Reprinted from Design Graphics Magazine Issue #57

Pixologic ZBrush

A review from Design Graphics
www.designgraphics.com.au

Pixologic ZBrush

The most exciting piece of new software technology on show at SIGGRAPH99 was a 3D paint product that almost defies explanation. When it is released in a few months time, Pixologic's ZBrush will create an entire new class of software—true, real-time 3D paint software. Mark Snoswell reports.

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So what is ZBrush?

It's real time; it's photographic quality; it has 3D geometry and 3D geometric editing brushes; it has texture and bump mapping; rendering options; a material editor; 3D lighting; and a bunch of really cool 3D pixol brushes. Now if you think that all sounds normal for a 3D program, except for the pixol brushes, you would have fallen into the misconception that everyone else does.

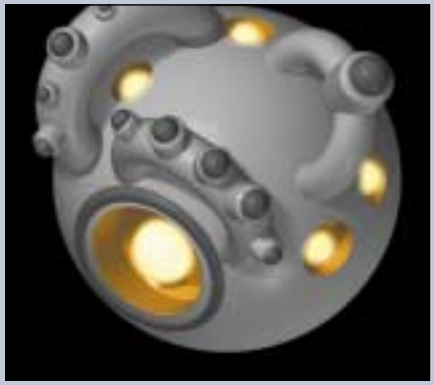
ZBrush is not 3D geometry editing and 3D paint software as we know it. Zbrush might evolve into a new class of what we now think of as 3D paint software, but that's not what it is now. Right now ZBrush is a pixol paint program. Pixols are a proprietary variant of voxels (3D pixels). Voxels don't usually have more than an RGB value and an x, y, z position in space. You can join voxels into textured geometric meshes or smooth surfaces (metaballs, metablobs, metaparticles and hypervoxels are all sort of the same thing).

Radical interface

ZBrush is quite radical in several ways. The interface isn't quite like anything else on the market. Quite apart from the unusual layout, the interface keeps reconfiguring itself as you use it. Every time you finish a brush stroke, a new paint tool adds itself to the tools menu—so you can paint with any previous 'stroke'. While it is very different from anything else you are likely to have used, it is quite efficient and fairly easy to get used to.

Performance

ZBrush's performance can be described in a word—fast. Whether you are sculpting 3D geometry or painting with a pixol brush, ZBrush runs in real-time. That's fast real-time, not near real-time. Even when painting complex structures like 3D pixol hair, I could not slow ZBrush down. Just how Pixologic does 3D painting so much faster than everyone else is just unbelievable. It's not just fast by comparison, it's in a league of their own. The closest comparison I can give is that ZBrush paints real 3D stuff much faster than Painter and Deep Paint do 2.5D paint.



Pixols do much, much, much more. They have up to 64 channels of information and in the hands of Pixologic's programmers they are unbelievably fast. ZBrush paints full-colour, fully-textured, fully-lit 3D stuff in real-time. It's real 3D stuff that you can re-texture, re-light and re-render to your heart's content—but it's not 3D geometry.

You can't rotate your 3D ZBrush creation in 3D space and you can't easily convert it to 3D geometry for exporting to your favourite 3D software. When it's all said and done, ZBrush is an entirely new way of painting 3D stuff made of pixols.

The closest explanation I can give is it's like lying on your back and painting the ceiling with tubes of coloured toothpaste. It's real 3D you can relight or put different reflection maps on, but you can't (easily) rotate it or turn it into 3D geometry as you could if you made a clay sculpture, painted it and did a 3d scan.

One thing Zbrush is, however, is a great deal of fun.

You are going have to download the fully functioning demo and try it out for yourself—words really can't quite explain what it is and does.

Zbrush does 3D geometry

This is where it gets a bit confusing. While ZBrush is primarily a 3D 'digital toothpaste' paint program, it also does real 3D geometry. You can start with a 3D geometric sphere and mould its 3D shape in real-time with some fantastic 3D sculpting brushes. You can also rotate, move and scale your sculpted piece of 3D geometry. You can even export it to a standard 3D geometry format and import it into your 3D software of choice. But that's not the purpose of sculpted 3D geometry in ZBrush. As soon as you grab one of the incredibly powerful pixol brushes to edit your sculpted geometry, it gets turned (ZBrush calls this 'stamping') into pixols, which behaves like digital toothpaste—stuck to the back plane. After you have created your digital toothpaste masterpiece, you can use a special tool to slice it off the pack plane. This turns it into a piece of real 3D geometry that you can export. Maybe this is how everyone will want to use ZBrush, but right now this is not now primary design purpose. Although ZBrush does 3D geometry, it's just to support ZBrush's pixol painting capabilities.

Conclusion
ZBrush is a revolutionary new product that will open up a whole new class of 3D paint products. It's not out yet and it's not easy to see where it might fit into the professional's arsenal of digital creation tools. However, it's great fun, it's unbelievably fast and I suspect it will evolve into a whole new suite of essential 3D paint tools for anyone doing 3D work.
For now you can't go wrong downloading the free demo, playing with it and deciding for yourself.
To download a fully functional demo of ZBrush, visit Pixologic's web site at: www.pixologic.com

USA

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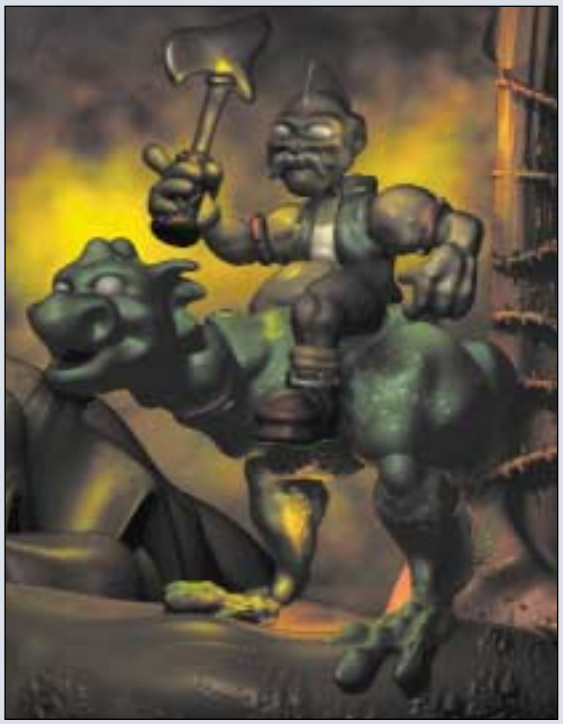
Studies in ZBrush
Ofer Alon
(opening spread)

Warrior
Sonny Santa Mareia
(right)

Jam
Sonny Santa Mareia
(below)

ZMan
Ofer Alon
(bottom right)



Gordo
Christian G Senn
(right)

ZBrush examples
Ofer Alon
(centre series)

HotRod
Sonny Santa Mareia
(bottom)