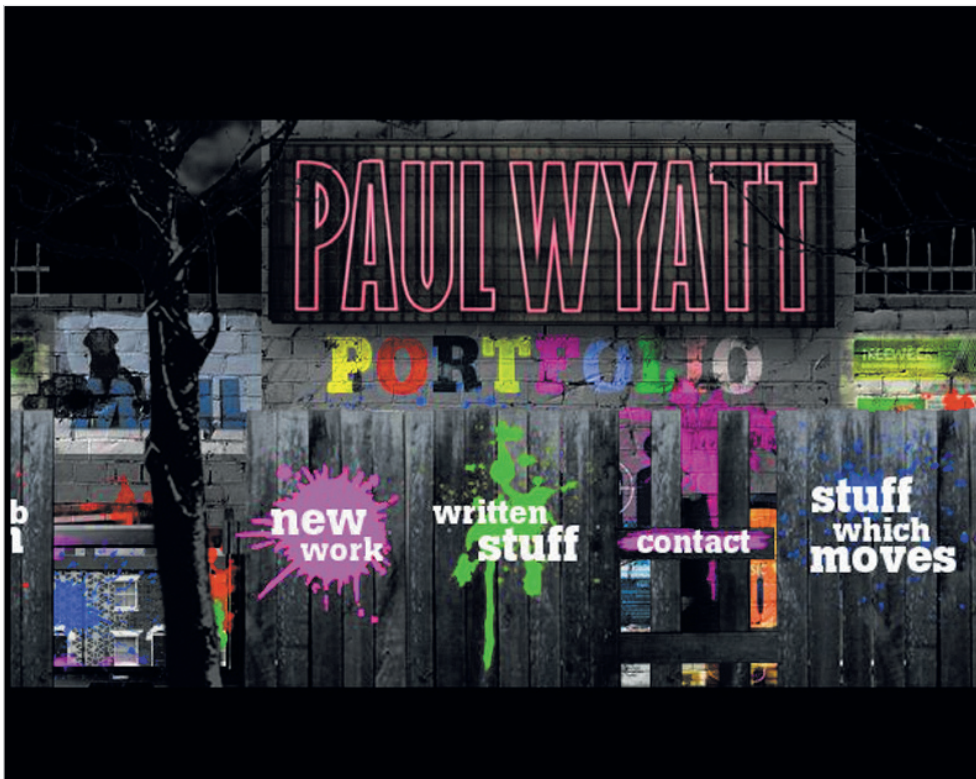# /Flash/the art of parallax scrolling

Paul Wyatt shows you how to use the pseudo-3D parallax scrolling technique to add the illusion of depth to your portfolio or showcase sites. Get ready for some clever Flash fakery

On your essential CD
All the files you'll require for the tutorial can be found on this issue's CD

What you'll build Take some easy-to-learn ActionScript and mix it with some expert Photoshop tips and tricks. Blend in some Flash 3D fakery, simmer for 50 minutes, and you too can create your own infinitely scrolling world. Perfect for your portfolios or showcase sites, this tutorial will show you the steps you need to follow to create the paragon of parallax perfection

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Knowledge needed An understanding of Flash 8, basic ActionScripting and Photoshop

Requires Flash 8, Flash Player 8 or above, Photoshop

Project time 50 minutes

Parallax scrolling sounds like something a doctor would prescribe antibiotics and three weeks of bed rest for. Thankfully, it's nowhere near as unpleasant. In Flash, it's a fake 3D technique that provides the illusion of depth and distance between layers. It's based on multiplane cameras, which were used in traditional animation to move animation cells and backgrounds past the camera at different speeds and distances.

In the real world, if you walk down a street, turn your head to the right and watch the buildings as you pass them, you'll notice one important thing: the objects nearer to you apparently move more quickly than the objects in the background. This depth is what you'll be faking in Flash.

But it doesn't end there. I'll also show you how to make your scene move according to the position of the mouse pointer. You'll learn how to create seamless graphics, then put it all together to make a site that's ideal for anyone's portfolio. ●


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Expert tip Creating the graphic

The television graphic ('tv.png') was made in Photoshop with a "hole" where the screen would be. Paint splodge graphics were added to give the illusion of a glass screen. This was imported into Flash, turned into a movie clip ('television') and used as a top layer to a 160x90px FLV movie component. The FLV movie was looped using a 'listener' object, which listens to find out where the playhead is at that time. When it reaches the end of the clip, it will "seek" to the start of the clip and replay it. The code is included on the 'actions to repeat FLV' layer of the 'television' movie clip.


START Get started Open 'partial_tutorial.fla' from the CD in Flash. This has all the creative elements required for this tutorial, and you can also substitute your own graphics. The file is 600x350px. This figure is important to remember when you begin to create seamless graphics for your site.
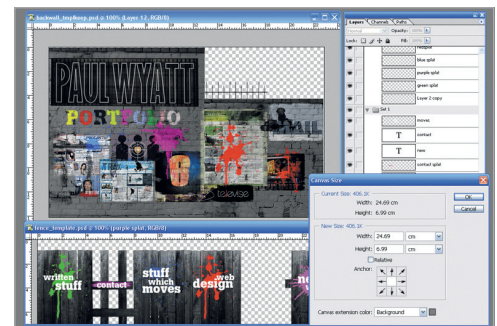

2 Into Photoshop First, you'll create the graphics in Photoshop, all of which will be 600px or wider and at various heights. You'll then export these as PNG files with transparency and create movie clips. You'll duplicate these clips in Flash to make an image that's twice as wide as the stage dimensions.

3 **Placing graphics** Later, you'll use ActionScript to move the Flash layers left and right. If the layers stray too far to either side and reveal blank space, the code will pop the layer back in place. If the graphics are not accurately positioned, a jump will be visible between the two sides of the graphic.
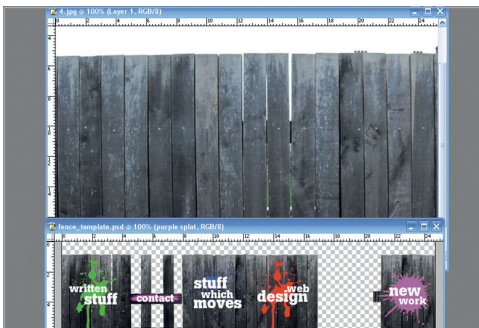

4 **Smart stitching** The fence graphic is created using a photographic element of a fence. Panelling and brickwork work well with tiling – it's easy to create a seamless stitch in the graphics. Changes in texture or appearance shouldn't be too great, as this will reveal that the image is stitched together.
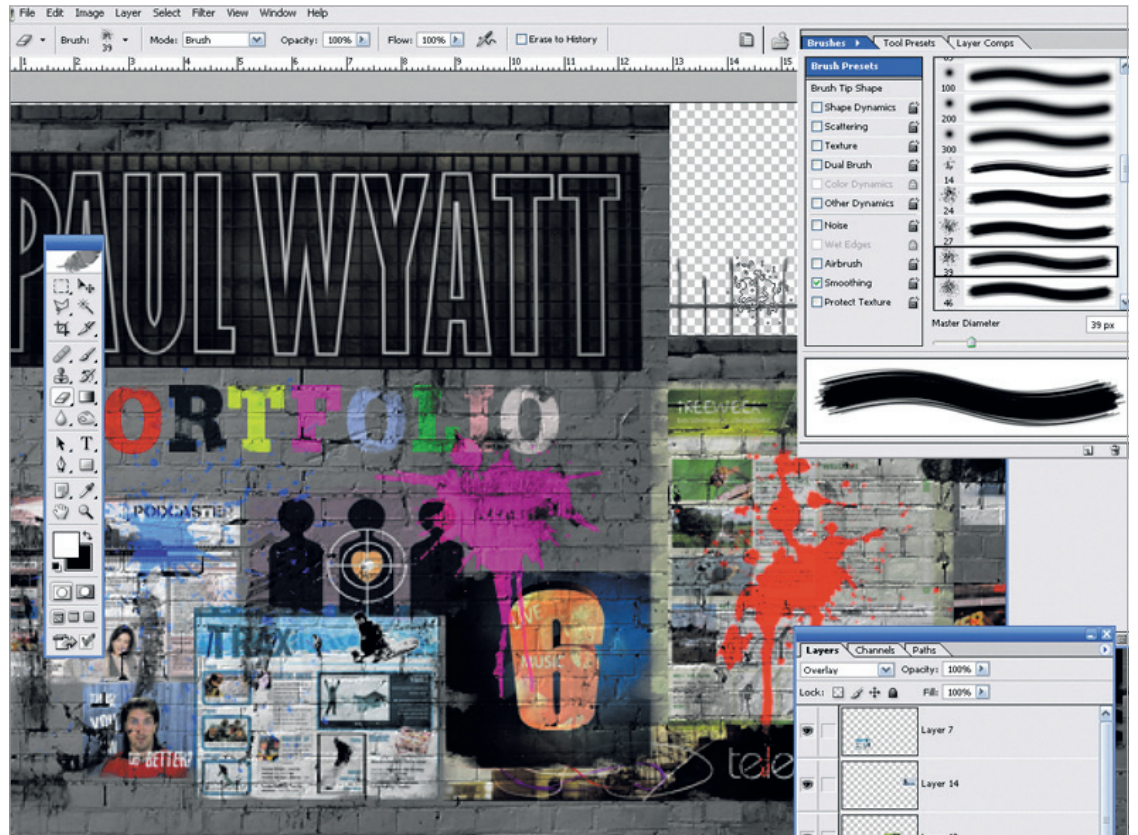

5 **The worn-out look** The back wall graphic is 649x400px. To create a grungy effect, the photograph of the wall was cut out and desaturated (**Image > Adjust > Desaturate**). Colour portfolio artwork was composited using the Overlay Blending mode. The worn effect was achieved using the Eraser tool with a Chalk brush to remove small portions from the sides of the graphics.

6 **Export from Photoshop** Preserving the transparency of graphics makes them look more authentic. Go to **File > Save for web**, choose the PNG 24 preset and Save. PNG 24 images export at large file sizes in Photoshop, but once brought into Flash, they're compressed as part of an SWF file.
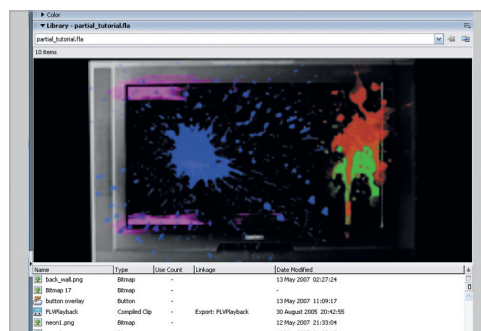

7 **Back in Flash** Select **File > Import > Import to library**. Your PNG files will now appear in the Flash library, so press Ctrl+L to see them. Create new movie clips for each PNG file you've created – in this case, 'trees', 'fence', 'backwall' and 'sky'. Drag the appropriate graphics into each one.
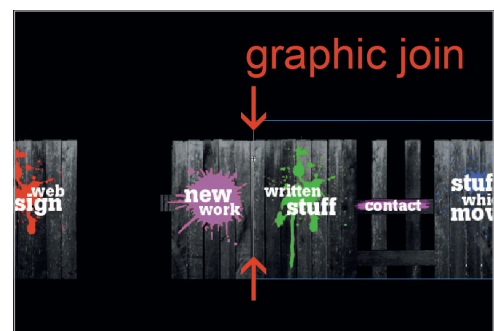

8 **Accurate duplicating** Create a new movie clip ('fence_double') and drag an instance of the original clip ('fence') into it. Copy this (Ctrl+C), then Paste in Place (Ctrl+Shift+V). Use the arrow keys to move this clip to the far right of the original clip. Repeat for the other graphics.

9 **Animate a neon sign** Two clips ('neoncolour' and 'neongrayscale') are used to create 'sign_anim'. The colour version is faded in/out with the alpha property above the black-and-white version. Add this to a new layer in the 'back_wall_double' clip (you need two on both sides of the clip).
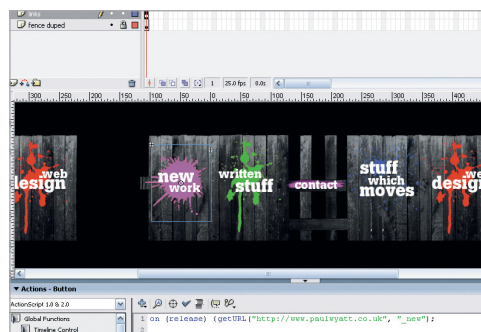
10 **Add links** 'Fence_doubled' needs buttons and links. Create an oblong shape with the Rectangle tool. Select and make it a button symbol ('button overlay'). Make copies, adding the GetURL function. Select all, Copy, Paste in Place and move along to cover the graphic. Reduce the alpha to 0 for each one.
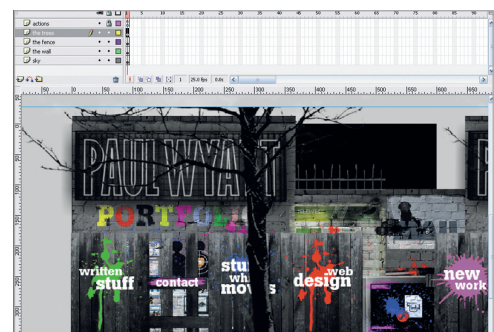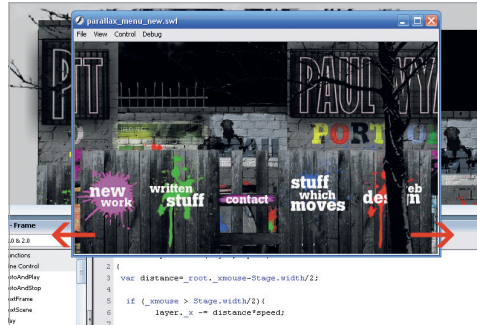

11 **Create new layers** Back on the stage, create layers for each of the graphics. Position the layers to the left-hand corner of the stage. Name the instances in the Properties inspector: 'trees_mc', 'back_wall_mc', 'fence_mc' and 'clouds_mc'. These will be used by ActionScript later.

```
1  function parallax (layer, speed)
2  {
3      var distance=_root._xmouse-Stage.width/2;
4
5      if (_xmouse > Stage.width/2){
6          layer._x -= distance*speed;
7
8      }else{
9          layer._x += distance*-speed;
10     }
11
12     if(layer._x <= 0){
13         layer._x = layer._x + layer._width/2;
14     }else if(layer._x >= layer._width/2){
15         layer._x = layer._x - layer._width/2;
16     }
17  }
18
19  trees_mc.onEnterFrame = function() { parallax(this, 1/10);
20  }
21  fence_mc.onEnterFrame = function() { parallax(this, 1/20); }
22  back_wall_mc.onEnterFrame = function() { parallax(this, 1/40); }
23  sky_mc.onEnterFrame = function() { parallax(this, 1/60); }
```

12 **Move the ActionScript** The ActionScript has already been added. Hit F9 to open the Actions window and review the code. Lines 1-17 define a new function called 'parallax'. This will manage the movement of the layers by mouse control. The horizontal position is defined by '_xmouse'.

Expert tip | Let Flash guide you

The 'television' movie clip was positioned on a new layer in the 'back_wall_double' movie clip. The position of this television is important, as you'll need to replicate its position on the duplicated part of the back wall graphic. This part of the process can be a bit tricky, so use Flash's guide tools to help you out. Select **View > Rulers** to make guides and rulers visible, then drag out a guide layer to measure the distance at which the TV graphic has been placed. Now, as you work, continue to drag out further guides to help you position the TV on the duplicated side of the graphic.

13 **Widths and pointers** The position of the layer is defined by the X position of the mouse. The parallax function will divide the stage width by two: var distance=_root._xmouse-Stage.width/2;. This gives it the stage's horizontal centre. Based on this, it will move the movie clip left or right.


15 **Call the function** To make it loop correctly, the function we've created needs to be called continuously. We do this with the handler onEnterFrame. This constantly calls out to the function and executes it. Each movie clip needs to call the function named 'parallax' (lines 19-23).

14 **Seamless looping** You need a continuous flow of movement – no jumps or gaps! The function will look at a graphic's position. If it has moved too far left or right, the script will nudge it back over. If the duplicated graphics aren't properly aligned, this will cause an obvious jump.

16 **The right speed** Two details are passed into the parallax function (lines 19-23) – the individual layer and speed: trees_mc.onEnterFrame = function() { parallax(this, 1/10); }. Here, 'this' refers to the layer the code is attached to and its speed, '10' sets the speed at which the layer will travel.

17 **Speed effects** To make the 3D illusion work, the speed at which the layers travel needs to be staggered. The same speed will result in an unconvincing animation. Adjust the layer speeds, with the closest objects – the trees – being the fastest (1/10) and the sky layer being the slowest (1/60).
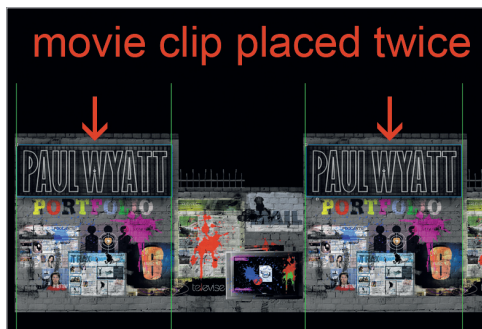
18 **Test for jumps** Hit Ctrl+Enter to preview your movie. If images jump or vanish, realign them in their doubled-up movie clips. When adding the neon sign to 'back_wall_double', place two instances of the neon sign clip. Otherwise, the added clip will blink in and out when it's exported.

FINISH **Speed test** Run the movie. A common error is layers moving at constant speeds, so check the parameters you've entered in the ActionScript window. If the animation jumps, you may need to rework some of the doubled-up imagery.