AN INTRODUCTION

As far as I know, this is the first program of it's kind for GEOS, and perhaps the first for the 64 and 128, period. I knew of morphing programs for the Amiga, and wondered what the real reason would be for the average person to even need a program of this kind. If you were into some heavy video production work, it might be useful, but the average person doesn't have any big video projects. In fact, the average person doesn't even need a real powerful computer. But in GEOS, we do a lot of work with graphics in our documents. And part of our graphics work includes working with photo scraps. Yes, those versatile graphics that can be transferred from one application to another. We can create a photo scrap in GeoPaint and paste it into GeoWrite or GeoPublish. Any GEOS application that is programmed for it, can utilize photo scraps.

So, here we have a graphical environment to work in, but many of us are not real handy at creating works of art, so why not have the computer help us out with it? Well here's geoMorph, a program that will help you to create some interesting effects on your GEOS system.

We've always had an excellent paint program, GeoPaint, and it came free with the system. There are a couple of others available also, but we could really use an editor to do some neat things with photo scraps. geoMorph is a shareware program and is fully functional in what it is designed to do. It will give you an example of what is being made available for GEOS. A commercial version of geoMorph is a program called 'Photo Frame', and will do everything that geoMorph does, and then some. Photo Frame will be available as a stand alone application and work with both GEOS 64 and GEOS 128 in 40 column mode. There will be an 80 column version for the 128, but it will only be available as part of the complete Publishing Production System (PPS) package known as Finally!, which should be available sometime during the spring of '94.

The basic idea behind geoMorph is to take two different photo scraps and combine them in a gradual transformation to arrive at various combinations of the two images. You start with a primary image and a secondary image and 'morph' the two together one frame at a time. Any frame can be saved as a photo scrap and along with your photo manager, you can save them into an album for later use. Use your imagination and have fun.

A QUICK TUTORIAL

Most of us are anxious to dig right in, so let's do just that. Supplied with geoMorph is the main program itself, this documentation file and one photo scrap. Load and run geoMorph and wait for the main screen to appear. You will see the title, 'geoMorph', smoothly animate itself into the author's name, 'Maurice Randall'. This is taking place within the display window where one of the photo scraps we wish to work on will be displayed. Right now we have the author name in the window. So let's go ahead and work with this. This image is known as the primary image. Whatever image is visible in this window is the primary image. Right now, we don't have a second photo scrap loaded, so there is no secondary image. To the left you will see three icons, click on the lower one. This swaps the two images. The author name will now be the secondary image. Go up to the 'edit' menu and click on 'paste'. If the photo scrap that was supplied is on this disk, you will now have the image that says 'geoMorph' in your display window and it will now be the primary image.

Now, let's create one frame after another. Of the three icons to the left, click on the upper one and then just sit back and watch. What is now taking place is the two images are being processed and a slight variation of the primary image will soon appear in your display window. Then some more processing and the image will change again. With each change, you have created a new frame. Eventually the primary image will appear exactly like the secondary image.

This sequence of frames is exactly how the title animation was created. During the development of geoMorph and before it was completed, it was used to generate a series of frames to use for the title screen. These frames were individually saved to a photo album and then imported into the source code that was used in the creation of geoMorph. Then an animation routine was added to run the title animation. The title animation sequence is a series of fourteen frames being displayed in just a fraction over one second. In fact, there is actually a delay placed in between each frame in order to slow it down to this rate. The animation capability built into geoMorph is only available to this title routine.

This little tutorial just gets you started with the possibilities that geoMorph now gives you. This is just one example.

Let's say that you are drawing a picture in GeoPaint and you want to draw several trees. This could be a very tedious job. How about if you draw just one tree and use geoMorph to help you create the rest of them? Simply paste in a photo scrap of that one tree and morph it with another photo scrap of whatever image you might find that works well. There is no end to it, you now have a tool with many varied possibilities.

Let's take a look at the rest of the program.

THE SWAP ICON

The lower icon in the group of three icons is known as the swap icon. This icon will swap the primary and secondary images with each other. The primary image is always the one that is visible in the display window. The secondary image is stored in memory. When you are processing a frame, the primary image is always the one that is being modified. The secondary image does not change unless you use the swap icon to exchange it with the primary image. The secondary image is used as the model for the primary image.

THE FRAME ICON

The icon in the middle is the frame icon. By clicking on this icon, you will generate one frame. To generate another frame, you must click on it again.

THE MOVIE ICON

The upper icon is known as the movie icon. By clicking on this, you will perform the same action as if you keep clicking on the frame icon over and over again. The movie icon will cause geoMorph to keep generating frames until you click the mouse, or until the primary image eventually becomes exactly the same as the secondary image.

THE GEOS MENU

From the geos menu you will have access to your desk accessories, and most importantly, your photo manager. You will also find the copyright information in this menu.

THE FILE MENU

The only selection available from this menu allows you to quit geoMorph and return to the Desktop or whatever alternative you loaded geoMorph from. If you have an image in memory that you wish to save as a photo scrap, be sure to do so before quitting.

THE EDIT MENU

The selections from the edit menu will give you the ability to cut, copy, and paste photo scraps into and out of geoMorph. The function of these is the same as in GeoPaint and should be familiar to you. When transferring photo scraps in and out of geoMorph, the image is always transferred to and from the primary image in the display window. If you wish to move a photo scrap to and from the secondary image, use the swap icon to aid in doing so.

THE OPTIONS MENU

The only selection from this menu will bring up a control panel where you can make various adjustments to how geoMorph generates it's frames.

THE CONTROL PANEL

You bring up the control panel by selecting it from the options menu. From within the control panel you can define your default drive along with some other settings. The drives that are currently in use will be displayed in the drive box and the default drive will be highlighted. To select a different drive, just click on it's icon. The disk that is in the drive will be read and the desk accessories located on the disk will be logged in and made available from the geos menu. This is how you can access desk accessories from any of the available drives. This is also the drive that will now be used for copying and pasting photo scraps. If you wish to put a different disk in the drive, just click on it's icon and the desk accessories from that disk will be logged in. You can change disks whenever you like. You don't have to exit geoMorph with the same disks as when you first entered it.

The other settings you will find in the control panel will adjust how geoMorph performs it's morphing process. You can choose and adjust the different scanning modes and degree of change that is performed during each frame. Read on to learn more about these different modes.

HORIZONTAL SCANNING

This is the scanning mode that you will most likely use the most. Most images are pictured in a horizontal manner and laid out as rows of pixels. When geoMorph performs a horizontal scan, it will look at a pixel in the primary image and decide where on that row that it should move it to. It does this by studying the same row in the secondary image. Once it has moved the pixel, it looks for another pixel on the same row in the primary image and does the same with this one.

Each row is scanned in this manner until all the rows of pixels have been processed. You can have geoMorph scan horizontally in a right hand direction or in a left hand direction or both.

VERTICAL SCANNING

Just like horizontal scanning, geoMorph can scan vertically. The images are treated as vertical columns of pixels in this manner. Vertical scanning can be done in a downward direction or an upward direction or both.

ORPHAN SCANNING

Sometimes geoMorph comes across a pixel in the primary or secondary image and has no real good place to put it on the same row or column (depending on the scan setting chosen) that is currently being scanned. So it must then search for the best direction in which to move the pixel to. When it finds a pixel like this, it considers it to be an orphan pixel with no place to go. So a home is found for the pixel as long as you have the orphan scanning turned on. If orphan scanning is turned off, then a primary orphan will stay right where it is and a secondary orphan will never appear. You can't have just orphan scanning turned on without the horizontal or vertical scanning turned on. This is because geoMorph doesn't recognize an orphan until it has completed a scan to find a place to put it. So, you must choose orphan scanning to go along with the vertical or horizontal scanning or both.

You can select orphan scanning for the primary orphans, the secondary orphans, or both.

SCANNING POWER SETTINGS

Each one of the different scan settings can have a high, medium, or low setting. This affects the degree of change that will occur during each frame being processed. By choosing 'high', a greater degree of change will occur than if you choose 'med'. The low setting will cause a more subtle change to occur.

THE SCRAPS THEMSELVES

When you paste in a photo scrap, it is placed into the visible display window. For GEOS 64 users, you will notice that this window is exactly the same size as the GeoPaint window. It is 264 pixels wide and 144 pixels high. GeoPaint 128 uses a slightly wider window in 40 column mode and an even wider one in 80 column mode. When you copy an image from geoMorph back to a photo scrap, the scrap will become the exact size of the window, even if some of the area is blank.

If this is not desired, then you must import the scrap into GeoPaint and edit it to a smaller size.

If you paste in a photo scrap that is larger than the display window, only the upper left portion of the scrap will be used. So, for this reason, you are limited to scraps no bigger than the display window, without some loss.

THINGS TO TRY

The best way to learn how to use geoMorph effectively is to simply tear into it and try it out and see what affects what. Take two photo scraps and morph them together for a couple of frames. Then paste the photo scrap back into the primary image again and try a different setting from the control panel. See if the morph takes on a different look.

In most cases, you will find that the horizontal scan settings will do what you want as long as you have the orphan scan turned on. With the orphan scan turned off, if the two images vary in height, then only the areas that line up horizontally will be altered. This same thing applies when doing a vertical scan. Only the areas that line up vertically will be altered, unless the orphan scan is turned on.

Sometimes you can leave the orphan scan turned off and turn on both horizontal and vertical scanning until the basic outline of the image is what you want. Then turn just the horizontal scan or just the vertical scan on to complete the morph to the point you are looking for. When both the vertical and horizontal scans are turned on at the same time, the image might get an out of focus look to it, since the two scan modes interfere with each other slightly. In some cases this may be desirable.

You will find that every scrap has it's own fingerprint, so to speak, and so the settings that get the results you are after with one morph may not work with another combination of photo scraps. Use your imagination and the adjustments that are provided for you.

A great deal of processing is taking place when geoMorph is rendering a frame. Obviously, the greater the detail in your photo scraps, the longer it will take to render a frame. Smaller images will render faster than large ones. Also, as the two images become more and more alike, the processing time for each frame will become shorter. You will notice that horizontal scanning is faster than vertical scanning and in most cases will achieve results you are after. However, with some images, vertical scanning will be more appropriate. This is something you will have to decide.

In any case, be patient with the large detailed images. Think about this for a moment. When you have all the scanning modes turned on, there is a total of four scans taking place during each frame. There is a total of 38,016 pixels in each of the two images that are being processed for each scan. That means that 76,032 pixels, scanned four times equals 304,128 pixels being processed during each frame. If there are a lot of orphan pixels to deal with, then this figure is higher yet, perhaps double. But even so, and considering that this is all being done on a machine that is operating at 1 mhz, a full-size detailed image can be rendered in less than two minutes. Smaller images that only occupy about an eighth of the display window can be rendered in 5 seconds or less, depending on the complexity of the two images.

COPYRIGHT NOTICE

This is the part that informs you as to what you can do with this program. This program is being provided with the GEOS user in mind. That means that you can go ahead and use it all you want. Technically, it is a shareware program. But I am not going to require that anybody send me the requested shareware fee of $5.00 unless he/she desires to do so. I will support it with online advice on the networks (GEnie and QLink) either way. Most of the time, there is no advantage to sending in a shareware fee except to show appreciation and encouragement to the author, because you already have the program and can use it as much as you want. I'll admit that I am guilty myself of not sending in shareware fees. But in this case, I will put you on a mailing list along with other users who have programs that I have written and by doing so, I will be able to inform you of future products as they become available. So, at least send me your name and address. I have to put some sort of amount ($5.00) on the product in case a PD disk dealer wants to sell the program. This gives me something to base a fee for this purpose.

This program may be freely distributed among individual GEOS users and registered Commodore User Groups as long as this complete documentation is included without modification and all copyright notices are left intact. Anybody else that wishes to distribute the program must contact me for written permission and any other agreements beforehand.

I may be contacted at the following address:

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LACC
Attn: New Member
P.O. Box 1065
East Lansing, MI 48826

PHOTO FRAME, THE COMMERCIAL VERSION

Ok, here's the advertisement for the commercial version known as 'Photo Frame'. Write for more information on availability and pricing.

Some of it's features:

* Standard tools for editing photo scraps such as a pen, brush, eraser, etc.

* Special tools for doing special tricks with photo scraps:
   Morphing
   Distorting in many ways
   Highlighting
   Shadowing
   Fading
   Etc.

* More involved morphing routines are included that allow you to specify the exact region that is to be morphed, whether it be an area or a boundary or imaginary line, etc.

* Automatic saving to a photo album without having to repeatedly access the photo manager to do so. Each frame as it is processed can go straight to an album.

* You can choose the area you wish to save as a photo scrap. You can also paste in photo scraps without erasing the existing image. Areas can be selected and moved about within the display window.

* Animation capabilities including the ability to create a stand alone application for running your completed animations without having to first load Photo Frame.

That's it for now.
Thanks for your interest in geoMorph, and by all means, please put it to good use.

Sincerely, Maurice Randall