A Thesis Submitted to the Faculty
of The College of Imaging Arts and
Sciences in Candidacy for the Degree
of Master of Fine Arts

The Rochester Institute of Technology: an Interactive Computer Disk

by
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The nature of this thesis is to explore the possibilities of interactive animation. An animated, interactive program which shows various activities and programs of the Rochester Institute of Technology, (R.I.T.), is the finished product. R.I.T’s history, upstate New York location, and academic philosophies are incorporated.

The interactive disk contains information about the various programs the college offers, as well as, many examples of actual student work. It also shows these students creating their projects. In their own words, they tell about their lives at R.I.T., both in and out of the classroom. Faculty and staff also offer their views, lending another perspective of R.I.T.’s philosophies and beliefs. Because R.I.T. offers a various array of programs, highlighted are only some of the programs available at R.I.T. The shown in detail are the College of Imaging Arts and Sciences.

Cooperative experiences offered at R.I.T., and the financial aid available to students are also described. The video images include interviews and discussions with many of the departmental leaders of the campus, as well as, interviews with students of different cultures, backgrounds, and programs.

This interactive program was created by using numerous computer software packages which is the actual heart of the thesis.

The program has been built around Macromind Director, VideoFusion, Specular Logo Motion and Morph and Adobe Premiere. Any retouching has been completed by using the Photoshop program. The combining of all these programs results in the end product: an interactive disk.
According to John Marlatt, at its simplest, "morphing" is the sequential transformation of one image into another. The effect is one of visual metamorphosis. In addition, Morph provides caricaturing and warping features that let the user extend the transformation process to produce a wide range of special effects.

They continue by stating, it can generate, view, and save a single, still image of the transformation at any stage of the morphing process. It can also generate, play and save, a movie from the start image to end the image. It can print thumbnails of the Morph movie frames for assembly into a flipbook, and any Morph movie can be used in the supplied screen-saver module.

The two "images" used to produce the transformation can be any combination of scanned photographs, drawings, text, or video clips. These images can be in color or in black and white. Linking sequences of start and end images to produce and extend movies of multiple transformations is another option.
With Morph, the production of a wide variety of intriguing still images and QuickTime movies can be viewed on the user's computer, printer or transferred to videotape or film.

Essentially, morphing is the creation of a series of images "in between" a start image and an end image, depicting the transition or transformation from one image to the other. This is a direct transformation of each pixel of the Start Image to the corresponding pixel of the End Image. If the images are of different sizes, Morph interpolates, compressing or expanding pixel information, as is appropriate.

Morph provides very much more than crossfading. The user has complete control over the transformation process. He or she can direct the transition, spatially, by linking particular areas of each image with Key Points and Key Lines, and temporally by accelerating or delaying the transformation of specified areas. Plus the user can alter the rules by which Morph transforms the coloring and positioning of the defined areas in each images.

Setting up a Morph transformation is very simple. The basic procedure consists of defining a Sequence; selecting a Start Image and an End Image, and then specifying Key Points and Key Lines in the image. Key Points and Key Lines direct the transformation from the Start Image to End the Image. Key Points are pairs of points that link crucial areas or features of the images together. Key Lines are reshapeable lines or curves that join Key Points, providing paths along which Morph will interpolate additional transformation control points.
Once the Key Lines are set, the user chooses the type of transformation and then enters a single image from any intermediate step in the transformation. A movie of the entire transformation can then be created.

Producing an image transition is essentially a matter of creating a Morph document; selecting two source images, setting Key Points and Key Lines, choosing the type of transformation to be performed, and then selecting output options.

- A Morph document represents an individual morphing project; a document consists of Storyboard, containing one or more transformation Sequence, each defined by two source images.

- The source images, that is, the Start Image and End Image, can be either "static" (a single frame image), or "dynamic" (a movie clip), or a combination of both.

- Key Points define relationships between specific areas of the Start and End Images. For example by setting Key Points, you ensure that the left eye of the face in the Start Image is transformed directly to the left eye of the face in the End Image. Reshapeable KeyLines can join Key Points, defining paths along which Morph interpolates additional transformation points providing full control of the transition with fewer Key Points.
• Three types of image transformation are available: stand morphing, caricaturing, and warping. Caricaturing involves accentuating or exaggerating the prominent features of the End Image. Warping is a broad category, covering deformation of the source material in a variety of ways.

In addition to a creative selection of source images for the various Sequences of a movie, the production of unusual and interesting transition effects can be made simply by deliberately moving Key Points or Key Lines "way out of place." This is done by selectively changing the Tension for various Key Points to achieve different shifts over time, and by using the caricaturing and warping features. Combining these techniques will increase a repertoire of special effects.

While preparing a Sequence, Morph may be responding slowly because it is working with a large source image, or because the computer being used has a limited amount of memory. 1)
The next key computer program used to create this thesis is the VideoFusion program.

• **VIDEOFUSION**

According to the many writers of the manual, VideoFusion combines the expressive power of video with the extensive synthesis and manipulation capability of digital image processing in a single, easy to use application. It creates an environment for interacting with video and computer animations using the processing power of machine vision technology to augment manual frame editing. VideoFusion contains the motion of time and dependent control of parameters to take advantage of the dynamic nature of video. These parameters describe how the frames of a movie are to be processed and are specified interactively. With this capability, a long, complex process can be easily defined by VideoFusion making the appropriate calculation on a frame by frame basis. Such capability makes unique special effects straightforward.

VideoFusion supports a wide variety of file formats in addition to its own custom format including: Quick Time, Pics, Pict Sequence and Raw Format. These file formats allow one to bring media into VideoFusion from a variety of sources such as; video digitizing, graphics, and paint applications.

Quick-Time supports a dynamic document standard that includes a wide variety of data formats for video, sound and other forms of time based information.
VideoFusion documents contain QuickTime movies and information about the editing and processing that the user has performed on them.

VideoFusion can change the color content of a movie by applying a 256 color palette. Each pixel is a channel movie that has been extracted from a color movie contains a value between zero and 255. Normally these channels are displayed as shades of gray with zero as black and 255 as white. However, they may be re-mapped to other colors using a palette. By reassigning a color to each pixel value, a gray scale movie may be colorized to create a color that movie. A color movie may also be re-colorized by assigning a palette to its luminance anaheim. The color palette and color custom palette commands are used to assign colors to a movie.

Color palette provides a list of palettes from which to choose, while the color custom palette allows the user to specify their own palettes by selecting colors from a color wheel for each end of the palette.
Filters provide a wide variety of special effects in VideoFusion. Filters operate directly on the pixels of each frame of a movie to change the way the movie looks and to create an output movie of this new media. Based on the type of algorithm used, filters can: 1) use a small matrix to operate on the movie called convolution filters, or 2) use a structuring element to operate on the movie, known formally as Mathematical Morphology, but referred to as shape filters within VideoFusion. Shape filters behave somewhat like photographic filters in the way they transform a picture and are also useful for elimination of video noise when operating on traveling matters.

This can be compared to movies playing on a two-dimensional flat surface that typically fills the entire movie.
Key Computer Programs

Motion Filter

Pan Zoom
window. They may be
tagged to fill only a portion
of this area using Pan-Zoom and
Pan-Zoom-Rotate. The position
of the moves can be controlled
over time so that the movie itself
moves while it is playing for 3D
fly by, rotation and picture with
picture effects.

QuickTime movies are
made up of a sequence of still
picture media, or frames, that
play at a particular time and
remain on the screen for a
specified duration. Often a fixed
frame rate is used so that a new
frame is displayed at some regular
interval such as ten or fifteen
frames per second. For example,
in a ten frames per second movie,
each frame will remain on the
screen for one-tenth of a second.
Lengthening how long each
frame remains on the screen, can
make the movie run in slow
motion. Slowing the frame
display too much will make the
movie appear to jump each time
a new frame is display.
Shortening how long each frame is displayed will make the movie run faster than the original, within the limitations of QuickTime.

Movies consist of a sequence of frames. Two movies can be combined by specifying an operation for overlaying frames that occur at the same time. For example, the arithmetic operation, typically associated with numbers, can be applied to movies on a frame, by a pixel by pixel basis, in order to add two movies together. Such operations provide powerful and flexible ways to combine media for stunning results. The commands for combining two or more movies are found in the Combine menu and include: Transition, Blend, Mix, Chroma Key, Arithmetic, Logical, the Unique Morph and General and Powerful Composite.

Rotoscoping is the art of painting directly on individual frames of film. Although significant effort may be required, a tremendous variety of effects is possible because of the precision and flexibility of manual control. Since QuickTime is all digital, the individual frames of the movie may be exported to Macintosh based paint programs to create rotoscoped effects on QuickTime movies.

There are many excellent painting applications on the Apple Macintosh including Adobe PhotoShop. To utilize these programs for rotoscoping QuickTime movies, video media must be transferred between VideoFusion and paint application. There are three file format options in VideoFusion for transferring video media between applications: Raw, PICS and PICT sequence.

QuickTime movies are saved to a hard disk by using a compressor/decompressor (codec) to reduce the amount of storage required. To do this, the user would select a compression method with the Movie
Compression option of the Preferences command in the File menu. A number of different compression algorithms are available in QuickTime: Animation, Video, JPEG and Graphics plus any custom compressors that the might have installed on their computer. Compression selection drastically affects the disk space required to store movies; how smoothly they play back from hard disk and the visual quality.

Since the success of any compression scheme depends on the movie data being compressed, each compressor trades off quality data storage requirements appropriately for different types of media. The Animation or Graphics compressor might work best for movies generated using graphics programs. When VideoFusion creates new media in a Preview window a new movie is made using the currently selected compression. Either no compression or high quality compression to minimize any data loss during processing should occur even though this will increase the disk space required for a movie while it is being developed. Generally, video compression should be used for most effective playback with quality settings suitable for the target media.
VideoFusion is a QuickTime Special Effects application which provides the capability of creating exciting video productions, as well as, the ability to edit media. Designed to offer multiple views of production, VideoFusion allows work in the environment that best suits the user. Each view will be discussed and examples will be given to assist in navigating through each of the different views of VideoFusion. Media is supplied so that practice using the extensive operations of this Special Effects application is provided.

VideoFusion provides four different ways to view and work with movie. Each view has certain advantages when creating a QuickTime movie. Depending on which phase of the production is being worked on, one may wish to worked with a different view of the creation. The four views include: the Movie Player View, the Storyboard View, the Time View, and the Script View.

Sound can be placed into a movie by selecting an insertion point in the sound track of choice. This sound track can be either a separate track or an existing sound track. The place Sound command will overwrite the sound in the current track if the new sound overlaps the current sound. Care must be taken to ensure that the insertion point leaves enough room for the new sound to fit without overlapping the existing sound. A good way to test for overlap is to place the new sound in its own track first and listen to the combined sound. If no overlap exists, then the user would Cut and Paste the second into the existing sound track. 2)
It is a final key program used, but not the last program. It is known as 3D LogoMotion.

**LOGOMOTION**

LogoMotion is a Three Dimensional flying logo tool that turns a computer screen into a synthetic, Three-dimensional (3D) World. This 3D World has the real properties of: height, width, depth, and time. It allows the creation of flying logos and exciting animations all within a 3D World state the writers of the LogoMotion Manual.

They continue by saying: It offers a specific set of features that may be streamlined for creating animated 3D flying logos and presentations. High-end-style special effects can be made by using Infini-D, a part of the LogoMotion program.

LogoMotion is not "Instant 3D," but it is as close as one can get. Building, fine-tuning, and rendering the 3D work is still required. By nature, 3D graphics is quite complex (far more complicated than its 2D equivalents), and it can be slow.

LogoMotion gives you speedy and intuitive 3D.

Stagehands offers several pre-animated lights to provide a variety of illumination effects for 3D productions, while providing the freedom of using as many lights as design.

StageHands makes it easy for beginners working in the 3D World. With them, one can create 3D animations without having to create the individual components. StageHands, which
include Backdrops, Props, Lights, Cameras, and Environments, have already been designed for the user. All one has to do is select the elements desired and LogoMotion will automatically put them into the 3D world. Editing shapes or changing surfaces or animation information, can also be mastered.

• Backdrop

Just as in a movie or a play, a Backdrop provides a background in front, which can be create by a 3D predication. Backdrops can be either still images or two-dimensional animations.
• Props

Props are pre-animated objects that can be placed in the 3D world. Props have been provided so that the user can start working in 3D without creating personal animated models. Shapes may be edited in the Workshops and changed with the animation and the Sequence.

• Lights

Lights illuminate the 3D world. StageHands offer several pre-animated lights to provide a variety of illumination effects for the 3D production. Each light used will increase rendering time. Limiting the number of lights in a scene is recommended, and deleting any unnecessary lights makes it much easier.

• Cameras

The camera is the eye in the 3D world. There are a number of pre-animated Cameras to choose from to view in the 3D world. The Cameras are tools for creating attractive flying logos.
Other option:

The toolbox contains a group of tools that make it easy to poke about in a scene. The Toolbox appears on the far left side of the screen when the first launch in LogoMotion is made. It is free-floating, and the drag bar at the top of the Toolbox can be manipulated to move it anywhere on the screen. It will always be visible above the view windows.

LogoMotion has the three dimensions of width, depth, and height. These dimensions correspond to the three coordinated axes of motion. So, left and right (width) is X, in and out (depth) is Y, and up and down (height) is Z. The World coordinate system lets one specify any object's position in the 3D World by using X, Y, and Z coordinates. While using the Front View window, moving an object left and right in the World is moving along the World's X axis. In-and-out motion is along the Y axis, and up-and-down motion is along Z axis.

Occasionally, there will be times when a specific object that is not available as a StangeHand in LogoMotion package, is needed. LogoMotion includes some basic modeling tools to help make custom models.

There are three types of custom objects. The first; are objects which have a circular cross-section. For example, a silver goblet or flying saucer could be made by using the Lathe tool. Another type of custom object is called an extruded object. An industrial I beam using the Extrude tool in LogoMotion, is an example. The third type of custom object you can explore is Text, which is a special kind of extruded object.
To create 3D Text in LogoMotion, there must be true type, or type one fonts available for use. After a bevel is in effect, added to the sides of an existing object. The bevel diagram on the left side of the dialog box shows the size and depth of the bevel that will be added to the sides of the object. By dragging the small red circle, the user can customize the look of the standard bevel shapes.

Dragging the red circle towards the left of the diagram increases the distance that the bevel will extend from the object. The maximum setting results in a very exaggerated bevel.

Dragging the red circle toward the bottom of the diagram increases the depth of the cut. The maximum setting causes the bevel to stretch down, halfway along the side of the object.

Checking the Back Bevel box will create bevels on both the front and back half of the object, making it symmetrical.

If this box is not checked, the bevel will appear only on the front surface, leaving the corners on the back at 90 degrees.
An important step in creating a quality animation or image is to add appropriate lighting.

Lights in LogoMotion are moveable objects that are actually visible in the world. Lights are manipulated like other objects: they can be repositioned with the move tools, rotated with the rotate tools, and scaled with the scale tools. Having the ability to manipulate light objects directly allows great control and flexibility in setting up screens and animations. There are three types of light sources in LogoMotion menu: point lights, spot lights, and ambient light. If one chooses to sharpen the video clip, the images will look more focused and edges in the image will stand out. If one selects smooth, the image will look softer and less in focus. Point lights and spot lights are both represented by light objects. They are placed into the world and are manipulated just as other objects. Point lights cast light evenly in all directions, white spotlights are directional. Both types of light can cast light of any color. Ambient light exists evenly throughout the world. Ambient light is sourceless (it does not emanate from a light object).

In addition to the pre-animated StageHands, LogoMotion allows the user to create personal animation paths. LogoMotion’s animation approach is time-based, or event-driven. An “event is said to occur each time the user changes a position, orientation, scale, shape, or surface characteristic of an object. LogoMotion individually tracks every event that has happened to every object in LogoMotion.
The LogoMotion World has its own time line; each time line shows a complete history of every event that has occurred to that object. Whenever an event occurs to an object, LogoMotion places an "event mark" on that object's time line at the precise moment that the event happened. Using Sequence, event marks can be added, deleted, copied, and re-arranged. The Sequencer is where the animation is done. The Sequencer allows track time, previewing animation sequences, and recording animations. The Sequencer also allows the use to add or delete events, which is very helpful in keeping track of the components of complex models.
• How the disk was created: The previous description of the software used to create this thesis leads into the question of how everything was combined to create an interactive disk about the Rochester Institute of Technology.

A. Introducing R.I.T.

Introducing R.I.T. involved using the R.I.T. demonstration videotape with the video size 240 times 200 at 32 seconds and editing. Because it has a lot of filter capability, the VideoFusion software package was selected for the editing process. It also clarifies the image, improving the quality. By using the convolve command, access to a variety of filters was made possible. Two types of filters were used: convolve and custom because they sharpen the gradient information in the image, so that it appears to be more in focus. These filters are also important in locating edges and for creating shadows.

To apply convolution filters, selecting a clip in a storyboard or selecting in a player or time view was necessary. Next, setting the blend percentage for the begin time to 30 and the end time to 30 by using the dual slider worked well. Using the same time was necessary to produce a clear image.

The next step was blending the results back into the original movie. This was also done by using the convolve command. Blending was especially effective with filters for best visual results. The sliders were set to 100 blends to equal 100 percent of the filtered output along with 100 percent of the original, thus producing a movie containing only the filtered output with the original.
In addition, the custom command provided direct access to all of the parameters of filters that are implemented by using a three by a three convolution kernel. In order to do this, the user should choose custom from the filter menu and select the two filters by using the pop-up menus. Next, the user should set the blend percentage for the begin and end time using the dual-slider. Custom both applies the filters and blends the result back onto original movie. After the first 32 seconds, the three dimensional logo title, "Rochester Institute of Technology" appears. This logo title elapses for 15 seconds with three dimensional animation. (3D)
The animation used Spectacular LogoMotion software with the next text tool selected. The directions state to: click in the center of the camera window and the text dialog box will appear. Type name (Rochester Institute of Technology) and choose a font (Avent Garde) from the font pop-up menu. LogoMotion will take a moment to load a file, and then the name should appear in 3D in the camera window. It will be flashing which means that it is "selected" text. RIT is still selected. Next, the user should choose bevel from the model menu. The bevel dialog box will appear. The user should select the straight bevel from the pop-up menu and click on the OK button. Next, Adobe Photoshop will scan type, name, pict file, and then scan the picture to make the name appear even more splendid, or to bring in a backdrop. The user should then select a backdrop from the file list and click on open.

From the photobook, the user should scan the background dark blue ocean around the little sparkles in the center with the zoom in feature. Finally, zooming in on the Rochester Institute of Technology title is required. The sparkles are white, and the title uses yellow 90, red 30, blue 10. This title rendering has a better shade quality and of the size 640x480. The color rendered took approximately one hour.
This Part of the video was edited with VideoFusion software two filter, to sharpen certain images. To do this, the user would use the sharpen filter, and choose “New” from the file menu. The named, “Thesis”. The user would then chose Convolve from the Filter menu and choose sharpen from the Filter pop-up menu within the Convolve dialog box. He or She would then Move the left slide control to 15 within the Convolve dialog box. This slider controls the effect at the start of the video sequence. The user would then Move the right slider to 30 within the Convolve dialog box. This slider controls the effect at the end of the video sequence. To smooth an image using the smooth filter, the user would choose Convolve from the filter menu.
Select smooth from the filter pop-up menu within the convolve dialog box. Move the left slider control to 10 within the Convolve dialog box. This slider controls the effect at the start of the video sequence. Next, the user would move the right slider to 15 within the Convolve dialog box. This slider controls the effect at the end of the video sequence.

For the sign language, video editing was done differently. To sharpen an image the sharpen filter was selected. To do this, one would move the left slider control three within the Convolve dialog box. The user would then move the right slider to eight within the Convolve dialog box. This slide controls the effect at the end video sequence. A final filter was used. Select Threshold from the Filter menu. To create this move, the dual Slider to set the clipping level at the Begin and End time was adjusted. Intervening clip values were twinned, providing a time varying threshold.
The next section displays RIT's Colleges of Imaging Arts and Sciences, which encompasses visual professions from the most traditional to the most contemporary. American crafts, art and design, photography, printing management, and imaging science are some examples. They share an appreciation for the visual and creative ideas behind them.

The College of Imaging Arts and Sciences explanation also used voice and sign language at the same time. On the other side of the screen, appears the documentation.

This section displays R.I.T.'s, Art and Design, and Photography Departments. If one wants to see either department, they would just click the mouse. It shows the department's information that is chosen. Art and Design has Graphic Design, Industrial Design, Interior Design, Illustration, Medical Illustration, and Computer Graphics Design, illustrated. Photography has Applied Photography, Film and Video, Biomedical Photography Communications, Fine Art Photography, Imaging and Photographic Technology, and Photo Systems Management are described in detail or briefly mentioned.

They focused on undergraduate programs, with only general explanations. The first section showed R.I.T.'s history, the residence halls, and talked about the financial aid available to students.
Welcome to
the College of Imaging Arts and Sciences
at the Rochester Institute of Technology.
This interactive disk contains information
about the various programs
the college offers and shows many examples of student work.
Faculty and staff will offer their views,
and we provide an overview of the goals of the technically
restrained College.
- R.I.T.
- N.T.D.
- School of Photographic Arts and Sciences
- School of Art and Design
- School of Printing Management and Science

Rochester Institute of Technology
The Introduction of R.I.T. and the highlighted programs it offers:

To begin the introduction of R.I.T. click, the title logo. “R.I.T. has always been one of the best technology Institutes in the United States. It was founded in 1829 as a privately owned university with eight colleges, and is located in upstate New York, (Rochester).” This is how the introduction of R.I.T. begins.

It continues with “Throughout its history, the Institute has been at the front of career education preparing students for technological and professional careers. The institute’s educational philosophy emphasizes not only theory; the natural foundation of knowledge, but also the practical workplace applications of theory.”

This explanation uses two people; the speaker and the interpreter. For R.I.T.’s historical background, Adobe Photoshop 2.5 with a Change of Mode, Color, and Filter was needed. Changing the color gave the stone pattern. The left side of the video is the interview, and the bottom is sign language. The top right contains the documentation of R.I.T.’s history.

The video interview editing was done next with VideoFusion. The screen size was 180x135, because one screen has two video interviews. The video editing was done with Custom Filter, Custom has None, Sharpen, Smooth, Smooth More, Edge Horizontal, Edge Vertical, Edge Diagonal/, Edge Diagonals Emboss, and Shadow.
The Custom command provides interpolation capability for filters, so applying one filter at the beginning of the selection and a different filter at the end provided excellent quality. The filtering on intervening frames was performed by creating a frame of a movie based on the two that they specify. Each of these parameters is timed for 15 from begin time to end time to create a smooth custom effect. Next, the use of a custom filter to change the gray scale factor was used. This was added to each pixel of the frame to partially control contrast.
R.I.T.

R.I.T., founded in 1829, is a private endowed university with eight colleges in Rochester, NY.

Throughout its history, the Institute has been at the forefront of career education in preparing students for technological and professional careers.

The Institute's educational philosophy emphasizes not only theory, but also the practice of learning through real-world applications of knowledge.

Financial Aid

The Financial Aid provides information on scholarship and financial aid programs available to students regardless of their financial need. Students are encouraged to visit the office, located on the second floor of the Student and Faculty Center, to learn about all of the financial aid options available to them.
Residence Life

The concept of university hall living at BIT is based on the belief that residence halls should not be mere shelters to sleep and eat. Residence halls are an integral part of the institution's educational community and are treated as a dynamic center of activity and personal development.

As you live in the residence halls during your first years at BIT, you will find a variety of services and student development programs which will make them a home away from home.
The next computer portion provides an explanation of the Financial Aid provided to students by R.I.T. Information on scholarship and financing is also included. This frame was just documentation on the screen with no video interviews.

The Residence Halls, at R.I.T., are shown next. The concept of residence living at RIT is based on the belief that residence halls should, and can be more than a place to sleep and eat. Residence Halls are an integral part of the Institutes’ educational community and can be used as a dynamic center of activity for social interaction. The same frame is, a video interview with a foreign students presented.

The first interview contains comments about RIT, such as why the student chose R.I.T. and would recommend it. It took about 32 seconds. This video editing, used convolve Filter and Motion Smooth. Convolve is the filtering action in VideoFusion which actually operates on the differences between adjacent pixels in each video frame. The change depends on which filter is chosen from the menu. If one chooses to sharpen the video clip, the images will look more focused and edges in the image will stand out. If one selects smooth, the image will look softer and less in focus. VideoFusion is combined with the original video based on the percentage with the controls provided. VideoFusion also provides the capability to control the transition of a given effect by “Tweening” the desired result over the selection. In the dialog box for filter, two preview images are shown which are labeled Begin Time and End Time. These two images are used as key frames for the first and last frames of the selection.
The effect will be applied linearly over the selection to give a gradual change from the effect in the first frame, or Begin Time, to the effect in the last frame, or End Time. To keep a constant setting with sliders, the user should center the slider to move both the left and right sliders in unison.

The Motion Filter command in the Filter menu provides a set of filters that uses information from both the previous and succeeding frames in a movie when processing each frame. This allows the motion present in the movie to affect the actual picture content. These filters consist of three dimensional convolution kernels where time represents the third dimension.
- R.I.T.
- N.Y.U.D.
- School of Photographic Arts and Sciences
- School of Art and Design.
- School of Printing Management and Science.
The School of Art and Design

The School of Art and Design
B. Art and Design

In the School of Art and Design, one has to apply artistic talent to find creative visual solutions. Creating eye-catching graphics, illustrations for advertisements and magazines, effective designs for buildings and products, or paintings that reflect personal opinions is what is learned in this program of study. The degree programs include: graphic design, illustration, industrial design, interior design, medical illustration, painting, and printmaking. They emphasize a practical, career oriented approach to art. 7)
All students take similar first year foundation classes that challenge them both technically and creatively to sharpen their artistic skills through basic drawing and design classes. They explore two-dimensional and three-dimensional art forms.

The logo for the school of art and design, appears with the same background as before. The introduction logo used the same font that R.I.T. used; yellow and red colored 3d logo animated motion images. The introduction is the same as R.I.T.'s. Zoom In, sparkles circle around, and it gets larger.

This scene took about 15 seconds followed by “The School of Art and Design” which is enlarged and lasts about three seconds. After the introduction, the narrator appears and explains about the Art and Design programs.

Video editing used two filters with a size of 180x135. First, the pop filter was used to sharpen in the motion filter on the window. Next the blend was set for the percentage for the begin time of three and the end time fifteen using the dual slider. The motion filter both applies the filter and allows the user to blend the result back into the original movie. Second, the user should use the custom filter, and set the blend percentage for the begin time of ten and the end time of ten by using the dual slider. To finish, they should select a one mm thin line in a video interview so that the image would appear to be more stable.

Art and Design has six different sections that are shown in 3D logo type, which was made with: 3D Speculate LogoMotion. The logo has two different colors. Originally, it is a light blue color.
but when the mouse indicator is moved onto that logo it changes the color to a light green. When the letter is clicked, the explanation about that section begins.

In the Art and Design section, a marble texture was used for the background, with the size 640x480. In this section, the word CIAS, Art and Design and each major is placed on the upper side of screen. At the center, the professors and students are shown. They are focused with motion change. Also included is explanation about their individual ideas and concepts.

At the bottom of the screen, seven buttons (next, before, play, stop, main, help, and quit) are located. At the slider, selections can be for each major. This is the same as the main button.

Each button functions as follows:

- advance left to the previous screen.
- advance right to the next screen.
- review the help menu.
- to leave the program.
- to see a short movie (use only when it flashes).
- to stop the short movie.
- to review the main menu.
- move to each department (hold click button and drag).
The format for all of the departments is basically the same: two or three people from each department have been interviewed. Most have been shot in the studio but some of them were shot the classroom. For studio shooting a poster for the background and close-up of the person's face was used.

In the video I put their name is placed in different places for each interview. Sometimes the name of the person appears in middle part of screen and other times it appears at the top of the screen.

For the letters of the names different colors for each interview avoid fadeout of the background. The lighting is also varied throughout the disk for a balanced contrast.
The School of Art and Design

- Illustration
- Interior Design
- Graphic Design
- Industrial Design
- Medical Illustration
- Computer Graphics Design
The Graphic Design program was focused upon next.

**GRAPHIC DESIGN**

Graphic Design is one of the most famous majors at R.I.T. It has a great number of students and professors. An image from the photo CD was used for the background. The Graphic Design Logo was made with LogoMotion with a Monaco for font, and extrusion dept: 0.500. To use this, the user should choose the level from the model menu. Props will appear. Next, the select the straight level from the pop-up menu. In the props, use Whizzling Comments to cross the screen left to right at a 45 degree angle. The color of the combat is green, orange, yellow, pink, blue, and gray. If choosing types of font in pan around, the font can change when it turns.

In Graphic Designs renderings, shade better, with the width of 680, and the height of 480. In making a movie, rendering takes about one hour, but it only takes one second in Logo Quick-Time.
Graphic Design deals with systematic thinking, strong visual fundamentals, the interaction of abstract and real information: problem solving, organization and methodology.

Graphic designers work with typefaces, photographs, and computer-generated illustrations to create everything from company logos to elaborate photo books. Graphic designers organize visual imagery. Designers put together all the different elements of a printed piece to form a cohesive idea.
For the Graphic design major, the same background effect as the graphic design logo was selected with about four sentences at the upper left side and eight sentences at the bottom right side of the screen for the explanation. This is proceeded by the screen "Click Here to Continue" at the bottom which will change the frame.

Graphic Design deals with systematic thinking, strong visual fundamentals, the interaction of aesthetic, and information:

Problem solving, organization and methodology. A Graphic designer works with type fonts, photographs, and computer generated illustrations to create everything from company logos to elaborate photobooks. Graphic Designers organize all the different elements of a piece to form a cohesive idea.

Graphic designers are really visually communicators and problem solvers. Using both traditional media, and digital media: computers, students learn to design things like annual reports, posters, and interactive media.

The first interview was with the chairperson, of the department and took about 49 seconds. Most of the interviews took about 30-40 seconds, so this one was particularly long.

To do this interview, video editing with a size of 200x150 was used, along with two different filters to produce quality images.
To apply the Custom Filter, the user should move the left slider control to five within the custom dialog. This slider controls the effect at the start of the video sequence. The right slider should be moved to 25 within the custom dialog. This slider controls the effect at the end of the video sequence. A Motion Shape filter was also needed. Morph Operation radio buttons help select one of the operations, “Dilation”. The slider is used to specify the number of filtration of the filter at the Begin time three, End time ten, respectively.

The bottom right side of the screen has the name of the professor in letters. For this, the titling, was done with a window. Different color from the images was needed, so that the letter would not fade into the image.

Next, a third year student, with a major in graphic design, explains about typography. The Interview took about 21 seconds with a size of 200x150. The threshold from the filter menu and the slider was set to the clipping level with the begin time of five and the end time a 15. The channel operated on, used the Extract Pop-up menu. The name of the person slowly fades as the person speaks. When the person finishes speaking it totally disappears.
I am a third-year graphic design student at R.I.T., and I think that typography has a major impact on graphic design. R.I.T. emphasizes a lot of typography.
In the section of student works, eight different logos, typography, posters, and brochures were introduced. The professor from Graphic Design recommended these works. One good example of design is a photobook made by a student. For this the software Morph 2.0 was selected to create the effects of turning the book, page by page. It is an elaborate photobook with eight pictures. Images must be saved in pict, pics or QuickTime format. Next, the user should set key point and key Lines. A project can consist of more than one Sequence of Start and End Images. Setting the Key Point and joining them with Key Lines are important steps in defining an image transformation. Pairs of Key Points and the Key Lines join them, controlling the transformation by linking specific areas in each image.
This book was designed for the children's newsletter. The book was designed to inform people of child neglect in America. The book's design also incorporates visual textures that reflect the physical characteristics of child neglect.

The business card was part of a self-project, which designed to reflect some of the different aspects and elements of design such as line, shape, direction, composition and environment.

Patrick Harvat
The twelve cell logo was designed for contemporary Christian
signer Amy Grant. The logo's design reflects Saky
shamanistic of Amy Grant and her music which is sexy
and spiritual.

Phoebe Hammet

Illustration

I am fasci with the culture and I design the beaders
with what I thought were the highlights of the
Japanese Bar.

Bradley Deborah Ann

Illustration
Next, is shown a business card with two motion changes. The business card design is used to reflect some of the different aspects and elements of design such as; line, shape, direction, competition and excitement. Morph was used again to make the business card, by setting the first image and the end image to 20 seconds and the Morph image to 20 in Export Movie. The Compressor is set to animation which controls thousands of colors per frame per second. The Export Movie took about 40 minutes to finish.

Next, two different images with typography are shown. Among eight of the images, six were black and white, and two were in color. Three images were created by using Morph for the logo design. This is show at the beginning of the sketch to the completion of the work. In the Compression Setting Dialog Box, set the frame per second, with the compressor animation. The movie’s show time is about 50 minutes. This logo concept was the treble clef logo.

The next portion of the video, shows the image changes with a brochure design for a Japanese Restaurant. The first image is a wine bottle, then a fish, and finishes with chopsticks in motion. Morph was again used to change the images, but the box is not a changed image. The setting was the same as before, but the transformation of image has to be show in zero to 20.
Industrial design

Industrial Design is the art of applying meaningful cultural and scientific knowledge, style, sensitivity and imagination to the industrial process for the benefit of the human race. R.I.T.'s program blends technical instruction in materials and processes, along with human factors and computer aided design with studio assignments in a series of increasingly complex and challenging product designs.

The Industrial Design department is introduced on the interactive disk. After this explanation, the chairperson and the two students follow. They discuss industrial design.

The video interview with the chairperson take place inside the studio, and lasts about 20 seconds. For this video editing, two filters were used, with the size of 200 by 150. The custom palette from the color menu was selected first. Next, the Bright Begin Time color was selected, a long with a color from the color wheel was needed. To sharpen the filters, the pop-up menu. The blend percentage for the Begin Time was three and the End Time was 15, using the dual Slider.

Package Design is a part of Industrial Design. The Background for industrial design is from the Photo CD. A pencil and drafts man's outfit is the main object of this background. 3D LogoMotion was used to create the industrial design Logo. Font is Monaco that moved from the left corner to the center with a size increase. The Camera steeped pan right.
This 3D logo animation took 10 seconds. The sound used was 2000. The background is an industrial design scene with a pencil at the top to project a proper image for this department. The video interviews of two students are shown next. It was shot in industrial gallery. For the video editing, VideoFusion’s Convolve filter was used. The blend percentage for the Begin Time was four and the End Time was 20 with the dual slider. A filter using the pop-up menu was required as well. The image had a lot of yellow, so green color letters for the name was chosen to provide a good contrast. As with the other interviews, the name at the bottom disappears when the person is done speaking.

For the other student’s interview, VideoFusion and the two filters; First and Motion filter were used. The blend percentage for the Begin Time was four and the End Time was 25 with the dual slider. The dual slider was set to the clipping level at the Begin Time 20 and the End Time 20. The channel had to be operated on by using the Extract RGB pop-up menu. After using these filters, his name was placed in blue and faded out like the others.

The industrial design department is; therefore, the amount of information about the department is rather limited. If a student is interested in the industrial design program, they should speak to the chairperson directly for more information.
- Illustration
- Interior Design
- Graphic Design
- Industrial Design
- Medical Illustration
- Computer Graphics Design
Industrial Design

Industrial Design is the art of applying meaningful cultural and scientific knowledge to style, sensitivity, and imagination to the individual success for the benefit of the human race. Our program blends technical instruction in Materials and Processes, Human Factors and Computer Aided Design with studio assignments as a basis of increasingly complex and challenging product design.
CIAS

Art and Design
Industrial Design

CIAS

Art and Design
Industrial Design

CIAS

Art and Design
Industrial Design

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Art and Design
Industrial Design

CIAS

Art and Design
Industrial Design
This CD product sponsored by Eastman Kodak Co. The unit is a portable photo CD player which docks into the editing Station. The portable photo CD player has features of LCD screen, Slide in accessability, automatic docking interface and numeric keypad concrete control. And the editing Station has editing capability with the player, rendering the 9x11 home line and capable to hook to TV and computer.

Hao-Ewen Chao
Interior Design

Interior design is the art of manipulating the medium of interior space to shelter human functional needs with efficiency and convenience while feeding the human spirit with visual delight. To accomplish this, R.I.T.'s program helps the students develop an understanding of, and sensitivity to, our past history, present technology, the environment, architecture, and social needs. 12)

This is how the introduction of the interior design program is introduced.

The Interior Design introduction was also made by using 3D LogoMotion. It had the Font for the time, with the Extrusion Depth of 0.400, a Bevel type of Straight an a 45 degree angle, and the colors are red 100, green 46, and blue ten. For the camera angle the tumble tool from the window was used. Sparkles for flash objects are in clouds as well. First sparkles appear and then the logo appears. This was done because if two objects appear at the same time, then the screen has too many items to register. This took about 10 seconds.

The next frame shows the professor explaining about interior design which encompasses interior space. This took about 38 seconds, with the professor's office used for the background. Two filter from VideoFusion was needed and was used to improve the image. First, smooth from custom was used, and then sharpen from motion filter was needed. A white background for the video interview with the professor was selected. The professor is in the upper left corner, with his name at the right side logo color in light blue to
balance the color with the bright background.
As for the usual format, a student was interviewed next. Basically, the same editing format was followed. Both the professor’s work, and that of the student interviewed was shown next. The professor renovated a kitchen, and the student designed an entire computer store.

Following this detailed display is the work of nine interior design images with nine seconds of motion change for four different pictures. They include: a store, restaurant, cafe and den. This was done by drawing and coloring. Morph was used to create the motion change. It took 10 seconds of rendering time for each frame to get a smooth enough image.

A building model can be viewed next. It shows the front, top, left and right views for nine seconds. It is the same four pictures. This used 10 by 15 for the frame. For the final frame 10 for rendering was selected.

Next, is a view of the water canyon that is used for the interior design title. This required five pictures of a top view to create cross-up motion.

To conclude the industrial design department, a house color drawing was used with two pictures to create the image. First, the door opened for one to see the top view of the bathroom, and kitchen at every angle.
• Illustration
• Interior Design
• Graphic Design
• Industrial Design
• Medical Illustration
• Computer Graphics Design

Interior Design
Art and Design
Interior Design

Sarah Sanders
Jennifer Manawatū

Medical Illustration

Sarah Sanders &
Jennifer Manawatū

Art and Design

CIAS
Computerland was a small space for the sale of computers, equipment, and accessories. I worked on this project for the Gisholt Design Group. Space planning, lighting, finish selections and sweatshirt designs were all a part of my responsibility. The intent was to create an appropriate atmosphere for the sale of computers and accessories. This was accomplished with special lighting, finish selections, glass walls and dark background to show off products.

Nancy A. Swieck
Illustration

RIT's Illustration program enhances drawing skills while teaching the technical skills to accurately render such objects as the interior of a yacht or an archeological mask, or to accompany written ideas and works. The illustration major serves the student who is interested in a concentrated study. Students emerging from this program are prepared as professional artists. The basic idea for the video is the same as the others. The chairperson, and one student was interviewed. A professor in this program was also interviewed. The same editing process was used. The editing was a little different for professor Robert L. Dorsey's interview through. To give a different appearance, the end and begin times were different to give a different appearance. Professor Dorsey appears at the bottom right using the Benguiat font size of 12pt. As he speaks he slowly appears.

The last interview was with a senior student. He talks for 31 seconds. For this video editing, a motion filter was applied to the movie. These filters consist of three dimensional convolution kernels where time represents the third dimension. A filter was selected to sharpen the images. The blend percentage was set for the Begin Time of five and the End Time
used was 15 with the dual slider.

After all three interviews were completed editing was done. Four seconds of animation for the Illustration design logo was used. Aachen Bold for the logo font was selected, along with using the illustration students work for the background. It was done at a 90 degree angle.

At the beginning, the logo is at the center and slowly gets bigger with a circling star from the pop-up menu engulfing it. The last scene shows the logo, with the background changing color. The lighting changes as well. The color of the logo is brown and the star is yellow because the background is green. This balanced the color scheme.

For the illustration, the works could not have motion change, so they were shown in singles of 25 pieces. Most of the work shown is without explanation. It is all either student work, or that of the professors. It is very professional and impressive.
- Illustration
- Interior Design
- Graphic Design
- Industrial Design
- Medical Illustration
- Computer Graphics Design
The Illustration major serves the student who is interested in concentrated study. Students emerging from this program are prepared as professional artists. LIT's Illustration program enhances your national drawing skills while teaching you the technical skills to accurately render such objects as the interior of a yacht or an archeological mask or to accompany written pieces and words. Illustrations draw the meaning behind the written word. Their imaginations communicate ideas and emotions by using a variety of drawing techniques.
"The Devast" wanted to explore using media in a sports environment to archive a sensation of motion progression.

Joseph L. Miller

"Baldwin" on had to illustrate an editorial about male pattern baldness. I wanted to put a twist onto the subject and this was my solution, a man being converted in flight by a hooded eagle.

Joseph L. Miller
"Wanted" the tack was to illustrate a narrative and use cartoons in the painting. Some of the items were integrated as college. I felt like doing a western, so I came up the subject for my name.

Joseph L. Miller
Medical Illustration

R.I.T. Medical Illustration is an option in fine arts that allows a concentration in the medical illustration program for a few select students. This opens up opportunities in the health profession for these students.

Art and science together are the core of R.I.T.'s Medical Illustration program, a specialized form of artistry that combines drawing with biomedical, multimedia presentations, drawing, and medical sciences. As a medical illustrator, one will be prepared to work for medical research centers, textbook publishers, medical associations, and pharmaceutical companies.

For the Medical Illustration Program, an interview with a professor and a graduate student are shown.

The interview took about 27 seconds and was completed by editing with VideoFusion. The first interview was with a graduate student.

These students have a great facility for working with computer graphics and design, along with medical illustration.

Along with interview the work of other students is presented, 15 of the 20 were created with the use of motion changes and the other five were single. The Beginning medical illustration logo was done by using 3D LogoMotion. It took approximately three seconds. The use of a font for time, and color (red 70, yellow 30, and blue 10) was also used. For the Logo's background a picture of a bone was chosen.
Many examples of student work can be viewed next. The first is an example of heart surgery. Others include: black and white illustrations of the back, a drawing of the skeleton, and a picture of horse muscles. It concludes with a picture of the brain. This was done differently than the other majors because it required no motion change.

The medical illustration program is another very popular program offered at R.I.T.
- Illustration
- Interior Design
- Graphic Design
- Industrial Design
- Medical Illustration
- Computer Graphics Design
Art and Science together are the core of CIAS's Medical Illustration program, a specialized area of artistry that combines creativity with biomedical, multimedia, presentations, drawing, and medical science. As a medical illustrator, you will be prepared to work for medical research centers, textbook publishers, medical consultants, and pharmaceutical firms.

CIAS - Medical Illustration Design

Medical illustrators specialize in creating visual images that explain complex biological processes. They must be able to interpret scientific data and create images that are both scientifically accurate and aesthetically pleasing. They work with biologists, doctors, and researchers to create images that can be used in publications, presentations, or educational materials.
The idea for this piece was to develop an illustration of the inner ear that might be used for a pharmaceutical company advertisement. It is perhaps less technical than a drawing that might be used for a medical text. The medium is carbon dust.

Margaret Poce
This is a study watercolor wash derived from a work by Hackett. One of the ways we learn techniques is by copying the work of the masters. This is an illustration of the muscles of the back.

Margaret Patux

Medical Illustration

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Removal of a blood clot from the aorta

Medical Illustration
Body
Body
Computer Graphics Design

The last major discussed, Computer Graphics Design is different from all of the other majors previously discussed because it is a graduate program. It has been proven to be one of the best in the United States. Two professors and one student were interviewed.

To do this, the four-control slider had to be adjusted to the upper and lower limits of the window at both the begin and the end time. The upper and lower settings, displayed above and below the slider respectively, together, define a range of values between zero and 255. The range that is specified at the begin time is tweened to the range that is specified at the end time. The blend for the begin time was five and the end time was 20 by using the deal slider.

Professor James Ver Hague discusses computer graphics design, next. The video editing was completed with VideoFusion, the same was used for most of the other interviews, along with filters to provide a better quality picture.

Next, a computer graphics design student explains about R.I.T.'s computer graphics design program. For this, video editing custom filters were used twice. The major field of computer graphics design is pictures, and 2D animation. The examples shown were done by second year students. A total of 15 pieces are detailed. Four were made by graduate students.
Graphics Design
The purpose of this piece is to relay a
sudden awareness with the
emphasis on the
consciousness of how our
wildlife is being destroyed
data endangered, and our own
environment is
quickly and effectively
threatened.
The message is once again placed at
the end by the piece of a single
spatial, against a dark, empty background and
local foundation.

Cheryl Cebe
First, the 3D animation about interior design, at every angle is shown. It took about 19 seconds. The student explains about her work.

Second, the 3D animation with no sound lasts for approximately 33 seconds. This animation sequence was created in Strata Studio Pro. The idea was based on an assignment to study how people approach problem solving.

Third, is also a 3D animation. It is a doll dancing with music. It took about 54 seconds with the software used. For this Strata Studio Pro and Adobe Premiere were the programs of choice.

Generating sound for 40 seconds needed to be completed next. This is titled, Porky’s Morning. The program shows Porky the Pig waking up in the morning. It was created with Freehand, Photoshop, and M.Mind.

Following this sequence, the 3 D motion change was made with two bathroom pictures which took about three seconds. The 3D bathroom images, made in Strata Studio Pro, Adobe Photoshop, and Motion Change were generated by Morph.

The final piece shown was created by a graduate student. The title is “Live It”.

It required motion change made with six different pictures at 25 seconds with a 3D game.

The computer graphics design logo circles around and gets the larger. A sparkle appears from computer picture background. The colors were: red 10, yellow 40, and blue 10. The background is red and the logo is yellow. The Logo Animation took approximately four seconds.

Overall, the computer graphics design program was easily created because of prior experience with the other R.I.T. majors.
This animation sequence was created in "3D Studio Pro". The idea was based on an assignment to study how people approach solving problems. The beauty of such an assignment is that it can develop one's analytical ability as well as their ability to recognize interesting relationships.

Keith Watson

Illustration
Conclusion

In conclusion, the nature of this thesis was to explore the possibilities of interactive animation. In completing the interactive disk, the various activities and programs of the Rochester Institute of Technology, (R.I.T), were discussed and explored. Also presented was R.I.T.'s history, upstate New York location, and academic philosophies.

Many things were learned from the exploration of the Rochester Institute of Technology, and in the combination of all of the software used to create the interactive disk.

The using of, the combining of, and manipulation of the programs displays the multiple functions and capabilities of computers today. This is done in conjunction with applying them to a commonly and easily used finished product: an interactive computer disk.

I can happily state that from this work I have become considerably more knowledgeable in developing a completed, lengthy, and in-depth finished interactive computer disk. Further more, I feel confident in my newly gained knowledge of the Rochester Institute of Technology, which I will continue to support and highly recommend. What I have gained from this project will follow me in my future artistic endeavors.
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7. VideoFusion, User’s guide p.9
8. VideoFusion, User’s guide p.27
9. VideoFusion, User’s guide p.35
10. VideoFusion, User’s guide p.41
11. VideoFusion, User’s guide p.47
12. VideoFusion, User’s guide p.85
13. VideoFusion, User’s guide p.121
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15. VideoFusion, User’s guide p.139
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17. Specular LogoMotion, User’s Manual, p.3
18. Specular LogoMotion, User’s Manual, p.33
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