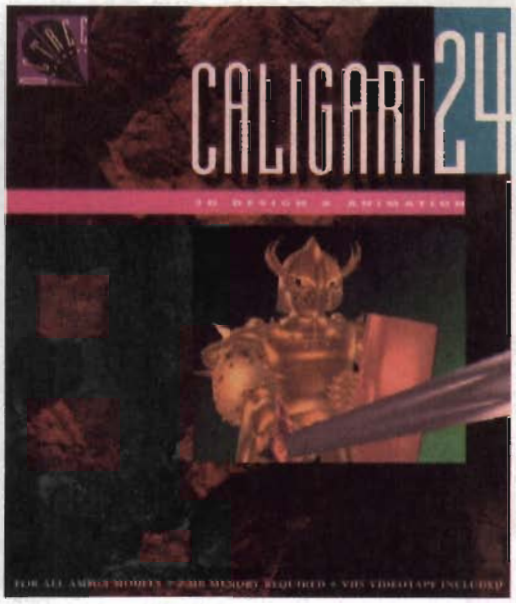

Caligari24

Now available from Octree Software is Caligari24, their latest Amiga 3D modeler, animator, and renderer. Caligari24 is an enhanced version of Octree's high-end 3D software, Caligari Broadcast, priced for the consumer market. General features include a full-screen perspective interface and modeling, and direct manipulation of objects with real-time response. Modeling features include a built-in library of primitives (basic shapes for building other objects), easy hierarchy building and editing, and free form deformation, a powerful tool for creation of organic shapes such as flowers. Setting up complex animations is easy with hierarchical support, multiple paths per object, and interactive keyframing with spline-based motion. And the powerful rendering engine offers quick render or broadcast quality, multiple lights, four levels of antialiasing, Gouraud, Phong, and Metal shaders, plus texture-mapping, transparency, and shadows.

Octree Software
1955 Landings Drive
Mountain View, CA 94043
(415) 390-9600

The One-Stop Music Shop

The Blue Ribbon SoundWorks, makers of premier Amiga MIDI sequencer Bars&Pipes Professional, now offers a high-quality MIDI sound generator on a board for Amiga computers with internal slots. The One-Stop Music Shop is based closely on a popular MIDI sound module, E-Mu's Proteus. The Proteus sound engine's four-megabyte ROM contains over 210 CD-

quality audio samples and waveforms that can be combined in various ways for a virtually unlimited library of sounds; editing software is included. Samples include piano, guitar, strings, horns, drum kits, sound effects, and many more.

Also new from Blue Ribbon is version 1.1 of SuperJam!, the interactive composition program, with improvements such as direct support for The One-Stop Music Shop, two-octave and split chords, visual volume and pan mixing, and multiple grooves per style. Blue Ribbon's new Extras disks for SuperJam!—Movie Soundtrack, World Music, and Dance Mix—support the new multiple grooves feature.

Blue Ribbon SoundWorks Ltd.
1605 Chantilly, Suite 200
Atlanta GA 30324
(404) 315-0212

Y/C Plus

Smith Audio Visual announces Y/C Plus, an S-Video adapter for NewTek's Video Toaster. Y/C Plus is the first product that permits direct input and output of S-Video component signals (luminance and chrominance), used in S-VHS and Hi-8 video equipment, with the Toaster. Y/C Plus is an internal board that plugs into a standard Amiga Zorro slot, and connects internally to the Toaster. The unit provides one to four S-Video and/or composite inputs, two S-Video outputs, and other connections for monitors. Benefits of using S-Video signals with Y/C Plus include reduced cross luminance, cross color, moire, dot crawl, and increased bandwidth. Y/C Plus' most important component is Faroudja Laboratories' Two-Dimensional Digital Adaptive Comb Filter circuitry, developed originally for an HDTV application. The net effect enables Y/C Plus' ability to correct not only for vertical dot crawl, but also for dot crawl between horizontal lines.

Smith Audio Visual
1410 S. Kansas Ave.
Topeka, KS 66612-1335
(913) 235-3481

Broadcast Titler 2 Accessories

New from InnoVision Technology is Broadcast Titler Font Pack 2. The new styles of InnoVision's patented Super High Res fonts include Avant Garde, Palatine, Dom Casual, Typewriter, and more. The fonts are antialiased and come in six different sizes each, with special and international characters included. There's also a standard 115-point version of each font for use with Amiga programs other than Broadcast Titler 2. Additional sizes can be created with InnoVision's Broadcast Titler 2 Font Enhancer, which can also convert and antialias standard Amiga fonts.

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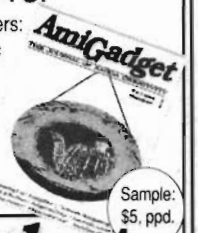

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Bisclips 3D Objects for the Videographer is a collection of nearly 100 objects and forms for retail video applications. These objects are simple in design making them perfect for logo and title work. Check out what David Duberman said about this product in Junes edition of Avid (3D Perspectives, page 22). Directories of objects include A/V, Religious, Household Objects, Flyby and Frames, Roman Numerals and Building Blocks. From now until January 31st , this two disk set is available for $24.95 (while supplies last). This library will save you hundreds of modeling hours and now, it will save you 50% off the retail price as well. Don't delay. Our Fantasy Fonts collection for LighttWave 3Dis available for $44.95. We are only selling a limited number at thisprice.

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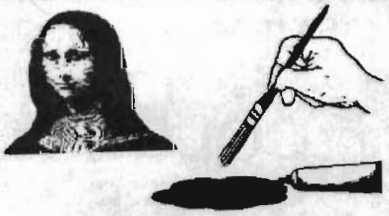

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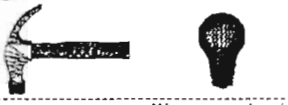

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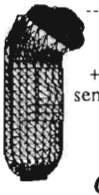

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In the Dr. Is In column in AVID Volume 3, Issue 8, the retail price of Motion Man was misstated. The actual price is $149.95. Contact Anti Gravity Products, 456 Lincoln Blvd., Santa Monica, CA 90402, (310) 393-6650.

In the 3D Perspectives column in the same issue, the wrong telephone number was listed for ordering The Big Rig truck model for LightWave. Mach Universe's correct phone number is: (714) 750-0100.

AVID apologizes for any inconvenience these errors may have caused.

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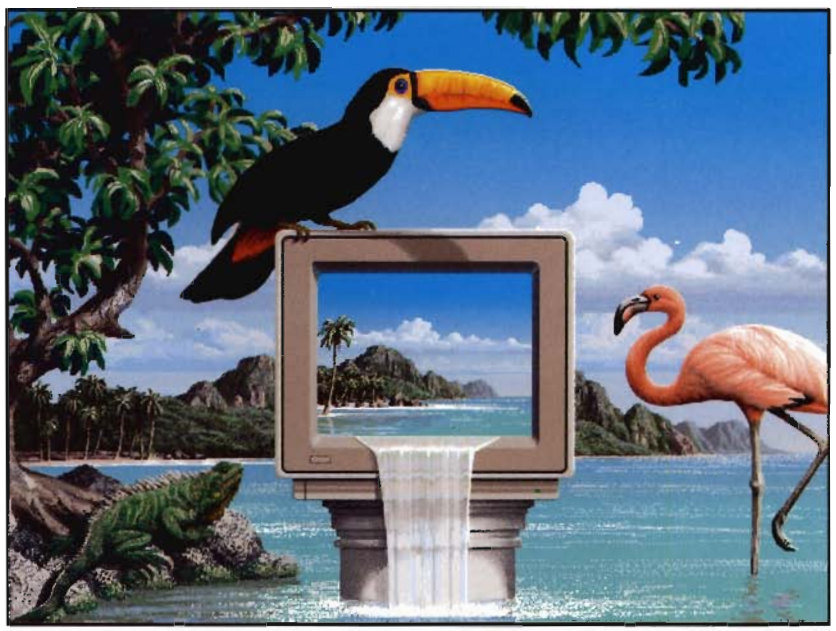

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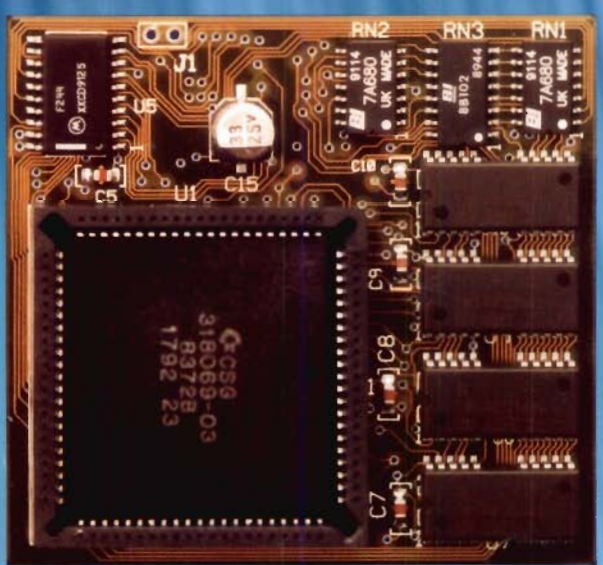

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