

Hijaak Morph v. 1.0 help system

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Morphologic sequences (morphing)

Morphologic transformation is used to smoothly transform one image to another. An almost textbook example of this sort of transformation is shown in a popular videoclip, *Black Or White* by Michael Jackson, where the faces of different people change one into another. From a user viewpoint, this transformation can be described as a point-to-point and area-to-area transition of one image into another. For example, when one face transforms to another face, one should set the transition of the nose to nose, the left eye to left eye, the outline of the initial face to the outline of the destination face and so on.

In **HiJaak Morph**, points and lines are used to set the transition of points and areas. That is, you should select points and contours (lines) in the source image that will be transformed to new points and contours in the destination image. In the example with faces mentioned above the procedure would be the following. You select points in the centers of the eyes in the source face and move them to the centers of eyes in the destination image. You repeat the procedure for other important points, lip corners, etc. You select the contour of the face in the source image and move it in the target image so that it fits the outline of the target face. The more points and lines you select, the better and smoother is the effect, but it will also take more time to complete the transformation. The algorithm of morphologic transformation used in **HiJaak Morph** guarantees that every selected point or line in the source image will be transformed to its selected counterpart in the target image. In the areas of the image where no points or lines had been selected, the transformation will work in the smoothest possible way.

Opening source image

To select the source image, click a mouse on the **Source** window or run **Open Source** command of **File** menu. A dialog box appears.

1. Select the right file format. You may select All Files in the File Format field and then select the file of a desired format.
2. Select the file name from the list and click the OK button.

The image will be transformed into internal HiJaak Morph format and will appear in the **Source** window. Before clicking OK you may click the Info button and get the information on the selected file.

Opening target image

To select the target image, click a mouse on the **Target** window or run **Open Target** command of **File** menu. A dialog box appears.


1. Select the right file format. You may select All Files in the File Format field and then select the file of a desired format.
2. Select the file name from the list and click the OK button.

The image will be transformed into internal HiJaak Morph format and will appear in the **Source** window. Before clicking OK you may click the Info button and get the information on the selected file.


Creating morphologic sequences (morphing)

To start the creation of morphologic transformation, load source and target frames.

To view images in actual sizes click on the **Source** or on the **Target** window. Image windows appears on the screen. To zoom in or zoom out image run **Zoom** command of **View** menu of image window.

Press the  button to begin selection of points and lines describing the transformation. To set new point press **Shift** and left mouse button, the markers will appear simultaneously in both source and target images. The points are selected with a mouse click. You can delete a selected point by pointing to it and clicking the right mouse button or using **Del** key to delete active point.

To draw a line, press the **Ctrl** key, select starting point and drag the line keeping the left mouse button pressed until you catch ending point in the cursor. If both **Ctrl** and **Shift** keys are pressed, you may create a line with new ending point. After the points and the lines are selected, you can edit their position by dragging them with a mouse with

pressed left button. If you need to delete (unselect) all the points and lines, press the  button. You can save a selected combination of points and lines in a file by clicking the



button. The




button lets you load a set of points and lines saved before. The



button switches the sets of selected points and lines between the destination and the target images.

The **Number Of Images in Morph** field sets the number of frames in the transformation sequence, the **Number to begin with** field sets the number of the first image in the sequence. The name of the sequence should be set in the **Name** field. If you check **Make One Image** option, **HiJaak Morph** will generate only one image out of the sequence; you need to set the number of this one frame.


If the  button is pressed, **HiJaak Morph** will open its window for images of the sequence. If the



button is pressed, **Picture Man** will save all images in a file. The



button lets you choose the file format and save options.


When you press the  button, **HiJaak Morph** lets you select the rules of point motion and color changes. A new field with the controls opens at the bottom of the main dialog box.

When you press the  button, **HiJaak Morph** lets you select output options.

Note:

1. If source and target frames are the same, **HiJaak Morph** will generate warping.
2. If points and/or lines are not selected, **HiJaak Morph** will generate fading.

The output options

To select the file format and set the save options press the  button.

Dialog box appears on the screen.

You can select size of output frames in the generated sequence.

If you select **Keep proportions of source** all frames in the generated sequence will have proportions (width to height rate) the same as the source frame.

If you select **Keep proportions of destination** all frames in the generated sequence will have proportions (width to height rate) the same as the target frame.

You can also select algorithm of morphing.


Good algorithm use is the faster, but sometimes morph sequence can have not smooth details.

Better algorithm use only integer arithmetic operations so it is faster then **Best** algorithm, but sometimes morph sequence have defects.

Best algorithm use float arithmetic operations so it is slower then **Better** algorithm, but result morph sequence never have defects.

Interpolate cause **HiJaak Morph** use bilinear interpolation to antialiasing. In this case result will be smoother then without interpolation.

The file format and save options

To select the file format and set the save options press the  button.

Dialog box appears on the screen.

You can select the file format of the morph sequence in the **Save To** field. In the **Bits Per Pixel** field you can select the color depth of sequence. If you select 8 bits per pixel you can choose between the optimized and the standard palette. If you choose the optimized palette you can set the number of colors in **Optimize colors** field.

If you select single frames format (JPEG, TIFF, TARGA, PCX, GIF or Bitmap) you can set save options by pressing the Converters button. If you don't set the **Use default save settings** check box, the dialog box for save options will be called before saving.

If you select Microsoft AVI file format you can press the **Compress** button to set AVI compression options.

To set path to files you can print path in edit control with keyboard or press the **Browse** button and select path in dialog.

The rules of point motion and color changes


HiJaak Morph allows you to set the rules of points motion and/or color changes. For example you can set that the distortion of image in the beginning of the generated sequence is slow and the distortion of image in the end of sequence is fast. Or you can set that the color changes of image in the beginning of the generated sequence is fast and the color changes of image in the end of sequence is slow.


If you select the curve like in below picture changes in the sequence generated will be slow in the beginning and in the end, all changes will occur in the middle frames.




Or if you select the curve like in below picture changes in the sequence generated will be slow in the middle frames, all changes will occur in the beginning of the sequence and no changes occur in the end frames.




To select the rules of point motion and color changes press the  button. A new field with the controls opens at the bottom of the main dialog box.


The  button controls the speed of points movements. The

 button sets the speed of color changes for moving points.


The other buttons control the modes described below.


 selects how you choose the curve. This button lets you make a choice from several options.

 sets a line. You can change its slope and constant by moving the small black squares at its ends with the mouse. You can also change positions of the small black squares by clicking on the border of the control with Shift button pressed.

 sets an arbitrary curve. Just draw a curve with a mouse keeping its button pressed. When you are done with drawing, smooth the curve with the


 button.


 sets a smooth curve. Select a point on the line, catch it with a mouse and drag keeping the left mouse button pressed. The curve will bend, but remain smooth.

 selects a gamma mode. When you click this button, the **Set Gamma** dialog box appears in the screen. You can select gamma with the controls in it.

 smooths the curve.

 sets all the parameters to the defaults

 loads a curve from a file where it has been saved before

 saves a curve to a file for future use.

Load Curve

To load transparency or distortion curve just select file with curve in CRV format and click Open button.

Load Lines

To load lines and points from file just select file with points and lines in MLI format and click Open button.

File menu-Preferences

After you choose this command dialog box appears on the screen.

If you select **Auto adjust window size** size of view window will be automatically adjusted according to zoom factors. You can select the colors of active and inactive points on images. To select the color just click the mouse on colored window.

You can also set **Gamma options** of your monitor to correct color distortions. To calibrate your monitor load some etalon image and open view window (click on image window). Then choose File - Preferences command, set gamma options and click **Test** button. Repeat operations with gamma options and **Test** button to obtain best view of image.

Help-Contents command

This command loads contents screen of **HiJaak Morph** help system.

Help-Search for Help on command

This command allows you to find help on a keyword. Set a keyword in Help keyword field and click OK.

Help-About command

This command shows brief information about copyrights and version of **HiJaak Morph**.

File Formats Supported

Pictures used by PCs are saved in many formats. HiJaak Morph supports a limited number of these formats. When you select one from listed below format, video sequence will be saved as a set of single files with names like (NAME)(NUMBER).EXT. Where NAME is the name of sequence, NUMBER is the number of frame and EXT is the standard extension of file format.

BMP File Format

The BMP format will support bits per pixels of 1, 4, 8 and 24. HiJaak Morph supports 8 and 24 bits formats. HiJaak Morph can write BMP files for OS/2 and RLE compressed files. When you select BMP file type in Save Options dialog, the dialog box appears on the screen before saving. Select needed BMP subformat and click OK.

GIF File Format

The GIF format will support bits per pixels of 1, 4 and 8. HiJaak Morph supports 8 bits GIFs. GIF files were designed to create the smallest possible picture files for uploading and downloading from BBSs. When you select GIF file type in Save Options dialog, the dialog box appears on the screen before saving. Select needed GIF subformat and click OK.

PCX File Format

The PCX format will support bits per pixels of 1, 4 and 8. HiJaak Morph supports 8 bits per pixel.

TIFF File Format

The TIFF format will support bits per pixels of 1, 4, 8 and 24. HiJaak Morph supports 8 and 24 bits TIFFs. The TIFF format differentiates between types of pictures. The categories are: black and white, gray scale and colored. HiJaak Morph supports all of these categories. The TIFF format can use one of four encoding routines. These encoding routines are: No-compression, Pack bits, LZW, Huffman. HiJaak Morph will read and write files that use the encoding routines of: No-compression, Pack bits, Huffman and LZW. When you select TIFF file type in Save Options dialog, the dialog box appears on the screen before saving. Select needed TIFF subformat and click OK.

TARGA File Format

The TARGA format will support bits per pixels of 8, 15, 16, 24 and 32. HiJaak Morph supports all possibilities. The TARGA format differentiates between types of pictures. These categories are: gray scale, colormapped, and truecolor. HiJaak Morph supports all of these categories. The TARGA format can use one of three encoding routines. These encoding routines are: No-compression, Run-Length, and Huffman. HiJaak Morph will read and write files that use the first two of these encoding routines. When you select TARGA file type in Save Options dialog, the dialog box appears on the screen before saving. Select needed TARGA subformat and click OK.

JPEG File Format

The JPEG format will support bits per pixels of 8 and 24. HiJaak Morph supports all possibilities. JPEG decompressor can read non-interleaved gray scale and fully-interleaved true color images. JPEG compressor writes non-interleaved gray scale and fully-interleaved true color images with (2h:2v)(1h:1v)(1h:1v) sampling factors. JPEG compressor uses a quality parameter which may be of range 1..100. The more the quality parameter, the better the quality of the image stored, and the greater the size of the compressed image file.

When you select JPEG file type in Save Options dialog, the dialog box appears on the screen before saving. Select compressor quality and press OK.

File Converters Settings

When you press the **Converters** button on the **Save Options** dialog Converter Setup dialog occur on the screen. You can add or remove converter by pressing **Install** or **Remove** buttons. You can set default converter options by pressing the **Setup** button.

AVI Compression Options

The **Compression** combo box will display available compressors installed on your system that are registered with Microsoft. The selected compressor will be used when creating Video for Windows movies. If no compression is desired, select 'FullFrames'.

The **Compress Quality** scroll bar allows you to set the relative quality of the compressed images. The higher the quality rate, the lower the compression of the resulting images.

You can select key frame rate with **Key Frame** field.

You can set data rate of your hard disk in **Data Rate** field to optimize compressing process for you hardware.

Glossary

compressor

Target Image

frame

fading

key frame

key frame rate

morph

video

pixel

Source Images

Video for Windows

warping

compressor

Used to reduce both the size of static images and playback time of AVI movies.

Target Image

The ending image to be morphed from the Source Image in a sequence.

frame

A single image in a sequence of images.

fading

Fading is frame to frame transition of the targeted image through the source image without deformation of the images.

key frame

A sample in a sequence of compressed frames that does not rely on other frames in the sequence for any of its information. Key frames are placed into compressed sequences at a frequency that is determined by the key frame rate. Typically, the term key frame is used with respect to compressed sequences of image data.

key frame rate

The number of key frames per second placed into compressed sequences.

morph

A two-dimensional, spatially-warped crossfade between two images. In other words, a mix of two images where elements of each of the two images move to an intermediate position between them.

video

A stream of morph images representing one or more sequences of transitions between Source and Target Images.

pixel

Short for picture element, meaning each dot on a screen.

Source Images

The starting image to be morphed into the Target Image.

Video for Windows

Video for Windows is an addition to the Windows software that integrates time-based data into mainstream Windows applications. Time-based data can be manipulated in the same ways as any other standard element in the Windows environment. In Video for Windows, this time-based data is referred to as movies.

warping

Warping is frame to frame deformation of one image.

Buttons

Main part of HiJaak Morph dialog:



- show lines and points on image;



- delete all lines and points;



- save lines and points on the disk;



- load lines and points from the file;



- switches the sets of selected points and lines between the destination and the target images;



- open view window for each generated frame;



- save generated sequence on the disk;



- choose the file format and save options;



- select output options;



- select the rules of point motion and color changes.

Buttons on the rules of point motion and color changes part of dialog:



- set the distortion curve;



- set the transition curve;



- set a line mode of curve settings;



- set a free hand mode of curve settings;



- set a spline mode of curve settings;



- set a gamma mode of curve settings;



- smooth the curve;



- set all the parameters to the defaults;



- load a curve from a file;



- save a curve to a file for future use.

