



# Out of this world

The virtual world is huge, and getting better all the time. Benjamin Woolley dons his avatar and goes on tour to produce a rough guide to strange lands.

I know the web is supposed to be a revolutionary new medium, different from all its predecessors, being interactive, using multimedia and all that. But when you think about it, most of the information you get is not so radically different to what you glean from print and TV media: flat pages of illustrated text that look like magazine pages, combinations of sounds, text and video that could pass for designer news bulletins. There is, however, one "media type" the internet can deliver which is really novel: the shared virtual world. By this, I mean a computer-generated space that a number of people can access simultaneously across a network and inhabit via a virtual stand-in or "avatar".

Experimental versions of such worlds already exist: notably the WorldsAway game which you can access through CompuServe, and AlphaWorld from Worlds Inc., which is on the net at [www.worlds.net](http://www.worlds.net).

WorldsAway is not really a shared "space", since the environment is generated not out of proper 3D models but 2D backdrops upon which avatars and objects are superimposed. AlphaWorlds, by contrast, is more like the authentic article, and one that has been quietly developing a substantial 3D presence since its public launch in October 1995. It was created by Worlds Inc., to showcase the company's interactive 3D technology which it has dubbed, picking up on Microsoft's flavour of the month, Active Worlds.

Last October, the company announced that it would begin shipping an Active Worlds Development Kit (to run on Sun, SGI and Windows NT platforms) so that third parties can create and publish shared spaces of their own.

AlphaWorld is impressive. You access it by downloading Worlds Inc's own client or browser program and "teleporting" to the AlphaWorld co-ordinates. The first time you enter, you are confronted with a void. Slowly, the world takes shape before your eyes, object by object, texture by texture, efficiently "streamed" down the line so you (or rather, your avatar) can begin to wander around (using the mouse or cursor keys) before all the data has been downloaded.

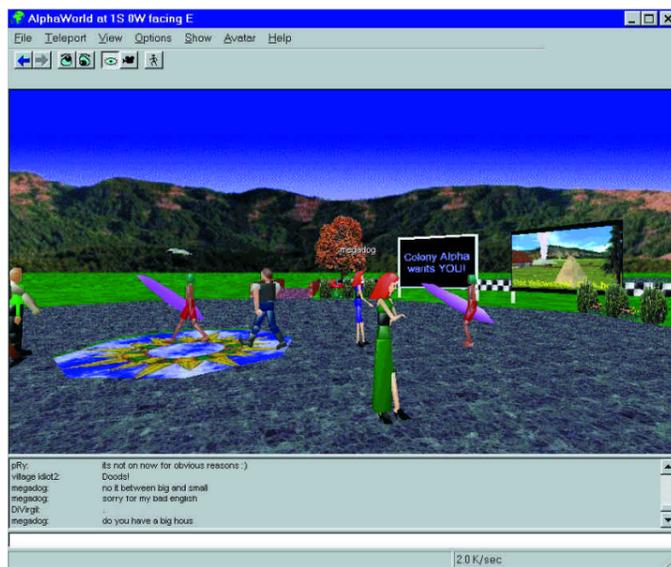
The world is huge and getting better: the full data set for all the models and textures probably runs into tens of megabytes. Thankfully, data is cached to your local hard drive so the more you access the world, the faster it appears on your screen.

Some of the first objects to appear are avatars, represented by virtual mannequins of various sizes, shapes, sexes, species and demeanours. Each one you see will be driven by another person who is sharing the

space. They can see you, just as you can see them, and you can interact with them in much the same manner as a text-based MUD, through gestures or "speech" (typed text, displayed as a speech bubble above your head).

When you apply for "immigration" to AlphaWorld, you are given a standard avatar, but you can select another from a whole library of character types, each identified by a suggestive name. For instance: Butch, Helmut, or Shred (the surfer) which is a particularly popular choice, as you can tell from Fig 1; two Shreds are walking past me as I stand in the middle of AlphaWorld.

Another, perhaps more interesting, form of interaction possible in AlphaWorld is being able to shape the environment itself. You can build on any unused section of property by duplicating objects you find elsewhere in the world and dragging them



**Fig 1**  
AlphaWorld's crowded central plaza

to your patch. You can alter some features of these objects (although not the basic geometry and look) and even give them behavioural characteristics. For example, your object could play a tune when someone bumps into it.

At the time of writing, a wide assortment of blue chip companies and other organisations were experimenting with Active Worlds technology and building their own spaces for people to explore. These include Visa which is designing a 3D online bank, Yellowstone National Park, and the Nokia phone company which is aiming to bring a little of the Scandinavian spirit to your screens.

One world which I considered to be particularly good was the Cyborg Nation (Fig 2). It was still under construction when I visited, and sparsely populated but given that what you see is being rendered in real time, I think it looks lovely. The sky and background are beautifully realised, and it is a delight to wander aimlessly around, awaiting some new object to spring up before you. I encountered the facade of a terraced house, a hovering metallic doughnut, a room with golden walls and a wireframe dome — it was rather like being in a Dadaist painting.

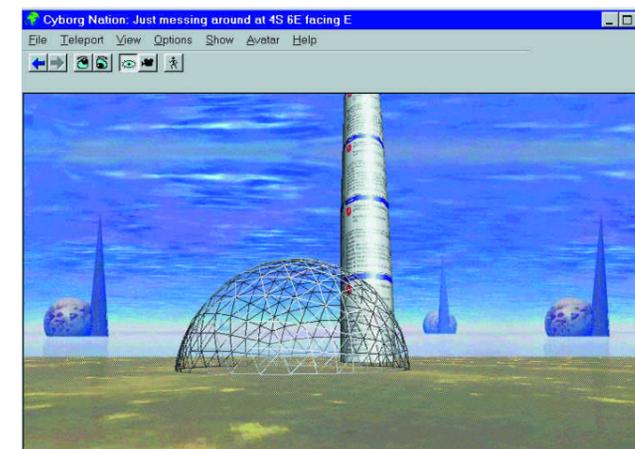
Although Active Worlds uses standard data file formats (such as RenderWare's RWX), which means third-party tools can be used to develop content, the system is proprietary. You will need the Development Kit to assemble worlds and publish them. This strategy has resulted in the steady evolution of an extremely effective product, but one that cannot rely for its future development on the same level of collaboration and competition as a technology relying on open standards. For that to happen, another approach is called for — one that is embodied in the new Living Worlds proposal.

## Living Worlds

The idea behind Living Worlds is to use VRML 2.0 (see *Hands On 3D Graphics*, PCW, Dec '96) as the basis of a standard that allows the creation of the same type of shared virtual spaces which the Active Worlds technology already provides, but can be built, published and accessed using VRML-compliant tools and browsers.

Like HTML, VRML is totally public. Anyone can use it to create 3D objects and scenes that can be distributed across the web. Unfortunately, although it does allow

**Fig 2**  
Cyborg Nation's virtual surrealism



the building of avatars and interaction with virtual spaces, these mechanisms are not standardised in a way that ensures true "interoperability",

to use the term adopted by the Living Worlds team (a consortium of representatives from Sony, Paragraph Worlds Inc., and others).

To illustrate the problem, the team dreamt up a series of scenarios: suppose someone called Art is at "home", suggest the Living Worlds team (in other words their avatar, or virtual presence, is in a 3D model of a living room realised using VRML); Art has recently "redecorated" his room, and there is new artwork on the walls that is automatically updated each month from some sort of interior design server.

This scenario shows how even the simplest of virtual spaces can quickly blur the distinction between authoring and using, and can come to rely on a variety of different sources and developers which update it, dynamically.

The Living Worlds team then imagine Art has some virtual visitors called Betty and Chuck (very American). They knock on the door. He opens it, sees them and greets them. This is the first point when some of the key interoperability questions are raised. How do Betty and Chuck "find" Art and how do they interact with him. Remember, there is no standard mechanism under VRML for words or gestures. Can they speak to each other, gesture, touch, sniff, hit... *mate?* — none of these points are unambiguously dealt with by VRML 2.0.

There are other, more subtle, issues the Living Worlds authors consider. What if you were able to exchange or buy virtual objects with behaviour characteristics? Suppose such objects could be delivered to you as complimentary gifts. What if the object were able to do some damage to your scene (perhaps a virtual puppy that bounces around Art's room, ruining the furniture and staining the carpet)? As the authors put it: "If this is beginning to sound like a virus,

we've made our point. Multi-user apps in VRML, like those in any other language, will need some reliable way to protect themselves from inappropriate access."

Living Worlds is already coming up with answers to these questions, and in particular to the issue of avatars. There has already been an attempt by one team to create a "Universal Avatar" standard (you can find their discussion paper at [www.chaco.com/avatar/avatar.html](http://www.chaco.com/avatar/avatar.html)), and Living Worlds takes this a step further by refining the definition of an avatar and distinguishing it from other types of objects that would be expected to populate a shared space.

Avatars are usually defined as "transient and arbitrarily mobile" objects because they come and go, and are driven by humans. In contrast, other objects are "persistent and predictable" because they are driven by programs. However, most expect shared spaces to be populated by "bots" which are, essentially, program-driven objects designed to behave as if they were avatars, so any future standard will have to embrace their behaviour, too.

These are early days for shared spaces and the technologies that will create them. It remains to be seen whether it will be the proprietary approach (via Active Worlds and any emerging competitors) or the open standards approach (via Living Worlds) that will set the agenda and deliver the goods. Either way, it must surely be the area where 3D and the internet can create something truly unique.

## PCW Contacts

Benjamin Woolley can be contacted at [3d@pcw.vnu.co.uk](mailto:3d@pcw.vnu.co.uk) He presents The Net, which will be broadcast on BBC2 from mid-January.

Active Worlds [www.worlds.net](http://www.worlds.net)  
Living Worlds [www.livingworlds.com](http://www.livingworlds.com)