3DHippie Stereocam v1.6

INTRODUCTION

Thank you for downloading and using the 3dhippie_stereocam script. I hope you will find it useful for creating stereoscopic awesomeness. If you experience any problems or feel the urge to thank me please drop me a line: Shelton.david@yahoo.de

I am also available as a freelancing stereographer and 3DSMax generalist. If you or your company are interested in professional stereoscopic support contact me at the same adress:
Shelton.david@yahoo.de

It is also always a good idea to check out my website for new and old stuff:

www.davidshelton.com/blog

INSTALLATION

1.) Delete any old stereoscopic startup scripts in your 3dsmax startup folder (important)
2.) Place the ..._startup.ms into you [MaxRoot] /scripts/startup folder

GETTING STARTED

To create a stereocamera there are several ways:

1.) Go to the main *menu/MAXScript/Run Script* and choose the *3dhippie_stereocam* script
or
2.) Drag the script into any 3DSMax viewport

A stereoscopic camera will be instantly created at the world center. You can use and animate it now.

A different approach at creating the stereoscopic camera is to do it on top of an already existing camera. The procedure is almost identical, run the script or drag and drop it, but select a camera previously. The stereocam will be created at the same spot and inherit all animation.

The second approach is especially attractive for Vray users. If the original camera was a Vray physical camera the stereocam will be a Vray camera as well.

Animating the original camera will also animate the stereocamera and vice versa.

STEROCAM CONTROLS
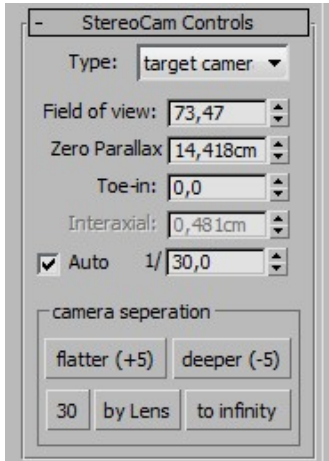
Camera Type:

changes between a target camera and a free camera mode. Note: The rig changes between modes, the cameras themselves will be targetcameras at all time.
Careful: If you created a stereocamera on top of an already existing camera changing the mode will loose the connection to the old camera.

Field of View:

Changes the field of view for the selected stereocamera. The fov has great impact on the stereoscopic depth. Long lenses will lead to more volume then short lenses.

Zero Parallax:

Defines a specific Plane in the world where there is no parallax. This is often also referred to as Screen Plane, HIT, convergence or simply focus. This parameter is linked to the screen plane helper (default color green) in the rig.

In-Screen:
ZP = 6,9m

Balanced:
ZP = 8.86m

Out of screen:
ZP = 12,6m

Toe-In

Converged cameras are by default toe-in and will produce kestone distortion if you don't shift correct the camera frustrum or correct vertical parallax in post. Setting this value to another value then 0 (parallel) will be useful in very few conditions (e.g. camera matching to real cameras)

Interaxial:

The interaxial (synonyms are: interoccular, stereobase, baseline) defines the distance between the left camera and right camera, thus defining the amount of depth in the stereo image. Higher values generate deeper images, lower values generate flatter images.

Deep Image:
Interaxial = 6.5cm
ZP= 6,9m

Medium Depth:
Interaxial = 2.7cm
ZP = 6,9m

Flat Image:
Interaxial = 1,5cm
ZP = 6,9m

Auto:
The auto value is helpful for finding an initial interaxial. The interaxial will be defined as Zero Parallax divided by the auto value. This value is great because it is scale independent.

Careful: Using automatic values is great for the initial stage but should be turned of if you want to animate the Zero Parallax.

Flatter:
Will add 5 to the auto value thus making the interaxial smaller.

Deeper:
Will subtract 5 from the auto value thus making the interaxial bigger.

30:
Is the default value for auto. It is generally a pretty good start.

By lens:
Will set the auto value to the fov as lens mm. Usage: Place the zero parallax to a value where everything is behind it and press by lens. Turn auto off now (!) and place the zero parallax where you want it.
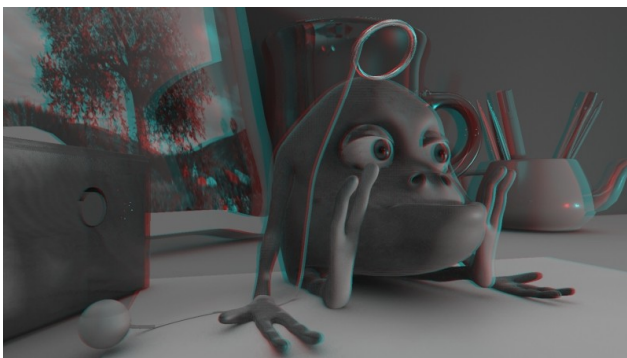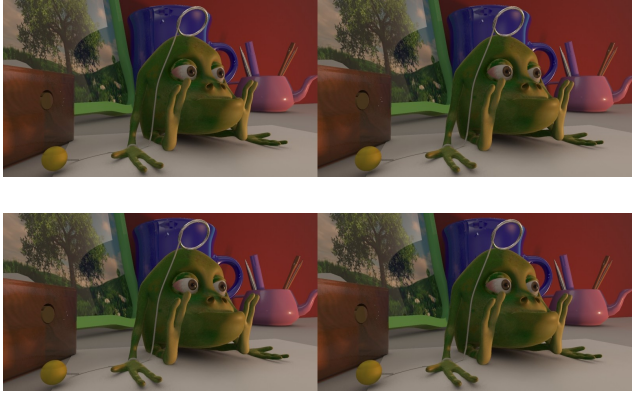
To infinity:
At a certain interaxial value everything from near-plane to infity can be included in your stereo image. The value depends on the chosen zero parallax and the defined far parallax (ranges rollout). This is useful for far landscapes.

ACTIONS
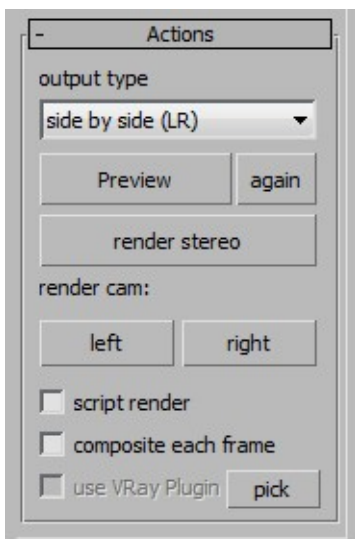
Output Type:

	Anaglyph Standard anaglyph. Very fast but causes retinal rivalry (especially reds). processing time (HD 1080p): 3.646s
	Monochromatic anaglyph: Black and white anaglyph. No retinal rivalry at the cost of loosing all color information. processing time (HD 1080p): 8.721s

	Optimized anaglyph (Fast): Implementation of Peter Wimmers optimized anaglyph algorithm[1] in a simple version. Rather fast. processing time (HD 1080p): 5.004s
	Optimized anaglyph (best): Exact implementation of the optimized anaglyph algorithm by Peter Wimmer. Takes quite a while to render, but has the best color representation. processing time (HD 1080p): 174.507s
	Interlaced: Left and right image are combined using interlacing (useful for Zalman screens). If the stereo seems to be swapped move the frame buffer up or down until you find a good spot. processing time (HD 1080p): 4.309s
	Side by side: Places left and right image side by side. Very fast. processing time (HD 1080p): 0.442s

Preview: Renders left and right camera and combines the images to a 3D image based on the output type.
Rightclick: Quick viewport preview.

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1   Peter Wimmer is the developer of the stereoscopic player. www.3dtv.at

Again: Recombines the last rendered images to a new 3D image. If you change the output type and hit again the new type will be applied! Useful for testing and saving the same image in different stereo formats.

Render Stereo: Renders the left camera first and the right camera after. The output will be placed in the folder specified in the renderscene dialog but the names will be changed to
[left or right]_[stereocamera name]_[filename]_[#0000].[filetype].

Render Left/Right: Render just the left or right camera. Only difference to max' render button is that the image will automatically be named correctly.

Script render: If checked the images will be rendered using a render() instead of max quick render. This will decrease rendertime in some cases. Just test it.

Composite each frame: If checked each frame will be composited after completion of left and right rendering. In an image sequence the left camera will be rendered first and after each right frame a new stereoimage will be generated. It is possible to use any output type.
*Careful:* it is strongly recommended <u>not to use any optimized anaglyph</u> algorithm because they take very long.

Use Vray Plugin: Establishes a connection between a stereoscopic helper from vray (v1.5 SP5 required) and the stereocamera. Only use this option if you use vray physical cameras. Using the plugin will lead to greatly improved renderspeed and accuracy.
*Careful:*You need only ONE stereoscopic helper for ALL stereocameras in your scene!

RANGES
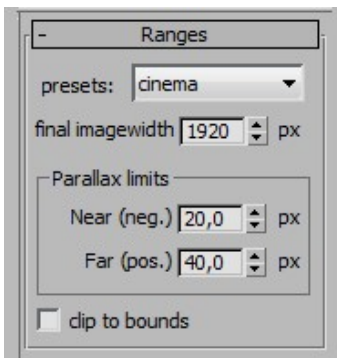
In stereoscopic images you should always avoid scene elements that are extremely close to the camera or very far away. In the first case your eyes will converge too much and in the second case your eyes might diverge. You should limit the parallax so, that your eyes will be parallel when looking into the far distance and converge a little at closer objects. The ranges help you with the stereo image composition.
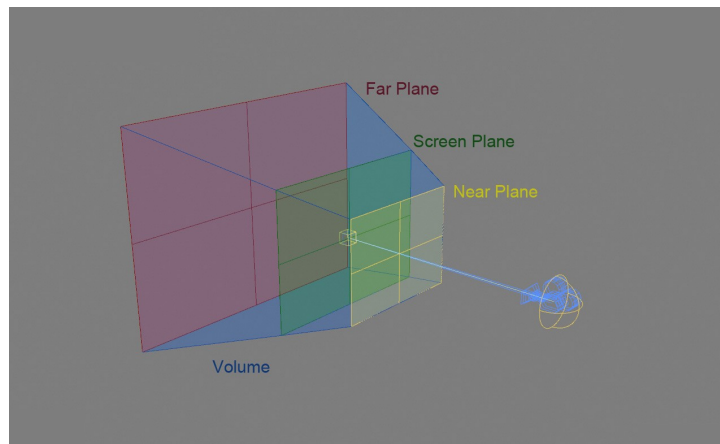
Presets: Offers two presets for the near and far plane.
Cinema screen: +18 by -20 and is the maximum depth an image should have in cinemas (screensize > 8 meter)
Computer screen: +40 by -18. There is more room for depth in the background because the screen is smaller than a cinema screen.

Final imagewidth: Since near and far plane are definied by definite pixels it is important to define a final imagewidth. A near value of 18 will only be 18 pixels if the imagesize matches the final imagewidth. If you render at half the resolution the real measured near parallax will be 9.

Near (neg.): The near value corresponds to the near plane of the stereo rig. It defines the area which is closest to the stereocamera. Anything in front of the nearplane might be perceived as too close and can hurt the stereo effect.
Everything between the zero parallax and near plane will have negative parallax values.

Far (pos.): The Far value corresponds to the far plane of the stereo rig. It defines the area which is furthest from the stereocamera. Anything behind of the farplane might be perceived as too far away and can hurt the stereo effect.
Everything between the zero parallax and far plane will have positive parallax values.
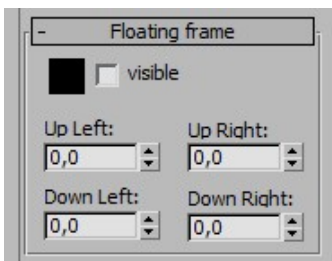
VISIBILITY
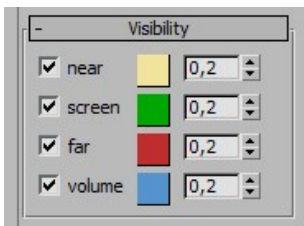
The ranges rollout gives you control over the appearance of the stereorig. You can hide and unhide nearplane, screenplane, farplane and the volume. Colors and transparency are controllable as well.

FLOATING FRAME

The floating frame is a very interesting concept of modern stereoscopy. It is the answer to border violations and can help with storytelling. It is the 3D extension of the physical screen. If an object floats out of the screen your brain gets to a conflict. What is in front? The floating object (due to its parallax) or the screen (due to the occlusion). Floating the screen in front of the object solves the retinal rivalry.

SSF = Schwebendes Scheinfenster
SF = Scheinfenster
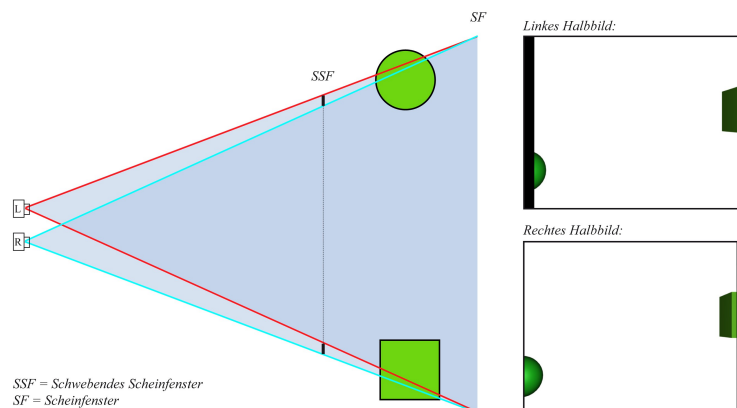
When to use it: If an object is cropped by the side of the stereoimage and is between stereocamera and zero parallax (it has negative parallax).

You can control (and animate) each corner of the floating window individually (Up left, Down Left, Up right and down right).

*Careful:*The floating window should be treated as scene element. Do not extend it over the near plane.

VIEWPORT PRESETS
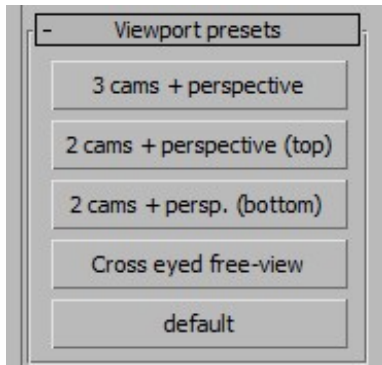
The viewport presets let you set up viewport configurations that are usful for stereoscopy quickly.

3cams + perspective:

Perspective (smooth shade)		
Left Camera (wireframe)	Center Camera (wireframe)	Right Camera (wireframe)

2Cams + perspective (top)

Perspective (smooth shade)	
Left Camera (wireframe)	Right Camera (wireframe)

2Cams + perspective (bottom)

Left Camera (wireframe)	Right Camera (wireframe)
Perspective (smooth shade)	

Cross eyed free-view

Right Camera (wireframe)	Left Camera (wireframe)

default

Top (wireframe)	Left (wireframe)
Front (wireframe)	Perspective (smooth shade)