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Image Composite Editor (ICE)

Created by the Microsoft Research
Computational Photography Group

I have used this software for years. A few weeks ago I went to launch the program and got a message that there was a new version, would I like to download it. I clicked “Yes” and am very glad I did. It’s like a brand new program with many added features.

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Image Composite Editor (ICE)

- Given a set of overlapping photographs of a scene shot from a single camera location, the app creates a high-resolution panorama that seamlessly combines the original images.
- ICE can also create a panorama from a panning video, including stop-motion action overlaid on the background.

What is ICE? It is software that can take related images and merge them together as one picture.

Scenery is probably the primary use, but can also be used in architecture. Doesn’t require an expensive digital camera. A panorama from a panning video is beyond the scope of this presentation.

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Image Composite Editor (ICE)

- Finished panoramas can be shared with friends and viewed in 3D by uploading them to the Photosynth website.
- Panoramas can also be saved in a wide variety of image formats, including JPEG, JPEG XR, TIFF, and Photoshop’s PSD/PSB format, as well as the multiresolution tiled format used by HD View and Deep Zoom.

JPEG XR (eXtended Range), based on technology originally developed and patented by Microsoft under the name HD Photo (formerly Windows Media Photo).

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Image Composite Editor (ICE)

- Why use ICE?
 - Create an image with more of the visual impact of a scene that your eye actually sees



Scenery image panoramas are probably the number one use for ICE. But there are other uses such as architectural.

When Microsoft released this new version they posted a video that describes some of the features. Here is that video.

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Image Composite Editor (ICE)

- What type of images are suitable?
 - Scenery

New 4:30 image



– Architectural

New 4:30 image



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 Image Composite Editor (ICE)



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 Image Composite Editor (ICE)

- The Image Composite Editor (ICE) is a free download from Microsoft
- If you have ANY interest in creating a panoramic image this software is a **MUST** have!

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 Image Composite Editor (ICE)

- Printing a panoramic image
 - Many online sites
 - Images shown could be printed as a 20 x 58" for around \$40 or as a 12 x 35" for around \$22.50 at one online site I checked



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 Image Composite Editor (ICE)

- File size comparison
 - File quality selection determines the file size
 - The table shows the file sizes for the same image saved at various qualities (and file types)

Source	Dimensions	Format	Size
ICE - JPEG (Quality 10)	1024x1024	JPEG (Quality 10)	1024x1024
ICE - JPEG (Quality 20)	1024x1024	JPEG (Quality 20)	1024x1024
ICE - JPEG (Quality 30)	1024x1024	JPEG (Quality 30)	1024x1024
ICE - JPEG (Quality 40)	1024x1024	JPEG (Quality 40)	1024x1024
ICE - JPEG (Quality 50)	1024x1024	JPEG (Quality 50)	1024x1024
ICE - JPEG (Quality 60)	1024x1024	JPEG (Quality 60)	1024x1024
ICE - JPEG (Quality 70)	1024x1024	JPEG (Quality 70)	1024x1024
ICE - JPEG (Quality 80)	1024x1024	JPEG (Quality 80)	1024x1024
ICE - JPEG (Quality 90)	1024x1024	JPEG (Quality 90)	1024x1024
ICE - JPEG (Quality 100)	1024x1024	JPEG (Quality 100)	1024x1024
ICE - PNG (Quality 10)	1024x1024	PNG (Quality 10)	1024x1024
ICE - PNG (Quality 20)	1024x1024	PNG (Quality 20)	1024x1024
ICE - PNG (Quality 30)	1024x1024	PNG (Quality 30)	1024x1024
ICE - PNG (Quality 40)	1024x1024	PNG (Quality 40)	1024x1024
ICE - PNG (Quality 50)	1024x1024	PNG (Quality 50)	1024x1024
ICE - PNG (Quality 60)	1024x1024	PNG (Quality 60)	1024x1024
ICE - PNG (Quality 70)	1024x1024	PNG (Quality 70)	1024x1024
ICE - PNG (Quality 80)	1024x1024	PNG (Quality 80)	1024x1024
ICE - PNG (Quality 90)	1024x1024	PNG (Quality 90)	1024x1024
ICE - PNG (Quality 100)	1024x1024	PNG (Quality 100)	1024x1024

The smallest file size is achieved by the JPEG format, but at a loss of quality.

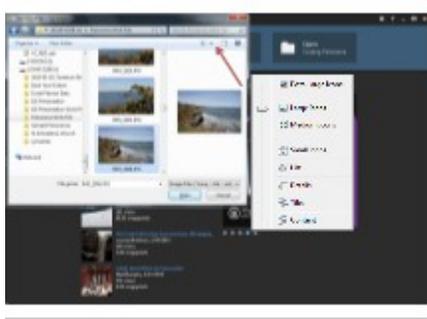
What does the software look like?

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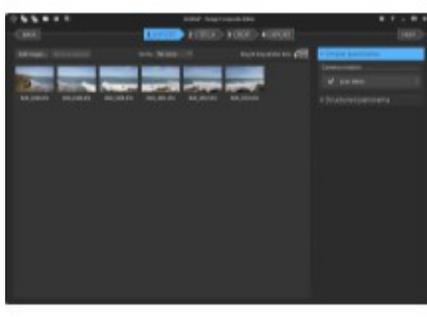
Click on New Panorama to start. The traditional file open window will appear.

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Use the dropdown on the selection screen to change how the file is viewed (details, small icon, etc.). To select the range of images either hold the control key and click on each image as the list is moved or click the first image, hold the Shift key and then click on the last image in the range. Then click the Open button.

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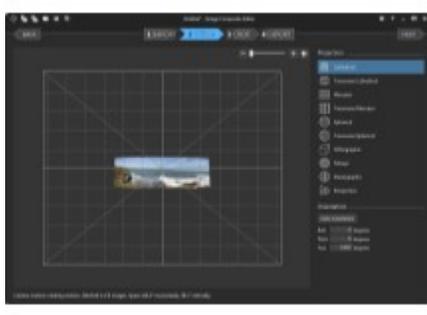
The import screen will open with a preview of the images selected. Click on the "Stitch" arrow button.

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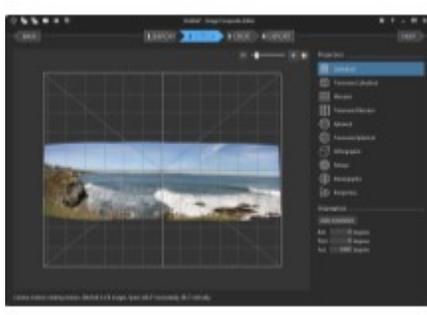
The software will align the images and then create the composite.

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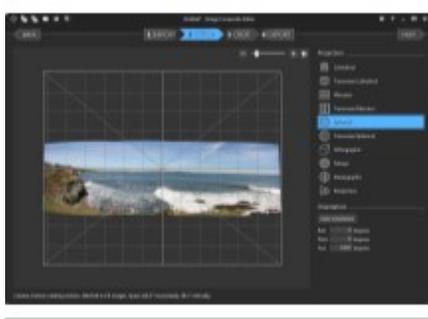
The preview screen will open. The image size displayed will vary depending on how many images were used, the image size, etc.

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Use the Zoom sizing bar to change the view. Interesting to note that even though six images were provided there was enough overlap that the software created the file only using four of them.

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There are several ways the image can be projected, click on each to get a preview of what each one does. In this case the Spherical projection seemed the best to me. Note that due to the camera alignment during the exposures the horizon dips noticeably on the right. I used a monopod, not a tripod.

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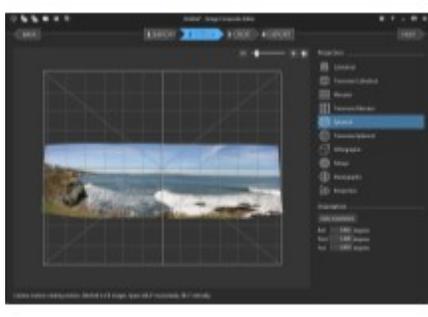
This can be corrected by entering a value in the Roll orientation box.

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Alternately the image may be manipulated using arrows. When the mouse pauses over the image the different motion arrows will appear. These are exaggerated in size in this screen capture to make them more visible...and only one set at a time can appear.

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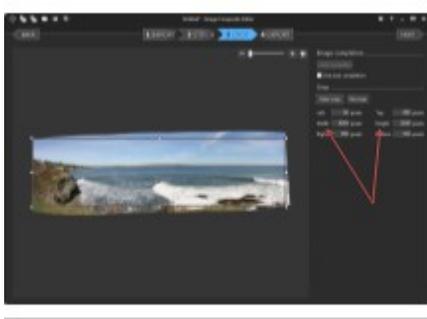
Example of a change done by clicking on the image with the up/down arrow set showing and moving down. Important, there is NO undo button. If the results are not satisfactory click in each of the orientation boxes and change the value back to zero.

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When satisfied with the appearance of the panorama, click on the "Crop" arrow button.

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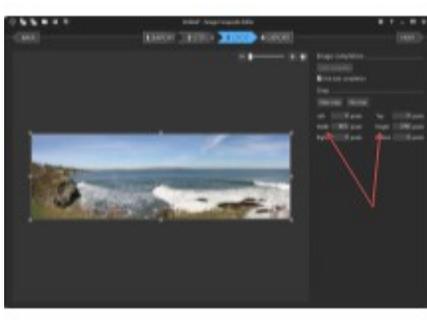
If the "Auto crop" button is clicked the software will select the maximum area that can be selected without leaving a part of the image empty. It is also possible to proceed without any cropping (the "No crop" button). New in this version is the "Auto complete" button.

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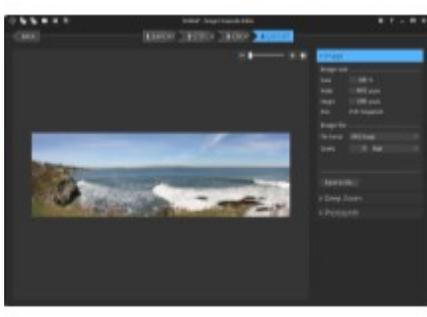
The software will process the images to complete the panorama using the crop method selected.

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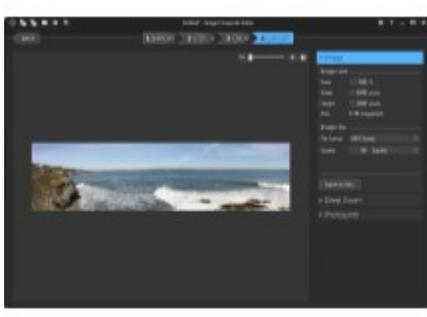
In this case the Auto complete button was used. Note the increase in the image size.

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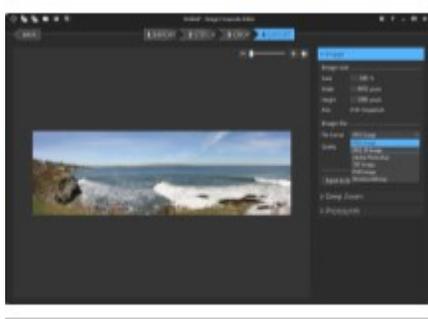
When satisfied with the cropping, click on the "Export" arrow button. The scale of the image can be adjusted here...anything from 1% to 100%.

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Here is the same image with the Auto crop option selected as opposed to using Auto complete.

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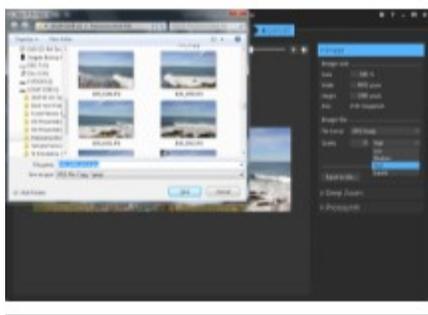
Click on the File format dropdown arrow to open the selection list. The choices are JPEG, JPEG XR, Adobe Photoshop, TIFF, PNG or Windows Bitmap. If the file is extremely large some of the file selection types may not be available (due to specification limitations).

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Click on the Quality dropdown arrow to select the image quality desired (the number of choices will vary with the file type selection). Finally click on the "Export to disk" button.

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The same file folder where the images came from will be selected and an automatic file name entered (the file name of the first image in the range with "_stitch" appended). This can be changed by the user to any desired file name. Click on save to complete the action. Deep Zoom and Photosynth are beyond the scope of this presentation.

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 Image Composite Editor (ICE)

- Mentioned that the software was improved
 - Panorama created using the Old software version



Next to compare 2 images

Notice in the old software version that the horizontal lines at the top and bottom of the image seem to bow?

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 Image Composite Editor (ICE)

- Panorama created using the New software version



Next to compare 2 images

Compare that to the new software version results. Even the banner on the left wall looks more natural. The slight angle at the top is because I wasn't exactly centered on the cross in the aisle.

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Image Composite Editor (ICE)

- If anyone is interested in learning some of the techniques used for taking images for use in creating a panorama we have a few copies of some articles found online
- They are also available in electronic format if desired

Open for questions.

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Questions?