FACING THE MILLENNIUM: WHERE WILL CAD LEAD US?

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It's 1999: Yes! We are at the eve of the new century. As I plan my Quarterly Review, I am compelled to search for a site that peers into the future. Of course, the perfect site also contains fascinating graphics and mind grabbing information. Though the Internet as gained galactic proportions since its inception, sites containing both excellent graphics and cutting-edge discussions are an oasis in a desert of triviality.

The CEDeS Lab web site (*http://www.hitl.washington.edu/research/cedes/*) provides such an oasis, refreshing, compelling and exciting. Established in 1994 for the College of Architecture and Urban Planning, University of Washington, the CEDeS Lab site combines digital media, design and architecture to explore cutting edge simulations and virtual environments, while peering into the future (see figures 1 and 2). The site is bountiful and progressive in its graphics as well as in its intellectual content.

The CEDeS team seeks to confront the implications of digital technology for humans and society as influenced by design environments (CEDeS stands for "Community and Environmental Design and Simulation Laboratory" and is pronounced "seeds").

Its strong ties with the community result in projects with societal implications such as the Affordable Housing Proposal and the Seattle Commons (a park and neighborhood development proposal). The Seattle Commons, for example, was simulated in real time using virtual reality technology (see figures 3 and 4). It then served to facilitate the review of the park/neighborhood proposal and to aid its evaluation by the residents of Seattle.

CEDeS Lab also serves to "seed" the development of a new breed of professionals to work on the design of virtual environments from an architecture and design approach. According to Pate (1995) and Pinet (1996), the CAD community is destined to be a major catalyst to the virtual reality (VR) industry and to three-dimensional content on the web. There is an increasing need for VR world designers and CAD professionals are well equipped to fill this role.

CEDeS shows examples of world building through a variety of ways. For instance, you can visit a gallery of virtual environments at: *http://www.hitl.washington.edu/people/dace/portfoli/thesis/project/*. If nothing else, this gallery is worth visiting just for the delight of the eyes. Beyond its pleasing outfit, the gallery's excellence lies in that it can be explored in VRML (Virtual Reality Modeling Language), in MPEG "movies" or in still images. This visual feast is surrounded by an in-depth discussion on archiving web architecture. The mind catching discussion addresses the role of architects in building virtual world content. It explores the boundaries of the design field and of where it should interface with the virtual realm.

Just as in the gallery, you jump from one technology to another throughout the site to view projects in a variety of ways.

With all this action, the site succeeds in competing with MTV to keep the viewer's attention. Downloads and plug-in windows pop up on the screen, projects are seen in still images, movie format, VRML. Within VRML, projects can often be seen with a variety of viewers from Cosmo to Live 3D. Virtual reality dominates, with its futuristic edge.

Investing in VRML could place the CEDeS Lab in a precarious position. This is because the future of VRML has lately become uncertain. Cosmo, the most popular VRML viewer, was developed by SGI a couple of years ago. But last year, SGI basically allowed Cosmo to die by withdrawing support for that project.

Furthermore, last year it seemed that the VRML consortium was on the verge of disbanding.

After canceling a user-group meeting at SIGGRAGH, due to a lack of interest, the VRML Consortium held a sad press conference. Fortunately, Cosmo was recently purchased by Platinum Technology and VRML seems to finally be picking up again. Is VRML viewing worth pursuing? I'd rather be hopeful. For all of its drawbacks, VRML remains the only way to provide an interactive look at 3D worlds on the web. I applaud CEDeS Lab for their foresight.

The CEDeS site promotes such 3D interactions, and it is compelling. Though I sometimes wish for more information about the outcome of some of the projects presented, others are enveloped in a rich socio-architectural discussion. International boundaries are crossed in "Green Space" (see figure 7) and the "Zenobio Workshop." I also wish that the various parts of the site would be better integrated visually with one another. However, all in all, I am kept excited throughout the entire site. It reminds me of the potential of VR for CAD users and puts my mind in high gear.

As the technology progresses, advanced simulation and virtual reality will become more prevalent in professional practice. For the moment, creating good VR worlds takes a tremendous amount of time and requires expensive equipment. With time, however, VR may well supplant CAD (Pinet, 1996). A variety of CAD companies have recently integrated VRML translators into their modeling software (e.g. ArchiCAD, 3D studio, Form Z). As the hardware and software matures, the CEDeS Lab will continue to be a resource for the community and a leader in the field.
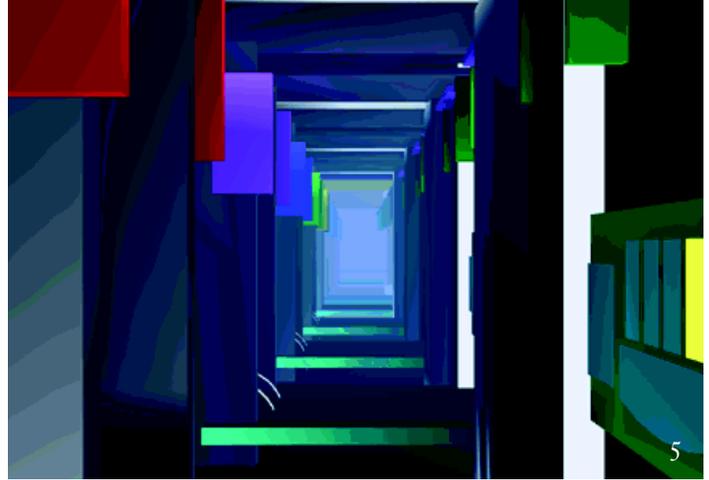
Aesthetic	3.5
Creativity	4.5
Execution	4.5
Information	3.8

Pate, A. (1995a). ***Paperback VR/CAD Worlds***. VR World, March/April, 67.

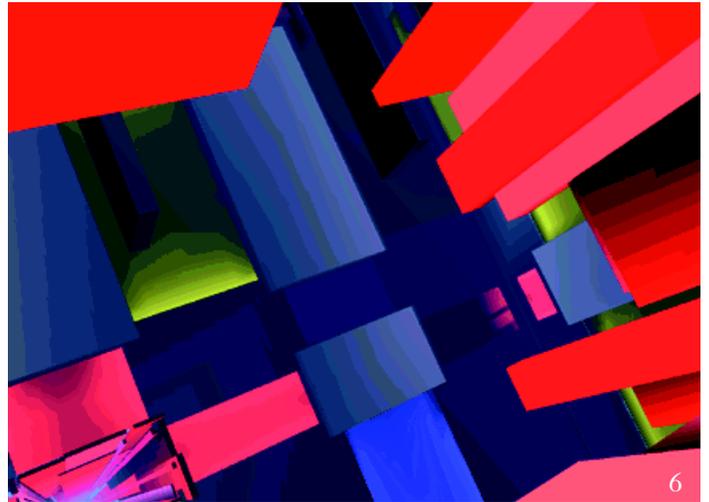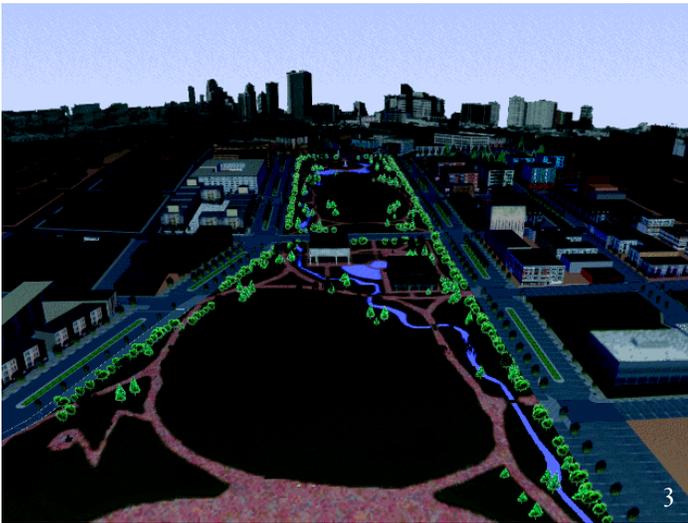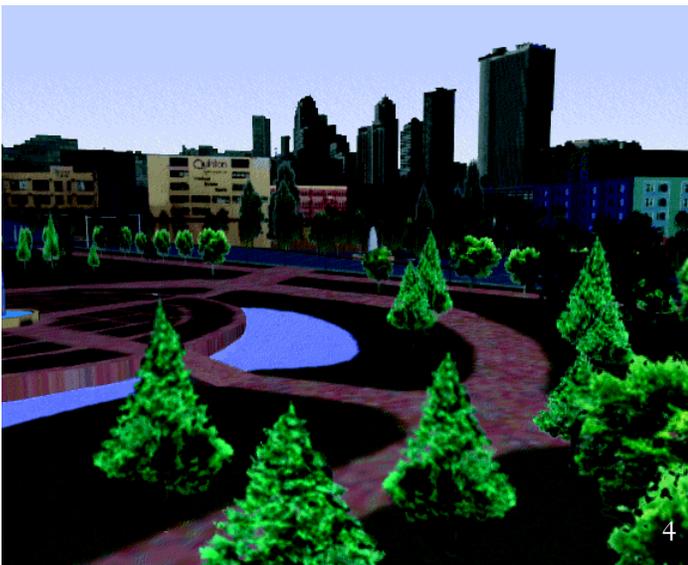Pinet, C. (1996). ***Virtual reality: Heir apparent to CAD***. *Journal of Computer-Aided Environmental Design and Education. [On-line]: http://vega.lib.vt.edu/ejournals/JCAEDE/v1n1/fall96/1-97contents.html*

Image Credits

1 & 2: Westin Guest Room 2000: The hotel guest room of the future. Jim Davidson, Peter Anderson, Peter Bjordahl

3 & 4: Seattle Commons: A proposed park near downtown Seattle. Jim Davidson, T. A. Dace Campbell, Barbara Freeman, Ryan Ghere, Kathleen Heimerman, Teresa Hsin, David Saxen, Scott Starr, Michelle Wang.

5: View of the Spine, Connecting to the Galleries. Dace Campbell

6: View of the Main Hall, Featuring Hyperlink Corridors. Dace Campbell

7: GreenSpace Content: A view of a hotel guestroom from a networked virtual environment. It involves multiple participants, from Seattle and Tokyo, immersed in VR and interacting in real time over long-distance. Jim Davidson, T.A. Dace Campbell, Robert Baldino, John Curtis, Anu Nadella, Scott Starr, Susan Tanney, Kenneth Wright.

The following software were used to create these images: AutoCAD, Alias, 3D Studio, WorldToolKit, Animator Studio, Photoshop, XV 3.00, Lightscape, Vis., ls2iv, SGI ivcat, ivfix & ivToVRML, Webspace, GSApp

http://www.hitl.washington.edu/research/cedes/