MAC ✗ PC ✓
(Mac version soon)

PRICE: **$489/£277**

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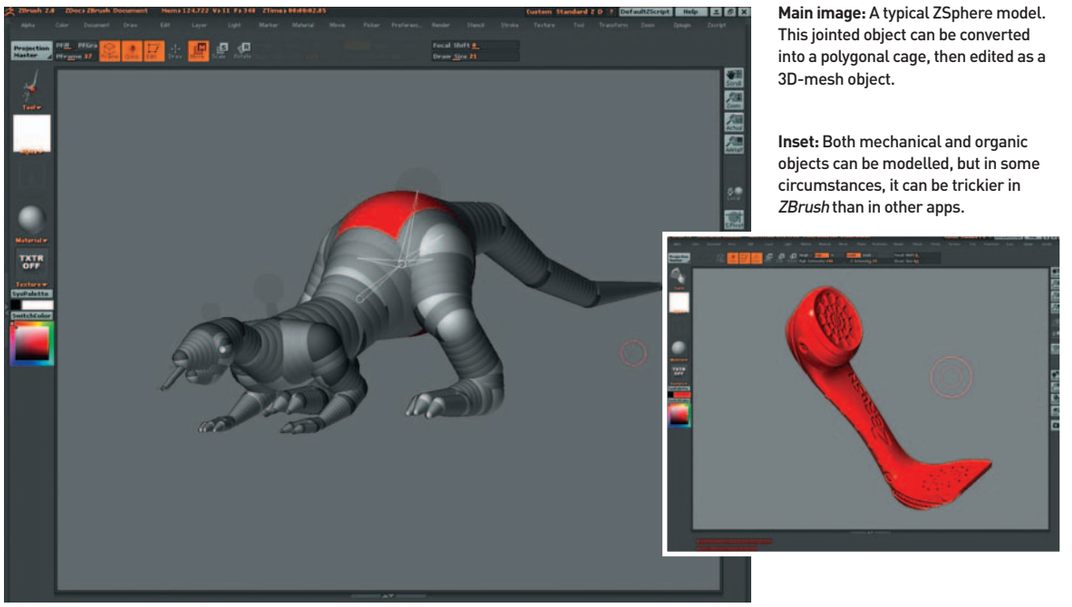
3D SOFTWARE

ZBrush 2

COMPUTER arts RECOMMENDED

Is the world's oddest 2.5D paint program worth your time? Absolutely. We delve into its new features



Main image: A typical ZSphere model. This jointed object can be converted into a polygonal cage, then edited as a 3D-mesh object.

Inset: Both mechanical and organic objects can be modelled, but in some circumstances, it can be trickier in *ZBrush* than in other apps.

FEATURES

- Innovative depth-based painting application
- 3D modelling and deformation
- Subdivision Surfaces
- Edit on any Subdivision level
- Impressive symmetry tools
- Fast, responsive interface
- Supports massive mesh resolutions
- Import and export polygon meshes
- Texture, light and render Pixols and meshes
- Hi-res displacement maps

SYSTEM

PC PII 200MHz, 128MB of RAM
- Windows 95/98/ME/NT/2000/XP

FOR

- Multi-level Subdivision Surface editing
- Hi-res mesh support
- Very fast

AGAINST

- The core polygon-creation tools could be better
- Some operations are convoluted

COMPUTER arts VERDICT

ZBrush 2 **is a stunning 3D modelling package, and should be on every character artist's list of products to buy. It's not designed as an all-purpose 3D app, so it's best used in tandem with a more conventional 3D program. However, it sets a new standard for high-detail polygon modelling.**

★★★★★

ZBrush from Pixologic has been around for a few years now, but it remains a remarkable graphics program that really has no equal – or even poor copy, for that matter. Version 2 introduces more 3D tools and features to the already impressive set, making the tool evenly split between a 2.5D painting program and full 3D modelling application. In working practice though, it's both, because many of the workflows in *ZBrush* make use of the 2.5D canvas *and* the polygon models.

ZBrush uses a unique deep-pixel technology called Pixols, which can be painted at depth as well as on the 2D plane. Pixols can mount up on top of existing Pixols, enabling you to almost 'pour' them on the screen. Alternatively, they can be applied negatively to cut into an existing image. You can add primitive (and not so primitive) 3D objects to the image, rotate and move them, and they will interact smoothly with the Z-depth of the canvas, with the Pixols intersecting the canvas at different depths.

This technique means that you can build up an image of fixed perspective by placing 3D objects into the scene, by painting on it, or both. *ZBrush* also has a large set of deforming and sculpting tools for smudging Pixols and deforming 3D objects. Version 2 takes the whole 3D modelling aspect of the program to the next level, and it's here that this release of *ZBrush* becomes seriously interesting.

ZSpheres were available in previous versions of the program, and these are spherical objects that can be added to a scene and moved around. The clever part? You can add a new ZSphere to an existing one, where it can move away from its partner, stringing out a strand of intermediate spheres to create a sort of limb. This is exactly what the system is trying to emulate, since you can easily create multi-limbed characters using ZSpheres in this way.

However, the ZSpheres are placeholders for a polygon mesh; they're a lot like the jointed skeletons you find in 3D animations programs – except for the fact that these are used to create the model, rather than animate it. With a flick of the wrist to a menu command, the ZSphere skeleton is converted to a lo-res polygon cage. This cage can be edited by moving the points or deforming it, just like any other polygon object in *ZBrush*. However, this brings us to another interesting new development, because version 2 adds Subdivision Surface modelling tools to the equation – the like of which have not been seen before.

As all 3D modellers know, Subdivision Surfaces and all the other smoothing technologies hold great promise, but they fall short on

RESOURCE

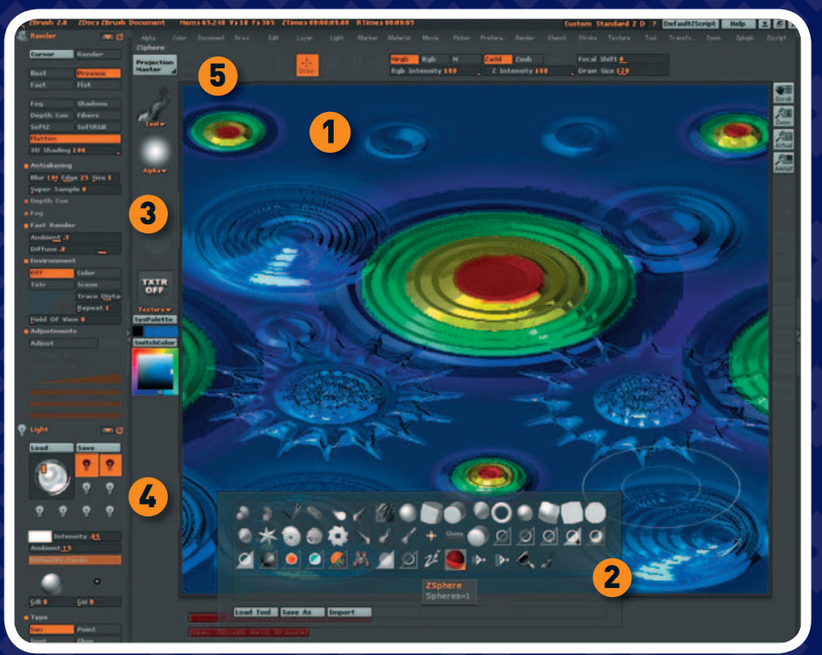
To help you master the app, Pixologic has created the *ZBrush 2 Practical Guide* – a free 500-page collection of step-by-step tutorials and projects. Head to www.pixolator.com, then click on 'Get Z2 Guide PDF' (beneath 'Buy ZBrush') at the top-right to download this useful resource.

FIND YOUR WAY AROUND THE ZBRUSH INTERFACE AND MAIN TOOLS

1. Main document area
This is much larger in *ZBrush 2*, and pressing the Tab key hides all the palettes for an unobstructed view.

2. Pop-up palettes
Accessed by right-clicking in the main document area. This is the Tools pop-up palette.

3. Menu palettes
These are accessed from the main menu at the top of the interface. You don't need to click – just pass your mouse over them and they unfurl. They can also be docked like this Rendering palette.



4. Lights
Because *ZBrush* is depth-based and preview rendering is interactive, you can change the scene lighting at any time from this panel.

5. Editing options
These are displayed beneath the main menu by default, though the entire *ZBrush* interface is highly customisable.

one factor: generally speaking, you can't edit the lo-res cage and the smoothed surface simultaneously. *Maya*'s true Subdivision Surfaces enable you to do this, but they introduce other complexities into the process and are generally quite inelegant to use.

It seems that *ZBrush 2* has solved the problem of smooth proxy modelling. And we mean really solved it. You can smooth a poly cage many times to get finer and finer Subdivisions, which is nothing new; however, at each Subdivision level you can edit the subdivided surface directly. You can also backtrack, reduce the Subdivision levels and edit the lower-resolution cage. Meanwhile, you don't lose the hi-res edits; they are re-interpolated as the changes cascade. Using keystrokes, you can move through the levels while editing, enabling you to model broad changes one moment and ultra-fine details the next. It's quite a revelation.

You can achieve stupendous detail, too. *ZBrush* supports massive, multimillion-polygon resolutions, and it does so extremely efficiently. You can forget about bump maps for skin creases; just paint them in on the hi-res mesh.

Again, *ZBrush* does something incredible here. You can paint displacements onto a hi-res mesh using the normal painting tools, create lines and even 3D objects you've built – then create regular arrays of shapes using its symmetry features. The program forges these strokes into the mesh. Polygon detailing has never been so easy.

There always has to be a slight downside, and unfortunately *ZBrush* is weaker in its actual polygon extending tools. You can extend polygons using the Edge Loop tool, but you have to go through a rather complex procedure of hiding all but the edge you want to extend, because the program doesn't have a Polygon Selection tool as such. Because of its character-modelling orientation, you're better off supplementing the app with a standard 3D modeller, too.

ZBrush 2 also has a redesigned interface, which is infinitely easier on the eye. The new tools are so impressive that it could look and feel like *Bryce* and still be a zillion times quicker modelling complex 3D organic forms than any other 3D app out there. *ZBrush* is the single best organic 3D modelling system yet invented, and for this alone it deserves five stars. arts

PROJECTION MASTER

ZBrush **enables you to paint onto 3D surfaces to sculpt or deform, but there is another method: Projection Master. Painting details to a hi-res mesh can be slow, so instead, convert the 3D object into Pixols, creating a displacement version of the 3D object. Paint using Pixols to scatter strokes, apply decals, text or any other 2.5D stroke over the model as relief. Choose the Pick Up option in the Projection Master dialog to convert the Pixols into a displacement of the model that was dropped, adding detail directly to the mesh surface.**

NEXT ISSUE IN arts
On test: After Effects 6.5