



zbrush

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"3d Painting (Reviews)"

Every now and then a program comes along which takes something familiar like 2D and 3D graphics, and applies new technology in an inventive way...

ZBrush is a painting program that works in 3D; that is, you can paint with depth as well as height and width. Yes, others do this, but this one has a secret ingredient.

ZBrush is made by the American company Pixologic, the name coming from the PIXOL technology that is the secret behind ZBrush. PIXOLs are just like ordinary pixels, but they also store additional information such as Z-depth, orientation and brush material, as well as RGBA info. PIXOLS will react to changes in lighting and materials after you have applied them, but they can't be rotated or viewed from another angle, just like ordinary pixels.

A painter's toolbox

Painting creates blobs that are shaded with 3D lighting, and that interact with each other. There are a number of brushes available from the Tools palette, the main one being the Sphere brush. They work a bit like the Airbrush tool in Photoshop: the longer you waggle the brush in one place, the greater the depth of paint. This is the default ZAdd mode, but there's a ZSub mode too, which enables you to paint indentations instead of bumps, while a Z opacity slider controls how much the current brush interacts with the Z values of the already-applied PIXOLS.

Other tools here include Smudge, enabling you to push and smear the paint around, an Eraser and Alpha brush (using bitmaps to define the shape). More interesting are the Hook and Snake Hook brushes -- you grab and pull tentacle-like tendrils out of the paint, either straight or curly. A Fibre brush produces dense strands such as hair or fur, and because PIXOLS store both depth and orientation, the fibres conform to the shape of the paint underneath. Very cool.

Putty in your hand

The interface is well thought-out and fast, too. It's very Kai, but much more functional than its façade would have you believe. The main document view is flanked by two columns of palettes, while at the top a row of icons sit on a shelf. Menus are banished. Palettes exist in three modes: Iconised, Open and Unrolled. Open palettes sit in a column just showing their name. Clicking the Title bar unrolls the palette to reveal its parameters and any sub palettes or controls. Many of the transitions are animated, and the whole interface works with you rather than against. Tool-Tip helps gives you feedback on the tools, and holding the Control key provides extra info.

You actually approach painting in ZBrush just like you would in any 2D paint program, in that you have a fixed point of view. However, there are 3D primitives in ZBrush, too: Spheres, Cubes, Tori, Cylinders and Cones. These are created by selecting them from the Tools palette and dragging in the main window. Drag out to scale uniformly, then back in to scale on a single plane. In this way you can first set the height of a cylinder, for example, and then scale its radius.

A right-click will make a set of Transform icons pop up (Scale, Rotate and Move, and the Markers tools -- we'll come to these later), enabling you to manipulate the primitive in 3D just like a 3D application. These can also be accessed from the Transform palette, where you'll find the Edit button. With Edit enabled you can change any of the material properties, while the object is still in geometry form (called sculptures in ZBrush), but there's more. If you now move the cursor over the object you'll see a little red dot. Click-drag and you can deform the object like it's putty.

Hidden depths

ZBrush is not just a paint program; this is a whole 3D sculpting application, too. From the Tools palette you can choose from a list of Modifier options such as Symmetry (X, Y and Z axes), with which you can create faces and so on. There's a Radial Symmetry option with any number of degrees of symmetry, which is great for creating crown-shaped objects or tentacles. A depth setting enables you to either pull or push the surface of an object; the stroke is applied relative to the object rather than the screen orientation, and the brush's falloff can be set using a graph curve.

The Deformation section makes it possible to bend, taper, smooth, add noise, skew or apply gravity, reshaping the object into weird or organic forms. Many of these are 'one-shot' deformer -- a positive then negative deform of the same value will not always restore the shape. There is multiple undo though, so a string of unwanted edits can be removed if you wish.

Still more features become available. Selection masks enable you to protect rows, columns and grids of points on the object as you deform it. An alpha option enables you to use a bitmap alpha image to protect the points, but you can't yet paint on the object to create the selection area.

We're not finished yet. If the object is not alone in the ZBrush document you can change the way it interacts with the PIXOLS objects. The default ZAdd mode adds the object to the PIXOLS already present: the object can be partly embedded in the image. Change the mode to ZSub and the object is then Boolean-subtracted from the PIXOLS to leave a cavity. This is a toggle, so you can still use all the Transform tools and Edit deformer to modify the shape. The image updates just the same, except this time the object is a void.

Multiple choice

Once you've finished editing the 3D primitive, there are two options open to you. The first is to convert the geometry to PIXOLS, whereby you lose all the editing and transformation capabilities. This happens when you add a new object or begin painting PIXOLS again, meaning that you can only have one editable primitive on the go at a time. Having said that, the last state of the object is saved as a new primitive in the Tools palette, so you can recreate it at any point in the future.

The second option is to export the object as an .OBJ file. Yes, you can export (and in the future import) geometry in ZBrush, so it really is like a 3D app within a 3D painting app. As this version isn't even at 1.0 yet (ours was 0.91), the functionality is amazing. Try the latest demo, as many new features (such as DXF and 3DS Import/Export) may have been implemented by then.

No worries

So, ZBrush works on two different levels, the pseudo-3D PIXOL level and a full-3D geometry level. You can use any degree of either as you work, depending on how 3D you want to go. If you don't have a clue about 3D, you can just paint away and not worry about axes and geometry, but if you do it's there for you.

ZBrush is an excellent application, that will be of interest to professionals and hobbyists alike. Yes, there are teething problems, but Pixologic is open about this, stating that those who buy the program now will receive a free upgrade to version 1.0 when it becomes available, and Pixologic intends to release a Mac version of ZBrush, too. It's well worth checking out.

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