Waiting for the web

It's still dimensionally challenged, but Benjamin Woolley finds moves afoot to give the web depth.

AN ISLAND WORLD AS RENDERED USING THE 'ISLANDS' CLIENT FROM PARALLEL GRAPHICS

Many readers may have had their fill of ecommerce coverage, so let me first reassure you that this month's column is not going to deliver more. However, last Christmas was notable for showing how an Internet innovation hovering in the realm of conjecture can, in a very short space of time, become reality.

Presumably, those who are still working feverishly on 3D for the web are hoping the same thing will one day happen in their arena. Thus far they have had to be very patient.

There was once a hope that ecommerce would itself help 3D gain a foothold, as the most commonly suggested application for the technology is providing three-dimensional models of objects in online catalogues. But few online stores have yet chosen to offer such a facility.

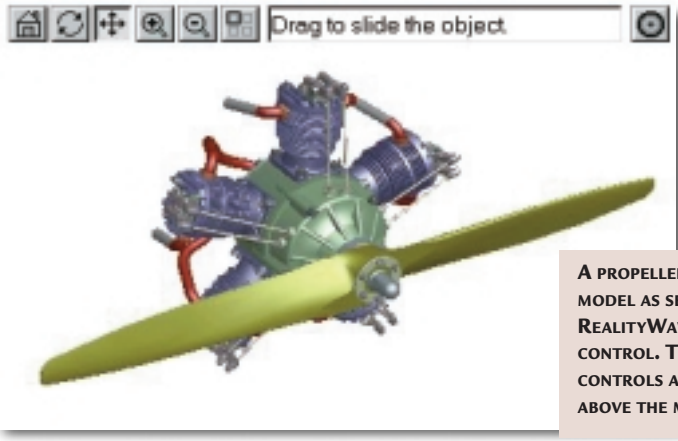
So is 3D destined to remain the Cinderella of online media?

One of the keys to a breakthrough inevitably concerns standards. VRML, proposed as the 3D or 'virtual reality' equivalent of HTML, provided a start, but it has remained isolated from the multimedia mainstream. You can bet that for most, their Flash and RealPlayer browser plug-ins see a lot more action than their VRML browser plug-in.

However, there is a change on the horizon that could have a big influence: the introduction of the MPEG4 standard.

In the software world, developers are never that good at doing things in sequence. Thus Windows 95 follows 3.1, and MPEG 4 follows 2 (and will in turn be followed by 7 – you can find out about the standards, and their odd version numbering, at the rather overloaded home page of the MPEG Standards Committee, which is at drogo.cselt.stet.it/mpeg/).

MPEG4 includes a 'scene description language' as part of the standard, which theoretically means 3D content will be seamlessly integrated with the other multimedia capabilities (2D graphics, animation, video and sound) of the standard. This could provide a considerable enhancement for 3D, but not for some time. (You can find an interesting and useful article about MPEG4 on the web at drogo.cselt.it/mpeg/koenen/mpeg-4.htm).



A PROPELLER AND ENGINE MODEL AS SEEN USING THE REALITYWAVE ACTIVEX CONTROL. THE NAVIGATION CONTROLS ARE ARRANGED ABOVE THE MODEL

Meanwhile, VRML content continues to appear, but mostly on an experimental basis. A lot of it is connected with the development of particular viewers or types of client software. These can be used to view models and scenes that are in some way 'enhanced'. For example, Parallel Graphics (www.parallelgraphics.com/htm/en/), one of the most active developers in the field, offers two sorts of clients, 'Cortona' and 'Islands' (above is a scene developed for the latter).

Cortona is a client that supports advanced 3D technologies such as NURBS, while Islands is designed to allow users to interact with each other and the world they are in, a VRML version of the proprietary Activeworlds (www.activeworlds.com), which I have explored in previous columns.

The other main area of activity in the development of 3D content over the web is 'streaming', that allows models and textures to be viewed and manipulated as they are being downloaded.

Metastream from Metacreations is one of the most successful examples of streaming I have tried, and does seem to be attracting serious content providers.

At the time I checked out the site

Dealing with the professionals

Following my September, 1999 column about post-producing 3D animations, I got a long and stimulating email from Steve Street, a pro who says he has worked for 'many years' in the field of 3D effects and animation. I thought I would pass on some of his views to provide a professional perspective on an often neglected aspect of 3D authoring.

To begin with he took issue with my assertion that 'post-production is about adding 2D effects to your 3D scenes'. It is, he argued, a lot more than that. In the professional realm at least, shadows, extra lighting, depth cue effects such as fog and haze, reflections and refractions (distortions produced by transparent materials) are often added after the 'final' render.

He also disagreed with my suggestion that by adding certain effects or 'video artefacts' such as lens flare you could make a CG animation look more like video. 'It wouldn't really make much sense to start blurring sequences and adding lens flares because VHS required these in order to look "natural",' he wrote.

'This misconception probably leads many people down the wrong track – rushing out renders and applying layer after layer of "cheesy" lens effects rather than spending time making an animation look good in the first place. Often these flare and glow effects will be hiding the only good parts of the animations themselves.'

This was Steve's advice for getting decent results when transferring animations to VHS: 'You have to consider the limitations of the format, such as colour saturation and brightness. VHS in particular is bad with reds, so having a red background as a backdrop to your 3D would be the kiss of death for VHS and even digital formats to a certain extent. Other solid colours would be better. Then there are issues over what could be useful properties of video in certain cases – such as being able to render images interlaced for smoother motion – helping to avoid jitteriness of fine lines on the move.'

For budding professionals, he advised approaching a post-production house and asking if it might think of letting you use a bit of its 'downtime' (ie time when the hardware isn't booked for paid work) to transfer your masterpiece onto video. This is obviously easier in London than, say, Lerwick, but if there's a company that's accessible, you might as well ask.

'Just make sure you check in advance which file formats and media formats are accepted,' Steve advised.

(www.metastream.com) there were links to CBS (http://marketing.cbs.com/mini/joandarc/ja_02--history_3dmetastream_n3not.html) and Lego (www.legomindstorms.com) that made good use of the technology.

There are alternatives vying for a place on the web, some of them working as plug-ins for Realplayer G2. Fluid3D is one of these, although clearly still in development. The website (www.oz.com/fluid3D) promised untold marvels, but unfortunately the link to the demo was dead.

One streaming technology that performs impressively is 'RealityWave' (www.realitywave.com). It rendered the demo models on the site very prettily (see screenshot bottom left on opposite page), and boasts nice, simple navigational controls. These include a tool for selecting a 'part' of the model, which is then displayed on its own. Models are stored in the 'XGL' file format, that RealityWave claims 'is becoming universal among CAD and 3D-graphics programs', which I think is a tad exaggerated.

A more serious problem for me is that the viewer is only available as an ActiveX control. This is great if you are using Internet Explorer running under Windows, as it will seamlessly insinuate itself into the browser window, but it means it won't run on other platforms.

For years, the problem with 3D on the Internet was that the hardware simply wasn't there to run the content, but that has changed. Nearly all PCs shipped in the past year were supplied with some form of 3D acceleration. Now it is the software that is the problem, and it looks like it will be some time before a clear standard emerges and the 2D world wide web can get a bit of depth.

There are no exploding spaceships or majestic vistas in this image by Geoff Holman of British Columbia in Canada, but that's one of the reasons I like it. I thought the lighting and texturing in this was particularly impressive. It was created using Truespace 4. The ivy is the sort of detail most 3D artists find difficult, but here it's beautifully realised. It was created using a combination of texture mapping and geometry. You can see Geoff's work at www.zargonstudios.com.

PCW CONTACTS

Benjamin Woolley welcomes your comments on the 3D Graphics column. Contact him via the PCW editorial office or email 3d@pcw.co.uk