

A different perspective

Reading some articles about 3D in a computer magazine made me think what would be required to create such images myself.

The easiest way to present such images is in the form of anaglyphs, you only need red/cyan glasses to look at them. The advantage of this method is that the images can be viewed on a computer screen but can also be printed with a normal inkjet printer.

Normally you would need a 3D camera or a camera bar (to move the camera between shots) to get the 2 required images. It's crucial to work with the correct distance between shots so that the 3D effect is visible from a given distance. The normal lens distance between the images should be around 7cm (eye to eye distance), but when looking at an Alpa XY I had the idea that by using shifts the result could be achieved with smaller movements and higher precision.

Alpa cameras have identical mounts in the front and back, so it's possible to turn the camera and move the back or the front horizontally. The image shows the digiback mounted on the front side of the camera.



Mounted this way the perspective changes differently, as the lens is moving.

I took several images in series of 1.5, 3, 5 and 10mm shift to each side. Then rotated the camera and repeated the series. The goal was to get different perspective shifts so I would be able to find out which way of moving would be best.

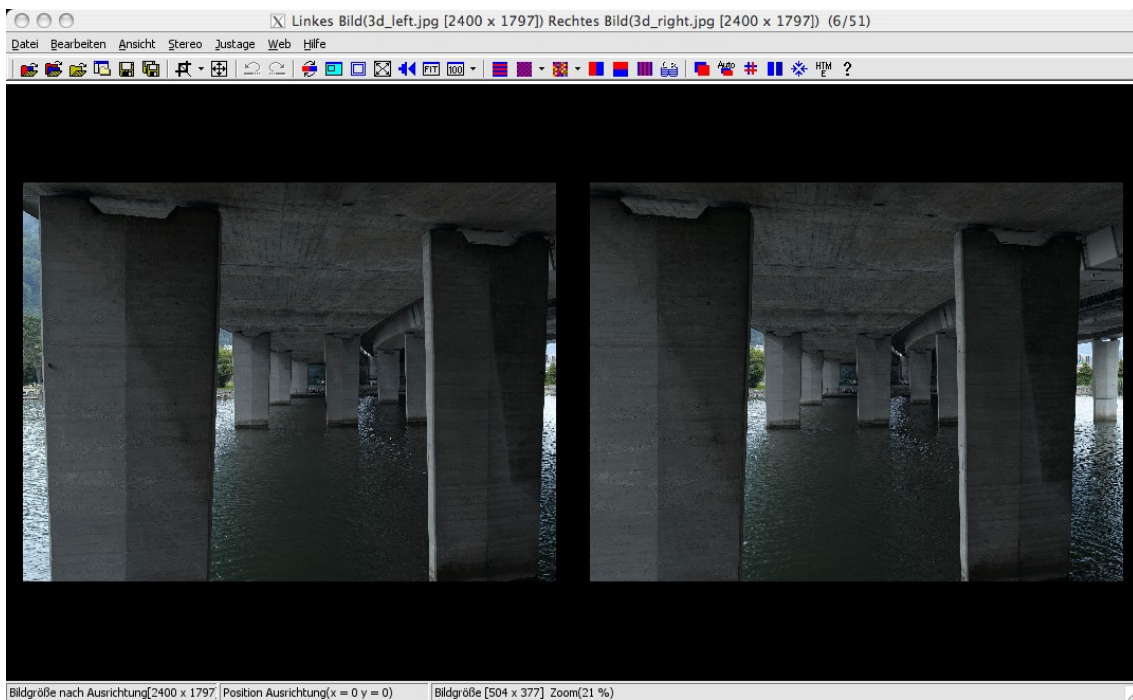
During the shooting it became obvious that shifts bigger than 10 mm were too big to get the desired stereo effect. It has also be noted that the amount of shift changes significantly depending on the distance to the main subject, which in this case was around 10m.

Back home I developed the RAW's and used the 1.5, 3 and 5mm pairs to generate the first images. The 10mm versions (10mm shift to each side, 20mm distance total) were not useable, the shift generated heavy perspective changes. It is possible to adjust the images in the 3D software, but so far the results were not satisfying. The image pairs with 3 and 5mm shift were much more pleasing. To my surprise the experiments showed that the front shift (camera rotated by 180°) are easier to get good results, but this is only a first experience.

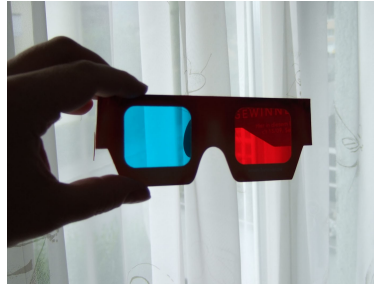
The amount of shift needs to be set very precisely. Thanks to the construction of the XY it can be set in steps of less than one tenth of a millimeter. The marks on the adjustment wheels indicate one tenth steps, one full turn equals one millimeter shift.



The software to calculate 3D images is available as freeware, just search for anaglyphs. For my experiments I used Stereo Photo Maker (<http://stereo.jpn.org/eng/stphmkr/index.html>). It's Windows only, but works also under Crossover for Mac.



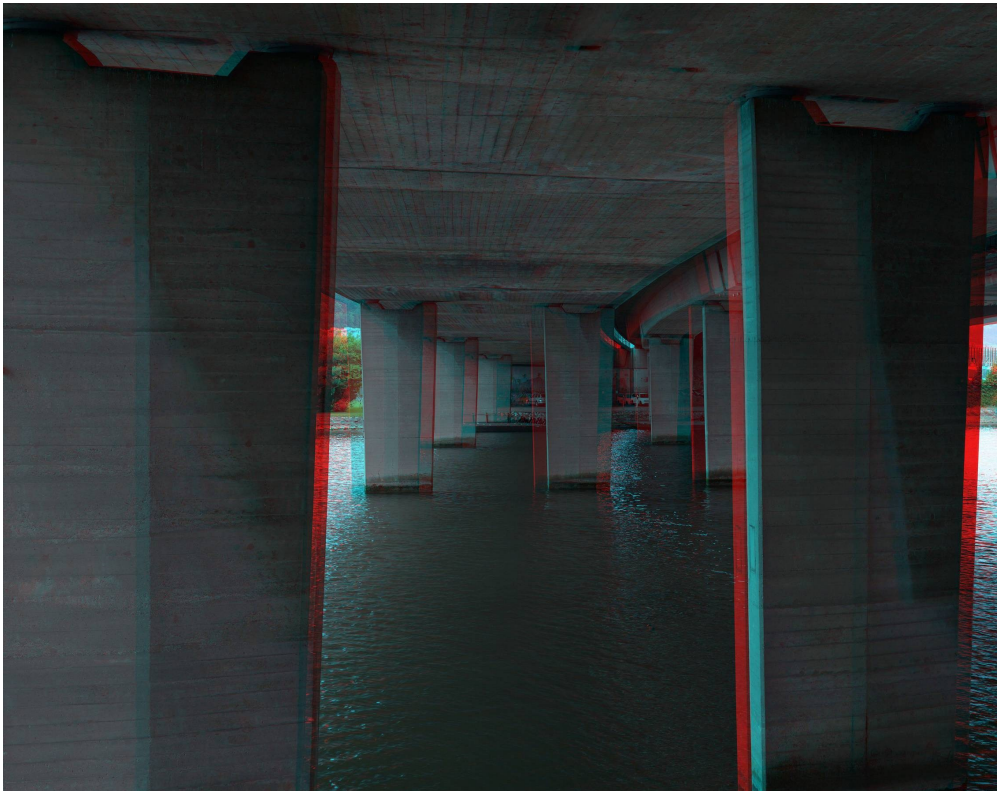
To view the 3D image red/cyan glasses are required. These can be purchased very cheap on the internet or thanks to the actual wave of 3D movies in cinemas, you'll get them there.



Lessons learned:

Creating 3D images with a technical camera is possible (and easy).
The required amount of shift to get a 3D effect is surprisingly small.
The amount of shift depends on the focal length, sensor size, subject distance and the viewing distance/result size. Some math will be required to make reliable recommendations.
Obviously only static images are possible, even with the fast operation of the XY it takes a few seconds between shots.

Oh yes, I almost forgot the result of the experiments:



Inspiration: how might a 3D image created out of a series of shifted and focus stacked (Helicon Focus!) images look?? :-)

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