



# Virtualnomics

Newsletter of the Virtual Environments Technical Group of the Human Factors & Ergonomics Society

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## Chair's Corner

There continues to be considerable progress in the ability to render 3D virtual environments at higher resolutions and increasing frame rates using low-cost personal computers. For example, Nvidia's GeForce4 Ti 4600 can now render 136 million vertices per Second! Such graphics cards enable the creation of very realistic virtual environments that enable levels of immersion not previously possible. If you have not recently updated your virtual environments hardware, you should consider doing so. I suspect the increased frame rates and higher scene resolutions will translate into improved performance. This should increase the usefulness of virtual environments in terms of training, education and evaluation.

I would like to invite those of you working in the area of transportation simulators to consider submitting a paper to the TRB 82nd Annual Meeting, January 12-16, 2003, in Washington, D.C. The Transportation Research Board Annual Meeting on-line paper submission website is now open for new submissions for the 2003 Annual Meeting cycle and for consideration for publication in the TRB Transportation Research Record series in 2003. Papers can be submitted for presentation and/or publication at <http://submissions.miracd.com/trb2003/> from now until August 1, 2002. Solicited and unsolicited papers addressing any relevant aspect of transportation research are welcome. Please refer to the Annual Meeting Information for Authors at [http://www4.nas.edu/trb/annual.nsf/web/information\\_for\\_authors](http://www4.nas.edu/trb/annual.nsf/web/information_for_authors)

Ron

## News and Notes

### **Annual Meeting of the HFES has moved!**

Due to construction delays at the Pittsburg Convention Center, the annual meeting has been moved to Baltimore. Please note that the dates have also changed. See the coming events section of this newsletter for more details.

### **Nominations for New Officers**

The current officers of the Virtual Environment Technical Group will soon be making way for a new set of faces. Send in your nominations to our Chair, [Dr. Ronald Mourant](#), via email. Feel free to nominate yourself if you are interested in serving. Elections will take place at the conference in Baltimore. The positions to be considered are Chair, Program Chair, Chair Designate, and Newsletter Editor.

### **Technical Group Meeting**

Don't forget to make plans to attend our technical group's meeting at this year's conference. Our meeting is currently scheduled for Wednesday, October 2, 2002, between 3:30 p.m. and 4:30 p.m. In addition to electing the new officers, we will also be hosting a reception with food and beverages. Be sure to attend!

### **Hanbook of Virtual Environments: Design, Implementation, and Applications**

As many of you may already know, the *Handbook of Virtual Environments: Design, Implementation, and Applications* (editor Kay M. Stanney, Ph.D.) is now available from Lawrence Erlbaum and Associates. The prepaid price available upon book adoption and to individuals is \$95.00. The full retail price of the book is \$295.00. The book is divided into five major sections (six if you include the introductory materials) and is intended as a resource for those designing and using VE technology. My summary of this 1200+ page book is provided below.

The book begins with system (hardware, software, and application) requirements. These are discussed in terms of psychological and physiological requirements. The second major section covers design approaches and implementations strategies. This section deals more with the cognitive and perceptual challenges that face VE users. Also, this section covers issues that corporations may find useful by discussing ways to increase user acceptance and minimize product liability. The section on health and safety deals directly with ways to identify, prevent, and potentially treat the physiological effects and aftereffects of VE exposure. The fourth section, evaluation, provides a summary of ways to measure usability, ergonomics, human performance, physiological consequences of and presence in virtual environments. The book concludes with example applications of virtual environments including military, training, educational, medical, physical and psychological therapy, and entertainment applications.

Overall, this book is a great resource for educational and practical uses. I feel that the value that motivational theories can add to VE design continue to be overlooked, but that is a problem throughout the VE community and not just with this book. Also, one of the authors identifies entertainment applications as the broadest and most successful

application of VE technologies. However, entertainment applications are relegated to only one chapter at the end of the book. It seems if entertainment has been successful in their application of VE's, their example should dominate more of the book. All in all, this book represents the most comprehensive source of useful information about VE design and use that is currently available. Anyone interested in working with VE needs to have access to this book. Period.

### **Annual Meeting Papers and Presentations**

Our Program Chair was kind enough to release the annual meeting's selection of VETG presentation titles. Now we can see all the great material we have to look forward to seeing in Baltimore. Congratulations to those of our readers that are included in the list of presenters.

#### *Panel*

Designing virtual environment training systems that work: Stacking the deck in the user's favor. *Cohn, J., Lyons, D., Schmorrow, D., Lackey, S., Allen, R., Stanney, K. M., Muth, E., & Milham, L.*

#### *Papers*

Gender differences in visually induced motion sickness. *Graber, D., & Stanney, K. M.*

Dropouts and aftereffects: Examining general accessibility to virtual environment technology. *Stanney, K. M., Kingdon, K. S., & Kennedy, R. S.*

A progress report on the quest for a cybersickness dose value. *Yuen, S. L., Chen, R. W., & So, R. H. Y.*

A "natural" independent visual background reduces simulator sickness. *Lin, J. W., Abi-Rached, H., Kim, D., Parker, D. E., & Furness, T. A.*

Motion sickness symptoms and perception of self-motion from exposure to different wallpaper patterns. *Kennedy, R. S., Stanney, K. M., Rolland, J., Mead, A. P., & Ordy, M. J.*

Empirical comparison of human behavior and performance with different display devices for virtual environments. *Bowman, D. A., Daley, A., Ryu, Y. S., Farooq, U., & Vasnaik, O.*

The effects of head-coupled control and head-mounted displays (HMDs) on large-area search tasks. *Draper, M. H., & Ruff, H. A.*

Utility of a tactile display for cueing faults. *Calhoun, G. L., Draper, M. H., Ruff, H. A., & Fontejon, J. V.*

Large amplitude three-dimensional tracking in augmented environments: A human performance trade-off between system latency and update rate. *Ellis, S. R., Wolfram, A., & Adelstein, B. D.*

Text input displays for immersive virtual environments: An empirical comparison. *Bowman, D. A., Rhoton, C. J., & Pinho, M. S.*

Attentive interaction techniques for searching virtual environments. *Hughes, S., & Lewis, M.*

Viewpoint optimization for navigation using dynamic tether. *Wang, W., & Milgram, P.*

Comparing standing balance at real and elevated environments. *Simeonov, P., Hsiao, H., Dotson, B., & Ammons, D.*

The use of advanced driving simulators to evaluate the effects of in-vehicle technologies (telematics) on drivers' performance. *Hammel, K. R., & Fisher, D. L.*

Specificity after training in virtual reality: A comparison of route and survey alignment effects. *Miller, M. S., Giacoppo, A. S., & Sebrechts, M. M.*

#### *Posters*

Evaluation of force feedback steering in a fixed base driving simulator. *Mourant, R. R., & Sadhu, P.*

Training in a virtual stereoscopic environment. *Mourant, R. R., & Parsi, L.*

The proprioceptive aftereffects of prism adaptation influence interlimb rhythmic coordination. *Black, D., & Riley, M. A.*

The ethics of telepresence: Human factors solutions to preserving privacy. *Noel, R. W., & Hunter, C. M.*

Effects of disorientation on human spatial cognition: Object localization in a virtual environment. *Brou, R., Carruth, D., Doane, S., & Vickery, R.*

Effects of long duration and repeated exposures in an immersive virtual environment on postural stability. *Duh, H. B., Harm, D. L., & Parker, D. E.*

Haptic perception of whole and partial extents of small objects. *Hove, P., Tollner, A. M., Klein, M. I., Riley, M. A., & Santana, M.*

Immersive technology, feeling of presence, and simulator sickness: Formulation of a causal model. *Jerome, C., & Witmer, B.*

Recognition of computer-generated trees. *Sims, V. K., Hughes, C. E., Moshell, J. M., Cotton, J. E., & Xiao, J.*

## Coming Events

**June 24-26, 2002**  
**2002 European Simulation Interoperability Workshop**  
**University of Westminster, UK.**

<http://www.sisostds.org/siw/02euro/>

The 2002 European Simulation Interoperability Workshop (Euro SIW) is sponsored by the Simulation Interoperability Standards Organization (SISO) in cooperation with The Society for Computer Simulation - Europe International Training Equipment Conference (ITEC, Ltd.). The 2002 Euro SIW will be held June 24-26, 2002 at the University of Westminster, UK.

**July 21-26, 2002**  
**SIGGRAPH 2002**  
**San Antonio, Texas**

<http://www.siggraph.org/s2002/>

The SIGGRAPH conference is the world's annual celebration of the latest research advances, demonstrated applications, and freedom of expression within the disciplines of computer graphics and interactive techniques. Each year's gathering draws people from diverse fields of study and commercial ventures to discuss, share, and debate in an amazing technical and educational event that often defies definition.

**September 2-6, 2002**  
**HCI 2002**  
**London, England**

<http://cise.sbu.ac.uk/hci2002/>

As interactive technology becomes more and more pervasive, user interfaces have to become less intrusive. However, interfaces are also being used to project identity and so have to be both recognisable and memorable. Designing systems that are memorable yet invisible presents a new set of challenges to the HCI community.

**September 9-10, 2002**  
**VR World Conference V**  
**Paris, France**

<http://www.vrefresh.com/VR%20World%20Congress%20-%20Agenda.htm>

The VR World Congress V will provide a forum for the identification of prospective partners to propose projects for support by the European Commission under the Sixth Framework program as well as a platform for sharing experience and innovation. VR World Congress V will be held at the Centre Chailot-Galliera, Avenue George V, Paris, France on Monday 9th and Tuesday 10th September, 2002.

**September 30-October 4, 2002**  
**HFES 46<sup>th</sup> Annual Meeting**  
**Baltimore, Maryland**  
<http://www.hfes.org/>

The Society furthers serious consideration of knowledge about the assignment of appropriate functions for humans and machines, whether people serve as operators, maintainers, or users in the system. And, it advocates systematic use of such knowledge to achieve compatibility in the design of interactive systems of people, machines, and environments to ensure their effectiveness, safety, and ease of performance.

The annual meeting offers the opportunity for those in education, training and human factors and ergonomics professionals to share, exchange, and debate ideas.

**September 30-October 2, 2002**  
**Collaborative Virtual Environments 2002**  
**Bonn, Germany**  
<http://www.cve2002.org/>

ACM Collaborative Virtual Environments 2002: Bonn, Germany - September 30-October 2, 2002. CVE 2002 is a conference dedicated to the design, development and use of collaborative virtual environments (CVEs). Submission deadlines for Papers, Posters, Panels, Workshops, and Tutorials is May 1st 2002.

**October 9-11, 2002**  
**PRESENCE 2002**  
**Porto, Portugal**  
<http://www.ufp.pt/presence2002/>

PRESENCE 2002 invites academics and practitioners with an interest in research, theory, and applications related to the concept of presence. The goal of PRESENCE 2002 is to bring together academic researchers in the area of media and presence, content and technology developers, and interested commercial parties so they can meet, share experiences, present research, and exchange ideas.

**October 19-23, 2002**  
**NORDICHI 2002**  
**Aarhus, Denmark**  
<http://www.nordichi.org/>

NordiCHI is the main Nordic forum for human-computer interaction research. NordiCHI is the meeting place for researchers from academia and industry, designers, practitioners, educators and others from a broad range of traditions and communities; therefore the conference takes HCI in the non-limited sense of research and practice addressing the design and use of interactive technology.

**January 21-23, 2003**  
**Stereoscopic Displays and Applications XIV (2003)**  
**Santa Clara, California**

<http://www.stereoscopic.org/2003/cfp.html/>

This conference will focus on recent advances in stereoscopic imaging, covering topics such as 3D display hardware, developments in computer software and digital techniques, and applications that illustrate the user-interface issues and cost/benefit trade-offs of stereoscopic 3D displays. In both real-world and computer-generated imaging applications, stereoscopic 3D display technologies can enhance the user's ability to perceive objects in their correct spatial locations, to move through display space easily, and to manipulate objects efficiently and accurately. The parallel focus on human factors issues and applications requirements is intended to guide future display system development and task-based evaluation of 3D technologies. The conference will bring together practitioners and researchers from industry and academia to facilitate an exchange of current information on stereoscopic 3D techniques and applications. Hardware demonstrations of 3D technologies and applications are highly encouraged at the demo session following the paper presentations. Facilities for large-screen stereoscopic projection (both still and video) will be available for the presenters.

**March 22-26, 2003**  
**Virtual Reality Conference 2003**  
**Los Angeles, California**

<http://www.vr2003.org/main.html/>

The HAPTICS Symposium will be held jointly with VR2003, making this event the premier international conference and exhibition in Virtual Reality Research and Technology and provides a truly unique opportunity to learn, share and interact with leading researchers and practitioners. You are sure to enhance your knowledge through exposure to the accomplishments and discoveries of your peers from around the world. And of course, there will be time to catch up with old friends, make new friends and take in the sights of sunny Southern California in the springtime! Paper deadlines not posted but the call is out!

**June 22-27, 2003**  
**10<sup>th</sup> International Conference on Human Computer Interaction**  
**Heraklion, Crete, Greece**

<http://hci2003.ics.forth.gr/index.html>

You are cordially invited to participate in HCI International 2003 and the affiliated Conferences, which are jointly held under one management and one registration. The Conference aims to provide an international forum for the dissemination and exchange of scientific information on theoretical, generic and applied areas of HCI. This will be accomplished through the following modes of communication: plenary presentations, parallel sessions, poster sessions, tutorials, workshops and other meetings of special interest groups.

## Becoming a Member

### **Virtual Environments Technical Group**

Dues paying members are emailed a notice when a new issue of *Virtualnomics* is published. You become a dues paying member by sending a check for \$5 (per year) to:

Human Factors and Ergonomics Society  
P.O. Box 1369  
Santa Manica, CA 90405-1369  
Phone 310-394-1811  
Facsimile 310-394-2410

The VETG also maintains a mailing list. The mailing list is used for general announcements and requests for submittals to *Virtualnomics*. You may join this by sending your email address to Ronald Mourant at: [mourant@coe.neu.edu](mailto:mourant@coe.neu.edu)

### **Human Factors and Ergonomics Society**

The Society's mission is to promote the discovery and exchange of knowledge concerning the characteristics of human beings that are applicable to the design of systems and devices of all kinds. Visit the [HFES website](#) for more information or to become a member.