Virtualnomics
Newsletter of the Virtual Environments Technical Group
January 2000

Purpose

The Virtual Environments Technical Group (VETG) is concerned with human factors issues associated with human-virtual environment interaction. These issues include maximizing human performance efficiency in virtual environments, minimizing health and safety problems, and circumventing potential social issues through proactive assessment.

Joining

To join the Virtual Environments Technical Group please contact the Human Factors and Ergonomics Society, P.O. Box 1369, Santa Monica, CA 90406, U.S.A. Dues are $5 per year. Dues paying members receive notice of newly published newsletters. You do not have to be a member of the Human Factors and Ergonomics Society to join. You can be placed on our email mailing list (at no charge) by sending your email address to: mourant@coe.neu.edu.

Newsletter Review

Seasons greetings and welcome to this edition of the Virtual Environments Technical Group Newsletter. I am the new newsletter editor, and it my hope to provide you with exciting, and meaningful, bits of information concerning the wide range of events occurring in the virtual environment community. Let me introduce myself. I am a Product Development Specialist with DaimlerChrysler Corporation in Auburn Hills, Michigan. While at DaimlerChrysler, I have previously been involved in the development and integration of simulation technology within the product development and manufacturing processes. Although I am not actively involved in these activities in my current duties, I have maintained an interest in the area. As an Adjunct Assistant Professor in the Automotive Engineering Program at the University of Michigan, I have used the concepts and applications of virtual environments to expose students to how the automotive industry is being impacted by virtual environments now, and in the future.

You will note that this newsletter is quite different from previous editions. Given our web-based presence, we will attempt to exploit the advantages of this medium. With this newsletter, which will be published on a quarterly basis (our goal), you will note the inclusion of more graphics, mail links, and links to other web sites to detail research, resources and other virtual environment related entities. In this column, I will provide you with a summary of the newsletter, and its key highlights. Along with this section, the newsletter will typically have these basic sections:

Chair’s Corner - written by the chair, in this case Geb Thomas. In this edition, Geb reviews some of the items discussed at our technical group meeting, held during the HFES Annual Meeting in Houston. News and Notes - the body of the newsletter, with information, announcements, etc. This edition summarizes the VETG meeting. Eye On Research - highlight of a research project, center, etc., involved in virtual environments related research. This edition spotlights the Virtual Reality Applications Center (VRAC) at Iowa State. Coming Events - listing of upcoming conferences, call for papers, etc.

As the newsletter editor, my ability to produce a meaningful, exciting newsletter is dependent upon receiving input from the VETG community. So we need news articles from you. Therefore, if you have virtual environment related web sites, research projects, laboratories, RFPs, special interests, call for papers, upcoming events, promotions, activities, announcements, appointments, editorials, etc., or if you know of any newsworthy items in the virtual environments field, or a newsworthy tidbit about yourself, please submit them to me, as your input is invaluable to the success of our newsletter.

Take care
Deborah Thompson, Ph.D.
DaimlerChrysler Corporation
(plumb@plumb-ascension.com)
Chair’s Corner

Thanks to the efforts of our current and future officers and to the strong support from our membership, our technical group continues to grow and prosper. Our membership has grown by 10% (as of the annual conference there were 230 members, compared with 208 at the end of last year); our savings have grown by 70%. We have filled our officer positions for next year and are building a consistent pipeline for publishing our group’s newsletter.

For the next year, I suggest that we focus on increasing membership and services through web-based technology and by eliminating the membership fees to the technical group. At our last technical group meeting (HFES Annual Meeting, Houston, TX – 9/29/99), we discussed the possibility of reducing or eliminating our annual dues, given that we are receiving faster than we are spending. One suggestion was that student membership should be free. Unfortunately, after checking with the central office, I have learned that this would be very difficult to implement since there is no mechanism for a differential TG dues structure for different classes of membership. Adopting this approach would potentially increase the central office’s record keeping and accounting costs. If you would like me to pursue this with the executive council, please let me know. It may be more expedient, however, to reduce the membership fees to zero for a few years, until all the funds are used, then reassess this fee structure when (and if) necessary. The Internet Technology Group, for example, has no fees. This allows it to permit potential members to simply join on-line for their technical group’s many web-based offerings. Technical group members do not need to be members of HFES to be members of a technical group. Allowing people to join on-line presents an important opportunity to increase our visibility among researchers who are not primarily Human Factors people, but who do relevant and important work with Virtual Environments. As it currently stands, our potential allies may believe they would need to pay $130 to join the society, plus $5 to join the technical group. By accepting that we do not really have any operating costs except lunch at the Annual Meeting, which we could do without, we can create a policy of openly sharing membership with any and all interested individuals.

A strong web-based presence that focuses on providing services such as lists of research laboratories, bibliographies of current research topics, and links to other virtual-environment related information sources, would inexpensively provide a potentially valuable service to our current members and attract new members to our group. This would represent a large (and visible) commitment from our webmaster and from you to provide content and ensure quality. We will be rewarded, however, by building ourselves a visible, vocal technical group that promotes excellent research in virtual environments.

And now, a bit of business required by our society’s by-laws.

As of November 10th, our current and future officers are:

Geb Thomas (geb-thomas@uiowa.edu), Technical Group Chair
Ronald R. Mourant (mourant@coe.neu.edu), Technical Group Chair Elect
W. Todd Nelson (Todd.Nelson@he.wpafb.af.mil), 2000 Program Cochair
Ronald R. Mourant (mourant@coe.neu.edu), 2000 Program Cochair
Steven Murray (murrays@spawar.navy.mil), 2001 Program Chair
Deborah Thompson (plumb@plumb-ascension.com), Newsletter Editor
Ronald Merryman (ronald.merryman@usafa.af.mil), Webmaster

The finances of the technical group, as of the annual conference are:

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If you have any questions or concerns regarding the Virtual Environments Technical Group, please do not hesitate to contact me.

Stay real.
Geb

Dr. Geb Thomas
News and Notes

The Virtual Environments Technical Group (VETG) meeting was held at the HFES Annual Meeting in Houston, TX on September 29, 1999. Some of the main highlights of the meeting included:

Newsletter
According to HFES bylaws, we need to publish 3 newsletters/year to remain in the society. In order to help achieve the objective, a VETG newsletter editor is needed. Deborah Thompson has agreed to become newsletter editor.

There was some discussion about soliciting virtual environment related product manufacturers to serve as sponsors of the newsletter, which would also provide them a forum to market their products. This discussion, and the search for newsletter sponsors tabled until next meeting.

Old Business
Last year there was talk of a student design contest. There has been no movement on this, and the issue was declared dead.

VETG Taxonomy
The HFES is trying to develop a taxonomy of specialties in order to fairly identify experts within each technical group. Members who are interested in responding to requests can then identify themselves within this taxonomy. For the VETG, some of the following classifications of virtual environment expertise were suggested:

Human Performance in Virtual Environments
Health and Safety in Virtual Environments
Social Implications of Virtual Environments

Discussion
The bulk of the meeting was devoted to unstructured discussion on how to generate more academic and industry interest in the HFES VETG. The few number of people in attendance at the meeting (approximately 10-12) was given as an example of the weakness of the group. The conversation also revolved around the perceived lack of applicability of VETG research to end users concerns, and that more applied research might better serve the interests of the group. Others believe that the pure research of the group should be left untouched, and that VETG should focus on referencing, documenting, and sending research findings into industry. Geb Thomas voiced a fear that VE/VR research would suffer the same fate as AI research in the early 90s: research promises to solve many problems, yet does not help solve the problems of the end user, so public interest wanes. Others discussed a need to distinguish VETG from other VE/VR groups (IEEE VR, SIGGRAPH, SIGCHI, etc.) as the group that specifically investigates human aspects and interactions with the VE/VR. A suggestion was for ‘joining forces’ with these other leading VE/VR research groups, perhaps staffing a booth at IEEE VR, SIGGRAPH, or SIGCHI.

The group agreed the taxonomy should be structured in way to address these concerns. “What are the areas of future development we want in the taxonomy?” Should contact individuals in VE/VR industry to discover where the research might be applied. Perhaps find sponsors (VE/VR product manufacturers) for the VETG, and investigate why they do not exhibit at the HFES conference, and what would be necessary to make the VETG, in general, and HFES as a whole, more relevant to their interests and needs.

Eye On Research

Virtual Reality Applications Center (VRAC)
Iowa State University

The Virtual Reality Applications Center (VRAC), formerly known as the Iowa Center for Emerging Manufacturing Technology, is an interdisciplinary research center at Iowa State University. Founded in 1990, VRAC has grown rapidly, drawing faculty and students from a variety of academic disciplines. VRAC’s mission is to be a national leader in the application of virtual reality to the challenges of science and engineering. VRAC’s engineers and scientists collaborate with industry and government colleagues on a wide variety of exciting and challenging problems. Research focuses on many topics including virtual prototyping, virtual manufacturing and assembly, data mining and human-in-the-loop real-time simulations.
The Center’s most immersive environment is the C2 virtual reality room, which surrounds the users with real-time 3D images on three walls and the floor. In early 2000, VRAC will celebrate the opening of the C6. This virtual environment will consist of a room where all sides, ceiling and floor will be stereo projection surfaces. Wireless tracking will provide total immersion in the virtual environment. The C6 will provide an endless field of view for research that requires evaluating virtual objects from above and below or for continuous 360 degrees of viewing. VRAC also has other virtual reality resources consisting of a variety of computer systems, head-mounted displays and interaction devices including trackers, instrumented wands and gloves, vehicle and aircraft bucks and a motion base for real-time simulation.

For more information, please contact the VRAC office at 515-294-3092 or visit their web page at http://www.vrac.iastate.edu/.

Coming Events

June 6-8, 2000
Hyatt Regency
Dearborn, Michigan, USA

Mission of SAE G-13 Digital Human Modeling Technical Standards Committee

Develop, maintain, distribute, and promote an SAE standard for human modeling technology that will support the computer-based simulation of human actions required for equipment operation, production, and maintenance for the purpose of influencing equipment design so that products perform more effectively, are more responsive to user requirements, and are less costly to design, produce, maintain, and operate than current ones.

The third SAE conference and exposition on Digital Human Modeling is organized to address research, development, and applications of this important area of technology to aerospace and ground vehicle professionals from around the world.

Technical advances in digital human modeling have made a significant impact on design and manufacturing in the automotive, aerospace, and defense industries. This event provides an international forum for the exchange of current and future developments, and applications within these industries.

Who Should Attend:

A vertical-interest audience of more than 400 mobility industry managers, designers, scientists and engineers of the following technologies: Ergonomic and engineering analysis Human activities in complex systems Human modeling database and definition systems Software development of human models

10-14 July 2000
The Camelback Inn Resort
Scottsdale, Arizona

Innovative Modeling & Advanced Generation of Environments

IMAGE 2000 CONFERENCE
"3D TECHNOLOGY CONVERGENCE in the NEW MILLENIUM"

Sponsored by
The IMAGE Society Inc.
EMAIL: Image@asu.edu
WEB SITE:
http://www.public.asu.edu/~image

The Conference

The IMAGE (Innovative Modeling & Advanced Generation of Environments) Conference, first held in 1977, is sponsored by the IMAGE Society Inc., a non-profit, professional association for the advancement of the technologies used to create, sense, operate, and navigate computer generated virtual environments.

Theme: "3D Technology Convergence in the New Millennium"

IMAGE 2000 focuses on the rapidly increasing convergence of advanced 3D technologies (sound, motion, haptic, etc. with an emphasis on visual) used in creating enriched virtual environments into widespread application areas including (but not limited to) training, education, entertainment, recreation, communication, medical simulation & training, vehicular design
and operation, networked simulation, etc. All of our sensory data exist in 3D not just vision, e.g. 3D sound - "surround sound", 6 degree-of-freedom motion systems, olfactory - "where is that smell coming from?" etc. Just as the public became dissatisfied with black & white motion pictures/TV with the advent of color, today's end users of virtual environments will not remain satisfied operating in 2D virtual worlds with the promise of total 3D lying on the horizon of the new millennium. In addition, our simulated environments are still far from the technical quality necessary to achieve anything near total 3D realism. For example, visual simulation technology is still struggling to meet the field-of-view and acuity requirement of the human eye. Ultimate end user satisfaction will only occur when one cannot tell the difference between a virtual environment and reality.

Although IMAGE still has its primary focus on advancing visual simulation technologies (for vision is our overwhelmingly predominant sense in perceiving our environment), and although it is a necessary condition for realistic simulation, it in itself is not sufficient to provide virtual environments adequate in which to conduct numerous applications e.g. surgical simulation which requires haptic, vehicular simulation which requires motion, etc. Only through the enrichment of realistic visual environments with the addition of ultra high quality 3D simulation of all of our other senses will the ultimate goal of attaining "true virtual reality" be attained.

IEA 2000 / HFES 2000
July 30 - August 4, 2000
San Diego Marriott Hotel and Marina

The 14th Triennial Congress of the International Ergonomics Association (IEA), will be held in conjunction with the 44th Annual Meeting of the Human Factors and Ergonomics Society (HFES) resulting in a gathering of an international audience composed of human factors/ergonomics professionals from around the world.

Represented will be 37 IEA federated and affiliated societies representing more than 50 countries. In combination with HFES, it is anticipated that more than 2500 people will attend, which will make IEA 2000/HFES 2000 the largest human factors/ergonomics professional meeting ever held anywhere in the world! So mark your calendar: July 30 through August 4, 2000 at the beautiful San Diego Marriott Hotel and Marina.