Managing enblend masks

Photo masking techniques for panorama stitching

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About enblend

Enblend is a tool for merging overlapping images.

- http://enblend.sourceforge.net/
- Can be used as a plugin by hugin, PTGui, ptassembler etc...
- Similar to smartblend (and CS3 layer blending? and PTGui blending?)
- Blending is not the same as feathering

This talk

Things to cover in this talk.

- The standard technique for masking images before blending
- An alternative technique using external mask files
- Introducing positive masking
- Another alternative - Vector masks with Inkscape

Blend line picking

Enblend picks an optimised seam location to place it in areas of overlap with minimal differences.

- Doesn't always get it right.

Colour bleeding

Even if an area has been excluded by enblend seam placement it can still contribute to the final image.

- In effect large areas of colour are blurred together
- Any one pixel can gain colour from any other pixel in the scene
- Even non-overlapping areas are blended

Alpha channel editing

The solution to both problems is to edit alpha channels, effectively excluding areas from processing, but...

Example

8096x4048 32 megapixel panorama
16bit per channel, four channels = 256MB per shot

What do you do with these enormous edited TIFF files? Delete them?

- The alpha channel itself is only a simple two colour image
- A 32 megapixel alpha channel is only 20kB or so with deflate compression

nona-mask and enblend-mask

So why not split the masks from the images?
Nona-mask and enblend-mask are simple programs that behave identically to nona and enblend, except:

- They will pick up masks from external files
- ...if the masks are named in a particular way

Example using nona-mask

Nona is a replacement for PTStitcher.

- http://hugin.sourceforge.net/
- Nona supports circular or rectangular masks via 'S' parameters

Nona-mask can be used in situations where the standard rectangular and circular masking parameters don't fit - Such as flash photography.

Example using enblend-mask

Enblend-mask does the same thing for enblend as nona-mask does for nona.

- We need separate TIFF masks for each remapped shot
- ...but positive masking is needed too
- Process-masks allows for both negative and positive masking

Still way too difficult

Nona-mask and enblend-mask solve the problem of huge TIFF files, but each photo still has to be edited separately.
The Photoshop alternative is to stitch directly to a multilayer PSD file and edit the masks all in one place.

Example

8096x4048 32 megapixel panorama
16bit per channel, four channels = 256MB per shot
Eight layer PSD file = 2GB

SVG solution

Scalable Vector Graphics (SVG)

- SVG is commonly used for logos and icons
- Inkscape http://www.inkscape.org/
- Similar to Adobe Illustrator or CorelDraw
- SVG is XML, easy to manipulate and script
- SVG keeps bitmap images as external resources (like HTML)

tif2svg and enblend-svg

Tif2svg creates a tiny multilayer SVG image from a set of TIFF files.

- SVG allows editing all masks in a multilayered file
- Each photo is a separate layer
- 16bit, but no HDR
- Keeps the mask information separate from the image data
- Allows vector/polygon masks
- Vector masks can be re-edited easily

Enblend-svg blends one of these multilayer SVG files, otherwise has exactly the same options as enblend.

Panotools::Script

All this stuff is bundled in Panotools::Script

- http://search.cpan.org/dist/Panotools-Script/
- Contains: nona-mask, enblend-mask, process-masks, tif2svg, enblend-svg & more.
- Perl-module, cross-platform (in principle)
- Mis-named - Currently only nona/autooptimiser supported

Future possibilities

- External mask processing by nona or enblend directly
- SVG output from hugin
- Vector masks in panotools scripts, replacing 'S' mask parameters
- Cropped TIFF equivalent in SVG