



SCHOOL OF THE ARTS AND ARCHITECTURE

EXPERIENTIAL TECHNOLOGIES CENTER

www.etc.ucla.edu

DIANE FAVRO, DIRECTOR

The UCLA Experiential Technologies Center (ETC) — housed within the Department of Architecture and Urban Design — supports cross-disciplinary collaborative research and educational work by UCLA faculty and students; fosters partnerships between UCLA and other colleges and universities; develops educational products and new learning environments; and provides a robust K-12 outreach program. The ETC promotes the use of new technologies for experiential research in diverse disciplines including architecture, the performing arts, classics, archaeology, foreign language studies, and education, among others. Projects explore a wide range of phenomenological issues, including movement, sequencing, sonification and visualization.

With past grants, the ETC team has distinguished itself in the spatial modeling of comprehensive environments, from natural and artificial landscapes, urban environments and other material culture data, to the scientific visualization of surfaces and data. Comprehensive simulations of historical environments allow scholars to study various reconstruction issues and provide new spatial gateways into research and teaching about the broader cultural, social, economic and political aspects of civilizations — both ancient and contemporary.

A focus on experiential historical architectural research — supported by major grants from the National Science Foundation, NEH, and the Mellon Foundation, among other sources — has distinguished the ETC from other digital media centers by expanding upon current scholarly investigations and technology investments in virtual reality (VR) research and teaching applications for the arts and humanities. (See <http://dlib.etc.ucla.edu:8080/projects/Forum>.)

The ETC offers many opportunities for UCLA students and faculty, outside scholars, and the general public to participate in virtual reality research. Classes and workshops are available on a rotating schedule. A Research Fellow Program paves the way for UCLA student involvement. Internships provide funding for qualified scholars to spend time in residence with the ETC staff. Public demonstrations that include the work of the ETC are regularly scheduled through the UCLA Academic Technology Services (ATS) Visualization Portal.

The ETC builds upon existing research in the arts, architecture, performing arts, music, musicology, and other fields that have exploited new technologies, and promotes further innovative investigations. In particular, the ETC aims to draw together scholars from diverse disciplines across campus, providing training, support and advice regarding computing for research, as well as assistance with grant writing for those fields which traditionally have had limited access to and knowledge of advanced tools.

2-2-2 Experiential Technologies Center

In addition, the ETC encourages alliances with other institutions on campus. The center is proud to have an agreement of cooperation with the Cotsen Institute of Archaeology at UCLA to facilitate research projects and oversee new courses teaching the specific applications of new technologies for archaeological research. The ETC collaborates with the UCLA Center for Research in Engineering, Media and Performance (REMAP) — a collaborative effort by the School of Theater, Film and Television and the Henry Samueli School of Engineering and Applied Science — on a number of undertakings, including the dynamic EXP Lecture Series. On an individual level, the intern scholar program trains students from different disciplines in a wide range of technologies.

Technology

The ETC has experience in delivering its computer models on diverse high-, mid- and low-end computer and video platforms. 3D models are generally created using MultiGen Creator on powerful graphics workstations running Windows. When appropriate, MultiGen files are exported to such rendering programs as Lightscape or 3D Studio Max. MultiGen models can run on the SGI Onyx platform for use in real time applications. They can also be formatted to run on a PC or laptop with Windows, Linux, or the Mac o/s. Fly-throughs of the models are possible on many platforms from the Onyx to digital or Beta SP video format; or to MPEG. Models can be made available on the World Wide Web using software such as QuickTime and VRML. Many of our models have been used in TV documentaries.

Examples

- **Real-time applications**

The models are created with real-time functionality in mind. “Real-time” means that users have complete freedom of movement through the virtual environment. They can, at will, move up, down, sideways, and they can also change their orientation. Real-time applications can be presented to groups in reality theaters such as the UCLA Visualization Portal, a room seating 40 people with a semi-spherical screen and triple, edge-blended projection. Using high-performance shuttles, the digital models can be presented anywhere, allowing for flexibility in teaching and research.

- **Web applications**

3D assets of all kinds have become common features of Web sites. Our models can be converted to such Internet-capable formats as QuickTime and VRML.

- **TV and Video applications**

Models can be rendered at very high resolution for use in animations in various video formats. They can also be used in a virtual set studio, where live actors are composited in real time with the virtual environment.

Outreach

The ETC is committed to sharing materials developed through the center to UCLA and to partners outside the campus

- **K-12**

We have developed presentations specifically targeting K-12 education. During the last year the K-12 outreach program showed the digital models of historical environments to

3-3-3 Experiential Technologies Center

more than 1000 young students. The center has also been involved with the ArtsBridge at UCLA program, which provides UCLA students with scholarships that enable them to teach art, music, dance and architecture in Los Angeles schools. UCLA graduate students in architecture and urban design have used the digital models of historic environments to teach elementary, middle and high school students, allowing them to experience the models first-hand, to see the power and possibilities of the new technologies, and to learn about various career paths.

ETC fellows present their work at inner-city schools through a generous grant from the Steinmetz Family Foundation.

- **Community**

Although the ETC was only recently formally established, the team behind the center and the facilities that form the center's infrastructure have long been in place. The Visualization Portal, which is the main presentation theater for much of the visualization and modeling work done at UCLA, has drawn thousands of visitors — including researchers, students and members of the greater UCLA community. In 2006, more than 4,000 people visited the Portal to see the innovative work being done by UCLA faculty and research fellows. In addition, more than 1,200 UCLA students visited the Portal to experience the digital reconstructions of historical monuments.

- **Campus**

ETC staff members are available to work with instructors interested in using visualizations in their classrooms.