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Meeting in the Ether
A brief history of virtual worlds as a medium for user-created events

By Bruce Damer, President and CEO, DigitalSpace Corporation, Founder, Contact Consortium.

Abstract

Virtual worlds, shared graphical spaces on the Internet, are an exciting new medium of human presence for the 21st Century. This article explores the origins, evolution and future of the virtual world medium from their humble beginnings in multi-player games to their use in education, business, science and engineering. Our focus will be on the development of social virtual worlds including environments such as Habitat, Active Worlds and Second Life.

Keywords: virtual worlds, avatars, multi-user, 3D environments

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A brief history of virtual worlds as a medium for user-created events

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If the telephone, radio, film, and TV helped to define life in the twentieth century, the virtual world is the one true new medium of the twenty-first century. The virtual world combines aspects of all of these earlier technologies, creating something novel in human experience. This article is dedicated to a brief exploration of the origins of this profound new medium and its use as a space where users create their own meetings and events.

If we define the virtual world as "a place described by words or projected through pictures which create a space in the imagination, real enough that you can feel you are inside of it," then the painted caves of our ancestors, shadow puppetry, the seventeenth-century Lanterna Magica, a good book, theatre play, or movie are all technologies to create virtual worlds. The digital computer, a new tool eminently capable of dealing with words and pictures was destined to become a purveyor of virtual worlds but with a new twist: the computer and the network in which it lives can host virtual worlds which are inhabited and co-created by people participating from different physical locations.

The Origins of Virtual Worlds in Digital Computing and Networks

Text-based role playing games that operate on timesharing systems prefigured the explosion of imaginative word-built worlds of *Adventure*, *Avatar*, and other games on PLATO, the first MUDs (Multi-User Dungeons), and other online environments of the 1970s and 1980s. As the age of affordable graphical computing dawned in the mid 1980s, there was a natural instinct to create visual versions of these experiences (with the unintended forfeiture of the imaginative contribution of written language). The new-born medium of the graphical, digital virtual world experienced a "Cambrian Explosion" of diversity in the 1980s and 1990s, with offspring species of many genres: first person shooters, fantasy role-playing games, simulators, shared board and game tables, and social virtual worlds.

The Social Virtual World

Here we will focus on the last genre, social virtual worlds, in which the primary purpose is the creation of meaning through the manipulation of the world and communication with others within the world. Game-play worlds, while also supporting social interaction and user-created content, have as their primary purpose structured play. For the most part, in a social virtual world users are asked to "make it all up" for themselves.

Figure 1. *Maze War* - running on an early 1970s Imlac PDS-1, as featured in a 2004 Digibarn Computer Museum restoration project.

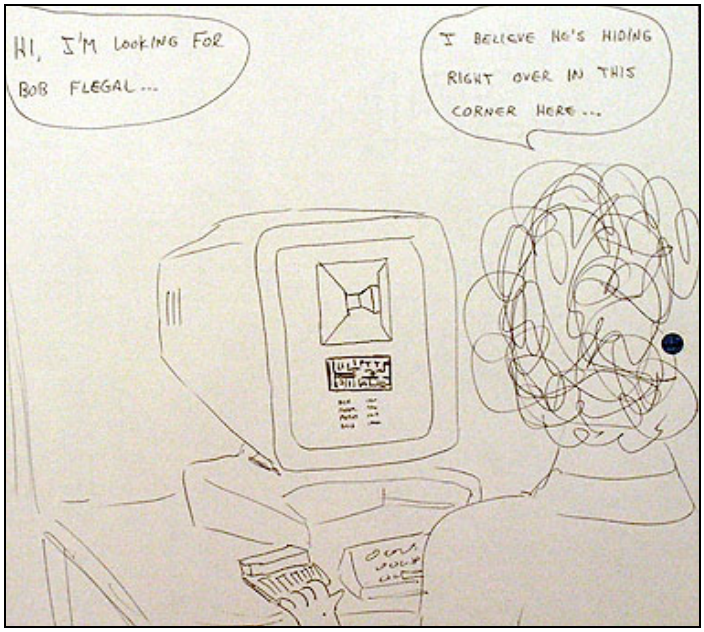


Figure 2. *Maze War* (Ted Kaehler, c.1980).

Maze War, created first on two networked Imlacs PDS-1 vector graphics workstations (Figure 1) at NASA Ames Research Center in 1974, was the first software to fill the niche of the first-person shooter (users travelled around a 3D maze shooting at each other), but it also set the stage for the very concept of being "in-world" (a term that I coined in 1995 to describe the act of being, well, "in a world"). The cartoon drawn by Ted Kaehler around 1980 (Figure 2) shows a player of the Alto version of *Maze* being told "Hi, I'm looking for Bob Flegal…" and hearing the response "I believe he's hiding right over in this corner here…" (i.e.: in-world rather than simply down the hall). *Maze* also created many of the innovations that would later come to define the virtual worlds medium: instant messaging, non-player robot characters, levels, and in-world building. Players would often simply use *Maze* to have a chat. *Maze* also created the online interaction dichotomy between static documents and dynamic interaction still present today in the relatively static *document Internet* of the World Wide Web versus the dynamic *inhabited Internet* of chat rooms, shared video and audio, multi-player games, and virtual worlds.

Figure 3. *Habitat* (1986).

Imlacs or Altos were too large and expensive to leave the laboratory for lives in suburban homes, but with the arrival of affordable color-graphics capable personal computers such as the Commodore 64 and low speed dialup network interfaces, the stage was set for the first graphical, social virtual world – *Habitat* (Morningstar & Famer, 1991), created by Chip Morningstar and Randy Farmer working at Lucasfilm in the mid 1980s. The *Habitat* screen capture (Figure 3) shows users (for the first time referred to as "avatars") interacting through text chat and moving around a built environment that could change through time. Users bartered objects and eventually created self-government independent of the server operators—the social virtual world had arrived.

The First Generation of Social Virtual Worlds on the Internet

Figure 4. *Worlds Chat* (1995).

As CPU and system performance increased through the early 1990s, it became possible to run real-time, textured 3D graphics on a consumer PC. In the spring of 1995, a company called Worlds Incorporated launched *Worlds Chat*, a 3D space station where users "teleported" in and could navigate in a rich sound and spatial experience and, of course, exchange text chat (Figure 4). Three months later, the same company launched *Alphaworld*, an experimental platform to allow users to build in-world using prefabricated objects.

Figure 5. *Alphaworld* (1995 and 1998).

Alphaworld was a key proving ground of the social virtual worlds medium. My two organizations, the Contact Consortium and DigitalSpace, carried out several years of experiments,

including group meetings and shared building in the earliest *Alphaworld* versions (ground zero gathering in summer 1995, Figure 5, left) all the way to a full cyber-conference with thousands of attendees ("Avatars98," Figure 5, right). Other important platforms of this period included *WorldsAway* (successor to *Habitat*), which expanded the realm of barter and an object economy; *Onlive Traveler*, which pioneered voice and lip synching avatars for intimate social interaction; and *The Palace*, which allowed any *Palace* user to easily create and host their own 2D shared "room" utilizing a simple image backdrop, which catalysed a viral spread of distributed worlds. My book (Damer, 1997) is a good guide to this first generation of social virtual worlds on the Internet.

Meeting in the Ether: the Invention of Large Scale Events in Virtual Worlds

The Contact Consortium

The Contact Consortium, a not-for-profit organization based in Northern California, was founded in 1995 to serve as a community center and instigator of experimentation in the nascent medium of virtual worlds. The Consortium held two physical conferences in San Francisco ("Earth to Avatars" in 1996 and "Avatars 97") before deciding to move its event in-world, attempting a full-scale convention within the medium of virtual worlds in the fall of 1998. "Avatars98," held for 4,000 attendees dialing in over slow modem connections into a single shared 3D space was a resounding success. Over the subsequent years, seven annual "cyber conferences" were held, each pushing the limits of design and experience of the virtual worlds medium as a space for gatherings, performance and presentations, art and personal expression. We will now take a closer look at the steps that lead up to the holding of "Avatars98" and how the event was built, organized, and delivered to a pioneering avatar audience.

First Baby Steps: Worlds Chat and Sherwood Forest Towne

When *Worlds Chat* appeared online in May of 1995, the Consortium membership tried it out as a cyber-gathering space. There were several "meeting rooms" but they were so much like bland windowless office conference rooms that users studiously avoided them, preferring the chaotic but social hub or scenic pods and viewpoints. Consortium members met with the group that produced *Worlds Chat* and pleaded for an environment where they could build our own content.

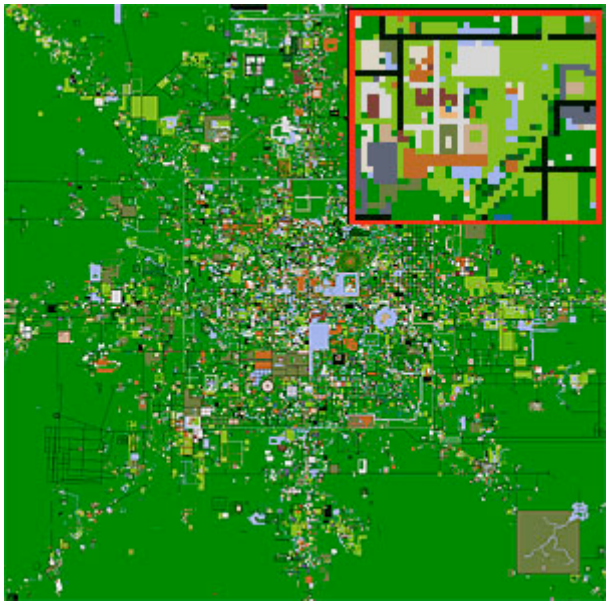


Figure 6. *Alphaworld* as "seen from space" at the end of 1996, Sherwood Forest Towne in inset.

Our prayers were answered when *Alphaworld* came online two months later and allowed any user to build by simply picking and placing pre-built objects (a concept that contributed to the success of *Second Life* years later). Figure 6 shows the explosion of construction in a viewpoint "from above" with our first project in the inset. With *Alphaworld*, the Consortium was then ready to carry out its first experiment: Sherwood Forest Towne.

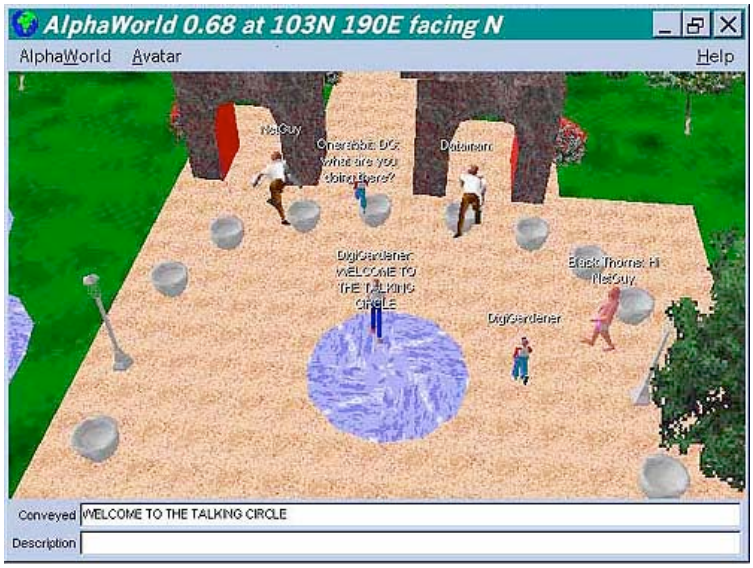


Figure 7. "Welcome to the Talking Circle" in Sherwood Forest Towne, *Alphaworld*, Spring 1996, the first in-world experiment hosted by the Contact Consortium.

Sherwood Forest Towne was our first attempt to recruit a team of builders to create a purpose-built space in the "explosion of architecture" that *Alphaworld* represented. We wanted to build a town to a plan with a theme (Olde English) and characters with roles (Robin Hood, a prankster, and so forth), and to create something small scale with structures close together, in contrast to the huge complexes typical of early *Alphaworld* builders. Sherwood was a fascinating first step for the organization and went on to win an award at the Austrian "Ars Electronica"

conference in 1997. Above (Figure 7) you can see the purpose-built space we conceived to hold project meetings, the "Talking Circle." As *Alphaworld* allowed both a first-person and third-person "bird's-eye view," we used this second mode to be able to read the chat from every attendee's point of view. The pots provided a context and boundary and the central water pattern a point for the person "holding the talking stick." In early *Alphaworld* there was no separate chat window so this was the only way to guarantee that all shared the conversation. This primitive meeting space, at the gates to Sherwood, was used frequently and led to a series of interesting experiments, including the first events described next.

Figure 8. Garden Party and Virtual Poetry Reading (Summer 1996).

The first event, "Mix it Up! Avatar Party in Digital Space" (Figure 8), was held in July 1996 and featured a garden party in Sherwood Forest Towne, a first-ever avatar poetry reading by noted Santa Cruz poet JJ Webb in a virtual Redwood Grove, and simultaneous bashes inside The Palace (a costume ball) and Black Sun's Pointworld. This gave us the confidence to hold more in-world events and set the stage for the Avatars Cyberconferences.

The Avatars Cyberconferences

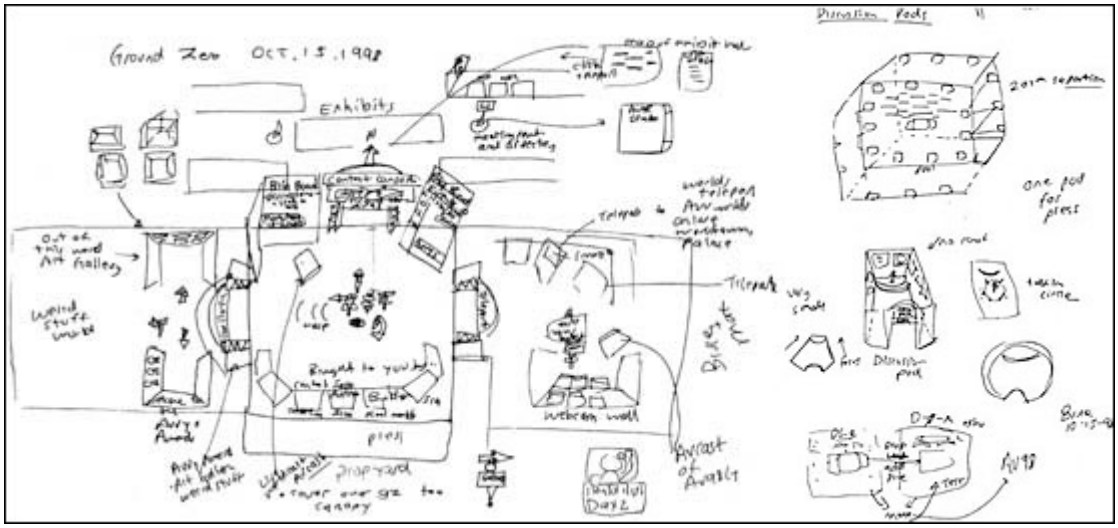


Figure 9. Design sketch for the "Avatars98": Inside Cyberspace event in October 1998, the first in-world conference hosted by the Contact Consortium.

The Contact Consortium hosted its first conference, "Earth to Avatars," in October 1996, at a hotel in San Francisco with over 500 attendees. Our second conference, "Avatars 97," held at the Multimedia Studies Program at San Francisco State University, drew 400 attendees. We

realized for the 1998 event that it was going to be difficult to find an affordable venue and that we were missing our constituency – the citizens of virtual world cyberspace – so we opted to "walk our talk" as an organization and move the event fully in-world. Hence "Avatars98: Inside Cyberspace" was born. On a trip to the UK to meet Consortium architect Stuart Gold (a real architect who moved his practice inside virtual worlds), we conceived of the design of the "Avatars98" conference space while sitting inside a Heathrow terminal. We decided to create a large, open hall with areas to the north, south, east, and west of the "ground zero" landing area. Figure 9 shows my design for these spaces as well as the "discussion pods" and exhibit hall booths that Stuart's database interface would automatically build for speakers and exhibitors. Avatars98 also had parallel events in other popular platforms of the day including *Blaxxun*, *Traveler*, *The Palace*, and *WorldsAway*. However, our main efforts focused on the *Active Worlds* platform due to its flexibility in building and managing events.

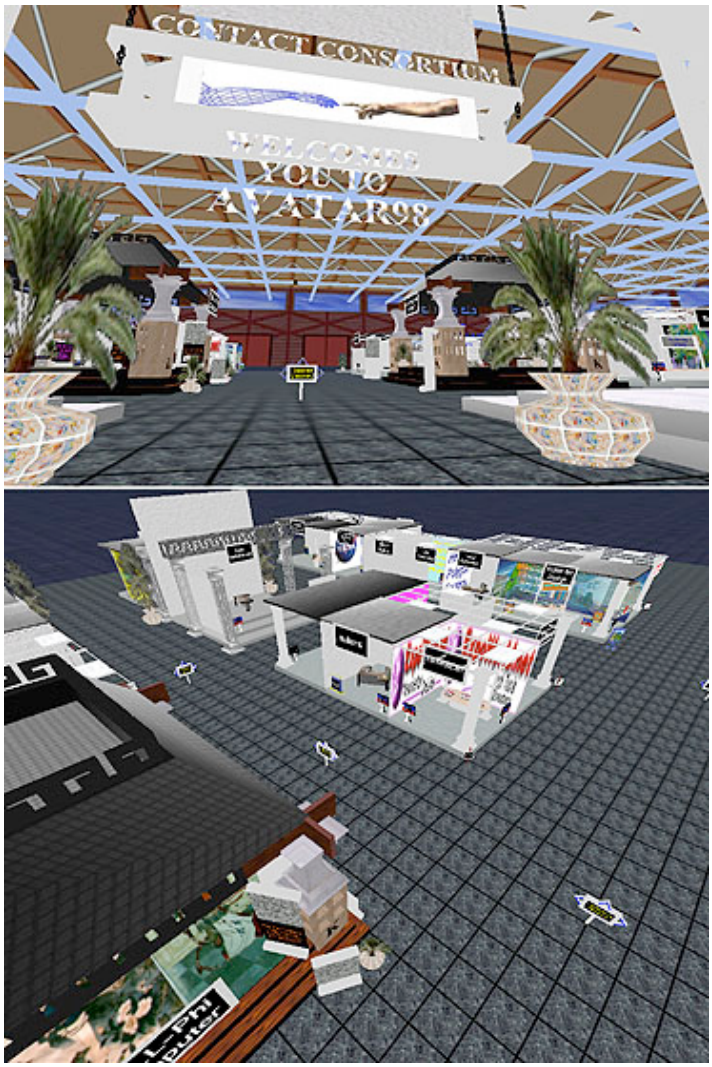


Figure 10. "Avatars98" Exhibit hall booths, all assembled from parts via a web-based database.

The next month was packed with frantic activity as we recruited object modelers, built web interfaces and assembled the Avatars98 staff and spaces. By sticking with a simple, well-understood metaphor of a single convention hall with exhibits in one direction and the other activities in the other three, we felt we would guarantee attendees at least a cognitively simple landscape. Beyond that, we were loading up the event with more than any virtual world had

carried before: dozens of booths all built by a web page/database and "bot" interface (Figure 10), a wall of multiple webcams showing different "nodes" or physical event sites around the globe, an art gallery and "Avvy Awards" stage with images of contest entries displayed by bot (an automated program inside the world). The event would also probably break attendance records for users entering a single avatar space running on one server. So how did it all turn out?

Opening Day

Figure 11. "Avatars98" Ground Zero as the conference opened, note the webcam in the web interface to the right broadcast from the Electronic Cafe in Santa Monica, California, and the webcam on a screen in-world broadcast from Ancient Oaks Farm in Northern California.

Opening Day, November 21, 1998, was a tense moment. "Avatars98" had been featured the night before on CNN, which had brought a crush of additional users into the space. As this was in the era before broadband most of us were dialing in on modem connections on first or second-generation Pentium machines. The entire event was run off a single Sun server hosted by the Active Worlds Company in Newburyport Massachusetts. The Consortium ran an event node and "jacking in" location from Ancient Oaks Farm in Boulder Creek, California. There were two-dozen other official "nodes" worldwide including the Electronic Cafe in Santa Monica, California, Michael Nesmith's Video Ranch in New Mexico, and a big art museum in Helsinki, Finland. The event population started early in our morning time here in California to climb to well over 300 people in the single space. As the image above shows, the entry space got crowded and we had to use the "public speaker" facility to reach beyond the two dozen or so closest users' avatars that could be rendered at a time. Taking cues from theme parks like Disneyland, we had built a series of clear walking paths and quicker "warpers," which would carry users away from the entry area to the four sectors, to help distribute the population and reduce crowding. Wandering the exhibit hall, users were greeted by staff manning individual booths. Artists were well represented in the Out of this World Art Gallery. A key activity was to attend talks.

Figure 12. “Avatars98” Speaker pods for VLearn3D session. Pods built by database and slide images displayed by bot command.

Talks were presented in areas called “pods” that were “sound isolated” from the main conference area by being located at specific distances from the main conference area. In Figure 12 we can see Margaret Corbit of the Cornell Theory Center, presenting a session about her projects in the Vlearn3D inaugural track on educational uses of virtual worlds. Each pod was built and configured automatically for each presenter by web database from pre-set assets such as slide images, text, and an audio microphone to tie in live voice through the Hearme online service. Linking eight hours and six tracks of talks together was the “big board” interface, a giant navigable program guide that with a single click would warp users’ avatars to the appropriate pods throughout the hall (Figure 13).

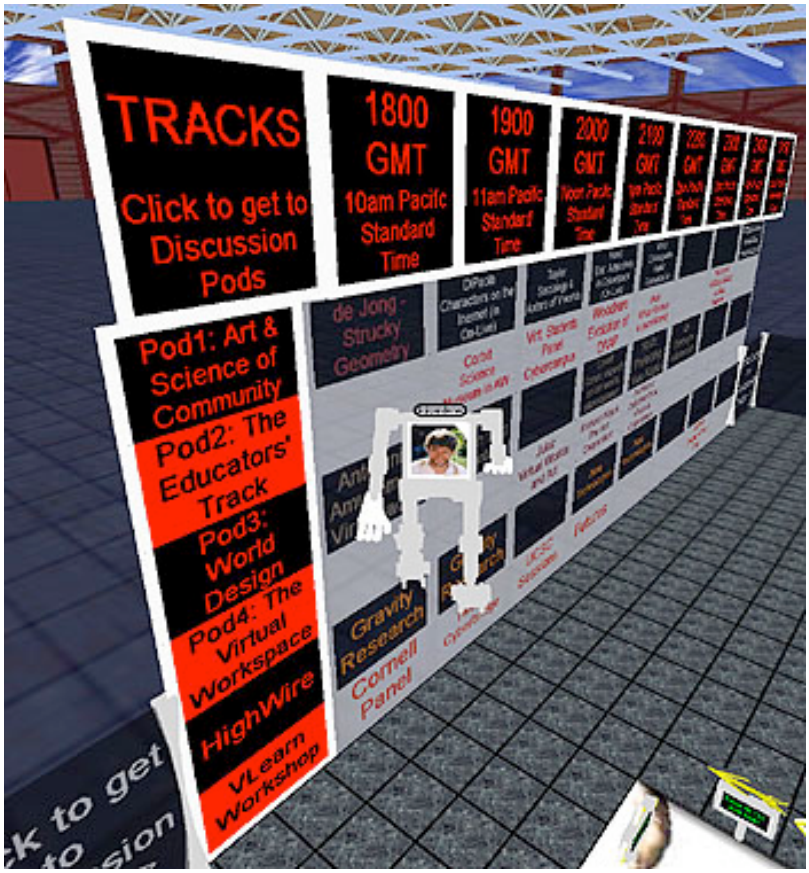


Figure 13. “Avatars98” Big Board. One click warped users to speaker pods throughout the hall.

The two prior in-person conferences had concluded with a “come as your favorite avatar” costume party, which featured a stage show where the best avatars of the year in a number of categories were shown and selected. Bringing this event in-world allowed us to distribute judging and to create a “people's choice” award managed by a vote-bot. The scene in Figure 14 is from the 1998 Avvy Awards at the moment the overall winner was presented onscreen. In this case she was “Summer” an avatar clothed only in butterflies. Note that although only the two dozen closest users’ avatars are shown, there were over 450 people present at the ceremony.

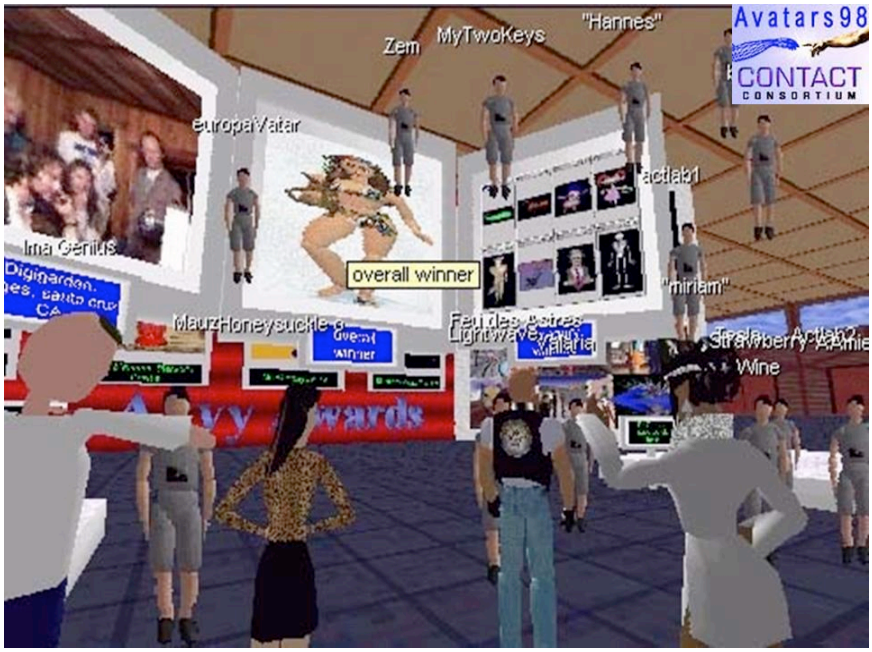


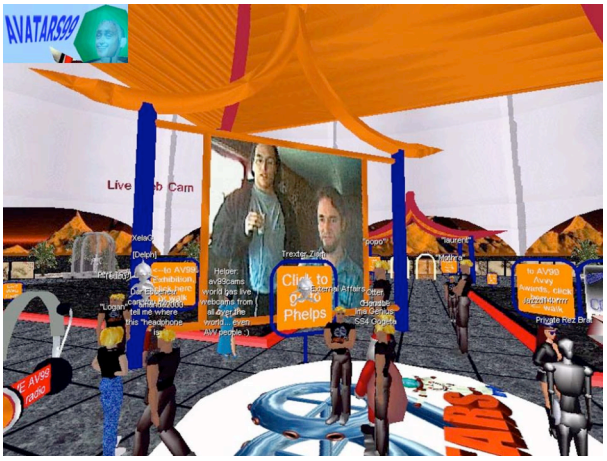
Figure 14. Avatars98 Avvy Awards ceremony, the Grande Finale.

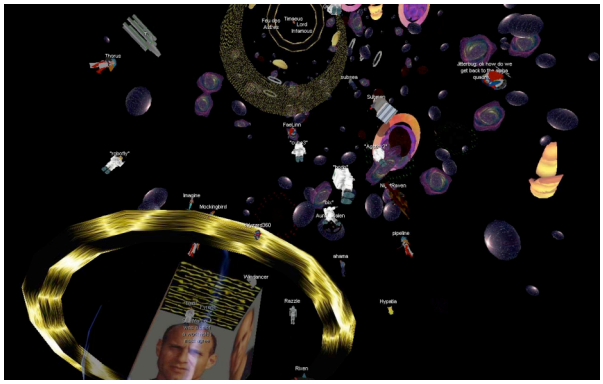
"Avatars98" had its moments when users complained of very slow object loading and "jerky" performance as their local area was overloaded with avatars and other content. However, throughout the entire event not a single problem occurred with the server and we ran our computers nonstop for 20 hours, capturing chat logs and helping to run the event with volunteers spread around the world. There were a number of stories in the press about "Avatars98" including coverage in *Wired News* and other magazines and a number of academic journals. By our estimates tracking the number of unique entries, "Avatars98" served several thousand visitors and provided a new benchmark for what an user-built, large-scale event could achieve in virtual world cyberspace. We had come a long way from the modest Talking Circle in Sherwood Forest Towne two and a half years earlier and hoped this would help future generations create fun, educational, and well-structured in-world events in the future. Other events of note held during this time frame included "TheU: A Virtual University" (an architecture competition in virtual space), "A Virtual Walk on the Moon with Apollo Astronaut Russell Schweickart," and "Virtual Gathering with Terence McKenna." (Gold, 1997c; Damer, 1999 & 1999b).

The Years of the Avatars Cyberconferences: 1999-2004

Figure 15. Badges from all eight Avatars conferences (six being held online as Cyberconferences).

Based on our positive experience with "Avatars98," the Consortium decided to iterate the experience and produced half a dozen subsequent annual Avatars cyberconferences (Figure 15). Each had a different theme and we experimented with many different layouts of virtual space, from a complex of interconnected domes (Figure 16), to a space station (Figure 17), to scenes from a popular film (Figure 18) and book (Figure 19).





Figures 16 and 17. The spectacular settings of two other Avatars cyber-conferences: avatar attendees journey through connected "millennium domes" in "Avatars99," and a surprise ending to "Avatars 2000" happens when the space station which held the conference was destroyed, casting attendees through a "wormhole."

Figures 18 and 19. The opening space in "Avatars 2001, a Cyberspace Odyssey," is a parody of Stanley Kubrick's film *2001 A Space Odyssey* and "Avatars 2002" brings a book to life in a reconstruction of Middle Earth from JRR Tolkien's *Lord of the Rings*.

The "Burning Man of Bits"

Ultimately the Avatars events were described as a kind of "Burning Man of Bits" (in reference to the annual user-built arts festival in the Nevada desert). Like Burning Man, Avatars were constructed from the bottom-up by users, based on a plan to a yearly theme, and then carried on as a festival of many parallel events, concluding with a "grand finale" event. The Avatars events had shown that the medium of user-built, socially-inhabited virtual worlds could have life as large scale event and performance spaces. That life was to return as a defining feature of virtual worlds in the early twenty-first century.

The "Winter of Virtual Worlds" and Their Second Coming

The companies and investors who bankrolled the early adopter phase of Internet social virtual worlds ran out of cash and patience by the end of the 1990s and most firms changed hands or vanished, even before the "dotcom crash" of 2000. Only the original *Alphaworld*, which became *Active Worlds*, survived relatively intact. A "winter" period followed during which it was unclear whether social virtual worlds were a viable medium or an evolutionary dead-end. The Avatars cyber-conferences came to an end in 2003 and it felt like the party was over for the exciting early-adopter phase of the medium.

At about this time, the rise of social-networking software (*Friendster*, *MySpace*, *Facebook*, *Orkut*, *Tribe.net*, *LinkedIn*), texting and graphics on mobile devices (SMS, *DoCoMo*, *Cyworld*), voice and video over IP (*Skype*, *YouTube*), and collective literary constructions (*Wikipedia*) created a whole new awareness "massively multi-player online games" from *Everquest* (1999) to today's *World of Warcraft* was a financial driver for vastly better 3D graphics hardware and network infrastructure, including consumer broadband.

The Show Must Go On

Incubating within this winter period were firms like Linden Lab (creator of *Second Life*), and There, Inc (creator of the virtual world *There*), which emerged to re-energize the social virtual world space. *Second Life* and *There* each launched a public beta in early 2003. *Second Life* was built on two key concepts from the first generation virtual world platforms of the 1990s: the user-empowering in-world building techniques of *Alphaworld* and the object economy of *Habitat*/*WorldsAway* that created a marketplace of objects (bought and sold in a currency called Linden Dollars). Thus there emerged a large community of object makers, builders, and marketers.

Figure 20. The author greets you wearing an avatar garment of his own design in *Second Life*, May 2007.

A fascinating extension to the object economy was the ability of users to clothe avatars in configurable animated garments (Figure 20), creating a fashion industry that attracted a whole new clientele. In *Second Life*, virtual land was purchased and rent is due, much like a web-hosting service, ensuring that spaces stayed actively maintained and that Linden Lab secured a revenue stream.

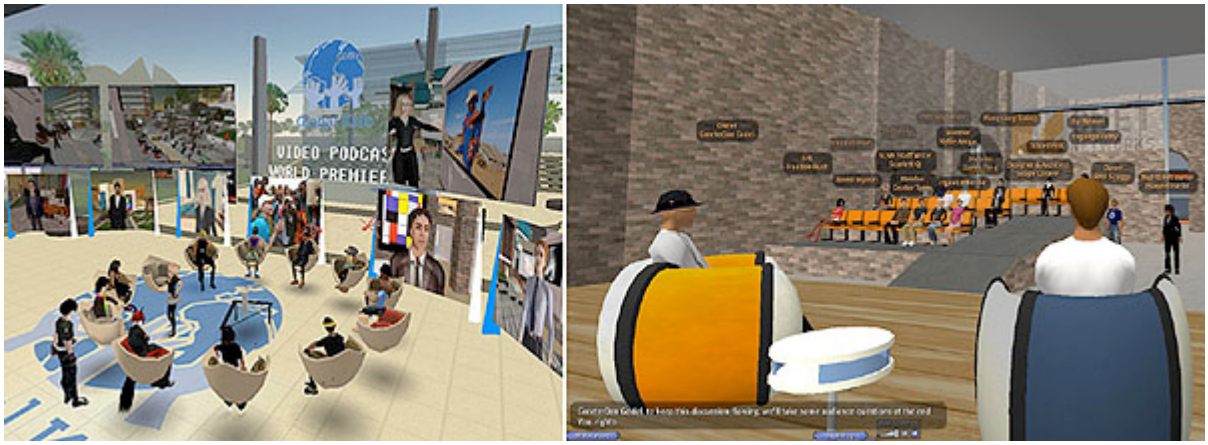


Figure 21. Meetings in *Second Life* today, showing a kind of "Talking Circle" as well as an auditorium for interviews. Events in Second Life continue to grow in size and scope today.

Today, with the second coming of the avatar/social virtual worlds medium, predictably it is meetings and larger events from interviews on stage to fashion shows that are a driving force behind the growth and attraction to life in-world (Figure 21). The energetic *Second Life* user community has started organizing large physical gatherings to complement their lives in-world, in a sense bringing the concept of "meeting in the ether" full circle.

The Future of the Virtual Worlds Medium

Today, avatars and social spaces are propagating everywhere, from IMVU's small and intimate 3D instant-message themed avatar rooms to social enclaves appearing on game consoles where users can interact and create personalized home worlds for use while outside game play. Mobile phones are now scaling the performance and pixel density curve and will soon host rich social worlds, perhaps using the lip synching voice avatar heads pioneered by *Onlive Traveler*. These devices are connected to GPS and may ultimately yield a mixed-reality view of the virtual and physical worlds. Searching for friends in a New Year's Eve crowd in Times Square in 2012, you might simply peer into your personal virtual worlds-capable device and there, in the milling *parallel reality* crowd of avatars, would be everyone present from your social network.

Let us finish with a quotation from *Snow Crash*, Neal Stephenson's 1992 visionary novel about a future ubiquitous social virtual reality. Stephenson's term for virtual worlds was *the Metaverse*:

> Hiro is approaching the Street. It is the Broadway, the *Champs Elysees* of the Metaverse. It is the brilliantly lit boulevard that can be seen, miniaturized and backward, reflected in the lenses of his goggles. It does not really exist. But right now, millions of people are walking up and down it.
>
> (Stephenson, 1992, p. 24)

Bibliography

Damer, B. F. (1996a). Earth to Avatars - Contact, Culture and Community in Digital Space. http://www.ccon.org/events/conf96.html.

Damer, B. F. (1996b). Garden Party Event in Sherwood Forest.

http://www.ccon.org/events/mixalpha.html.

Damer, B. F. (1997a). Avatars! Exploring and Building Virtual Worlds on the Internet. Berkeley: Peach Pit Press.

Damer, B. F. (1997b). Avatars 97 - The Human Race in Cyberspace.

http://www.ccon.org/conf97/index.html.

Damer, B. F. (1999a). A Virtual Walk on the Moon with Apollo Astronaut Russell Schweickart. http://www.digitalspace.com/worlds/apollo/jul20event.html.

Damer, B. F. & Gold, S.G. (1997c). Sherwood Forest Towne.

http://www.ccon.org/events/sherwood.html.

Damer, B. F. & Gold, S.G. (1998). Avatars98 and the Other Avatars Cyber-Conferences through 2003. http://www.ccon.org/events/index.html.

Damer, B. F., McKenna, T., & McKenna, F. (1999b). Virtual Gathering with Terence McKenna. http://www.digitalspace.com/worlds/fan-terencem/index.html.

Damer, B. F. & Thompson, G. (2004). Maze War 30 Year Retrospective - Digibarn Computer Museum. http://www.digibarn.com/history/04-VCF7-MazeWar/index.html.

Gold, S. G. (1997c). The Virtual University and Architecture Competition. http://www.ccon.org/theu/index.html.

Morningstar, C. and Farmer, R. (1991). The Lessons of Lucasfilm's Habitat. In Benedikt, M. (Ed.). (1991). *Cyberspace: First Steps.* Cambridge, MA: MIT Press.

Stephenson, N. (1992). *Snow Crash*. New York: Bantam Books.

Further Reading

DigitalSpace and Contact Consortium publications on virtual worlds, 1995-2007. http://www.digitalspace.com.

Virtual Worlds Timeline history project. http://www.vwtimeline.org. This project chronicles the origins, evolution and current trends in the virtual worlds medium, from its beginning in the 1970s through the early adopter phase of the Internet-based environments of the 1990s to the mainstream platforms of the 2000s. The project is supported by the Contact Consortium, DigitalSpace, multiple academic partners including Umea University in Sweden, Stanford University in the USA and the Web History Project.