

Review

INSTITUTE for SIMULATION & TRAINING

NEA video to include IST education research projects

IST and the College of Education at UCF in November cooperated on a National Education Association (NEA) video presentation for NEA members nationwide. The goal of the NEA CDROM project is to tell its members about the latest technology advances in education.

NEA producer James Hristakos visited IST to tape several of the institute's computer-based distributive education projects. Saying he was impressed by the range of research activities conducted at IST, Hristakos videotaped additional activities not originally planned for the NEA production. The institute is developing the programs and updating teachers with the skills needed to access lessons over the Internet.

For the NEA visit, IST set up a demonstration classroom using College of

Education doctoral students as subjects. Hristakos taped segments of an actual workshop conducted for the doctoral students, all master teachers with experience in curriculum development and evaluation. Senior Research Scientist Jim Parsons led the workshop.

Parsons demonstrated how students can use empirical knowledge gained from the simulated environment to solve problems or interact with the instructor. The demonstration workshop setting allowed IST to receive valuable feedback on IST products.

IST Senior Educational Technologist Julia Medin, Ph.D. learned of the NEA video project during a meeting with NEA administrators. Dr. Medin suggested including IST's advanced research in education technology.

"We are excited about the opportunity to extend modeling and simulation applications into the classroom," said Dr. Medin. "We are just as

See "NEA Video" on pg.4

Video for National Education Association will include IST projects.

Medin to leave IST

Louis Medin will step down in February from his post as IST Executive Director.



He will remain a consultant to UCF on Dept. of Defense and government funding matters for the coming year and plans to retire in February 2000.

Dr. Medin has guided the Institute since 1987 and is credited with making IST an academic cornerstone of the simulation industry, the majority of which is located in Central Florida.

Dr. M.J. Soileau, Interim Vice President, Office of Sponsored Research, said Dr. Medin's "knowledge and vision in building a national and international capability in simulation for UCF will long

See "Medin" on pg.4



Inside this issue

Page 2:
Beowulf power for IST project

Page 2:
Researchers to create spaceport

Page 2:
Information Technology Center gets "Hammered"

Page 3:
I/ITSEC: A year end focus

Page 3:
IST demos at SIGGRAPH 98

Research team to create spaceport vision of the future



IST researchers recently became part of a team that will conceive a revolutionary design for a commercially viable spaceport for next-generation launch vehicles. The Vision Spaceport team includes the Ames Research Center, Boeing, Command and Control Technologies, Lockheed Martin and artist Pat Rawlings.

IST will provide a "visualization module" to aid understanding of and interaction with the Vision Spaceport Core Model. Under the NASA/Kennedy Space Center Joint Sponsored Research Agreement, IST must provide a proof of concept demo in January. On acceptance of the initial work further research is expected to continue through 1999.

A launch vehicle this for spaceport has yet to be built, but NASA is negotiating research and design contracts with the nation's top aeronautical companies.

The NASA Vision Spaceport project team, also known as the Spaceport Synergy Team, will develop an automated model spaceport to help commercial entities estimate the time and cost to launch the new vehicles.

Dr. Ron Hofer and Jim Parsons are principal investigators on this project.



See "Beowulf" on pg.4

Beowulf cluster will bring "Supercomputer" power to bear on IST project

IST Visual Systems Lab Research Associate Guy Schiavone, Ph.D., is anticipating the purchase and installation of a 16-node, 32-processor Beowulf "supercomputer" cluster. The project was initiated with I-4 Corridor Grant program funds. The low-cost, off-the-shelf parallel processing hardware will be used to generate high-fidelity renderings and animations in support of the U.S. Army-sponsored Advanced Tactical Engagement Simulation Science and Technology Objective (A-TES STO).

A Beowulf cluster is a set (usually 8, 16, 32 or 64) of small computers linked with a local area network and an operating system. The setup takes advantage of parallel processing to dramatically increase computation speeds. In the classification of parallel computers, Beowulf

Information Technology Service Center gets "Hammered"

The Information Technology Service Center (ITSC) in January was presented Vice President Gore's Hammer Award for reinventing government. ITSC and IST share the honor with the Naval Air Warfare Center Training Systems Division.

Robert Reed, Program Manager for Information Technology, and Tammie McClellan, Data Administrator, accepted the award for ITSC during a ceremony held at the Pentagon.

The Hammer Award is presented for contributions to better government resulting from a team effort. Only teams of federal employees or federal agencies working with a state, local or private entity are eligible for award consideration.

The award consists of a \$6.00 hammer, a ribbon and a note from the Vice

President, all encased in an aluminum frame. The hammer is a reminder of the \$400 hammers and other high-priced components of many past government contracts. The award recognizes teams that devise ways to make government operate more responsibly with better service and less red tape.

The ITSC-Navy award is for advances in computerized information-sharing services.

Working with the Navy, Reed and McClellan designed and maintain the Internet-based Office of Training Technology (OTT) "Seamless Product Information, Data Exchange and Repository, or SPIDER. The system has become the Navy's premier on-line resource for the exchange of training technology data.



IST Review

Published by the Institute for Simulation and Training, a research unit of the University of Central Florida, 3280 Progress Drive, Orlando, FL 32826

Executive Director: A. Louis Medin

Phone: (407) 658-5000 Fax: 658-5059
www.ist.ucf.edu

I/ITSEC was a major year-end focus

Feature

IST was a major player at the December 1998 Interservice/Industry Training, Simulation and Education Conference (I/ITSEC) held at the Orange County Convention Center. I/ITSEC is oriented toward military applications for simulation technology and is sponsored by the National Training Systems Association. IST was an exhibitor and also contributed to the education and training sessions during the four-day conference.

IST Director, Dr. A. Louis Medin, chaired conference tutorials on *High Level Architecture*, *Air Force Modeling and Simulation Organization*, and *Live Fire Testing and Training and Lessons*

Learned. Dr. Julia Medin, Sr. Ed. Technologist, chaired *A Simulation Agenda for the Army after Next* and *Research and Development Utilizing Full Mission Shiphandling Simulation*. The Drs. Medin served as Academic Advisors for the conference.

Dr. Ron Tarr, IST Program Manager for Education and Training, presented a tutorial, *Modeling and Simulation: MS 101*, at one of the sessions.

Institute researchers presented a variety of technical papers at the conference. Two were among the nominees for Best Paper:

- Dr. Rodney Rogers, Gary Green and Michelle Sartor of IST co-authored *A Realtime Simulation Benchmark Suite for Testing Low Cost Visualization Systems* with Pam Woodard of the U.S. Army's Simulation, Training and Instrumentation Command (STRICOM) ("Best Paper" nominee).
- James Parsons, Kimberly Parsons, Glen Martin, Jason Daly, Bryan Kline, and Matthew Weaver co-authored *Fully Immersive Team Training: A Networked Testbed for Ground-Based Training Missions* with Army Research Institute (ARI) researchers, Bruce Knerr, Don Lampton

and David Russell.

Also presenting papers were Douglas Wood and Dr. Mikel Petty, *A Taxonomy of Multiple Federation Executions*; Stephen Schricker, Robert Franceschini and Dr. Amar Mukherjee, *Feasibility of Hardware-Based Computer Generated Forces for Embedded Training*; Dr. Thomas Clarke, *Simulation's Ultimate Challenge*; and Kimberly Parsons and James Parsons, *Recommendations for Using Virtual Environments for Dismounted Soldier Training*.

Fresh from its popular engagement at the graphic arts technology conference, SIGGRAPH 98, (see below), the Visual Systems Lab's immersive team training testbed reappeared at I/ITSEC. This time, however, the VSL demonstrated its Fully Immersive Team Training research. The Army Research Institute has sponsored a series of human factors psychology and training experiments related to VE training for dismounted soldiers. Data from IST test sessions continue to provide insight into the effectiveness of virtual reality training concepts.

Also represented at IST's booth was the Performance Technology Group, created to focus on the application of emerging technology to enhance productivity and performance. Dr. Ron Tarr is Program Manager.

An example of the institute's accomplishments in High Level Architecture Gateway development rounded out the



See "I/ITSEC" on pg.4

IST demos VSL Progress at SIGGRAPH 98

SIGGRAPH 98, a trade show for state-of-the-art research in applications for computer graphics professionals, became a platform for IST demonstration exhibits.

In July the institute presented a portion of its cutting-edge virtual environment (VE) research at SIGGRAPH 98 using the theme, "Media & Mythology." Senior Research Scientist of Visual Sys-

tems Kimberly Parsons was executive producer for the exhibit. James Parsons, Visual Systems Scientist, developed the concept and served as creative director.

Staff from every corner of IST pitched in to support Media & Mythology, produced with the assistance and cooperation of the University of Central Florida Digital Media Program, CREAT. The exhibit included a virtual maze

employing immersive team training simulations developed under Army Research Institute (ARI) sponsorship. IST exhibitors also demonstrated research in educational applications, simulator interoperability and geometric correlation, visual database research and enhancements, including conversion tools, and the use of low-cost graphics systems in simulation.



Short Takes

IST on FDoT 3D Symposium itinerary

IST is on the field trip itinerary for transportation professionals attending the "3D in Transportation Symposium and Workshop" scheduled for May 26 through 29 in Orlando. Approximately 80 are anticipated for the May 26 tour.

The institute is part of the university's Center for Advanced Transportation Systems Simulation (CATSS), established June 1998 by the federal Transportation Equity Act for the 21st Century (commonly referred to as "TEA21"). CATSS is a partnership among UCF, Florida State University and the National High Magnetic Field Laboratory (Tallahassee). Offices are in the university's Civil and Environmental Engineering Department.

"3D" is an internationally attended gathering emphasizing 3D computer visualization and simulation technology. The 1999 symposium will investigate the potential of visualization technology from two angles: (1) life cycle collaboration of spatial data and (2) public involvement. The Transportation Research Board and Florida Department of Transportation are organizers of the symposium. IST Deputy Director Brian Goldiez is point of contact.



"Beowulf", from pg. 2

clusters fall somewhere between massive parallel processor computers such as the Cray T3E and simple networks of workstations.

The technique of clustering personal computers to achieve cost-effective high performance was conceived in 1994 at CESDIS, the Center of Excellence in Space Data and Information Sciences at the University Space Research Association, Goddard Space Flight Center. A cluster can be as small as two computers. At the November Supercomputing '98 conference in Orlando an "inexpensive" (\$1.8 million) cluster of 192 motherboards and 12,288 processors achieved speeds equal to supercomputers with price tags ten times higher.

Dr. Schiavone and other IST researchers working in the Distributed Simulation Group will build the relatively modest 16-node cluster and use it to render visualization animations of tactical engagement simulation technology options. Dr. Schiavone also will study the feasibility of implementing high-fidelity physical models of ultra wide band radar to track player time-space-position information in a simulation.

The project team hopes to have the Beowulf cluster operational and begin A-TES STO work in IST's Distributive Simulation Lab in the first quarter of 1999.



"NEA Video", from pg. 1

pleased with the opportunity to inform NEA members of the institute's education emphasis."

According to Dr. Medin, a great deal of research supports the use of this technology as an effective learning tool. Advances in communications technology and research into transferring data among different systems-much of it conducted by IST-have enabled teachers to teach more effectively and students to learn better, even over long distances.

"We're not limiting ourselves to the classroom" Dr. Medin said. "Simulation technology has application over a wide range of education opportunities and over a wide range of learning levels, from the most basic remedial tutorials to advanced training situations. Now, the distance between student and instructor is less of a factor."

Points of contact are Dr. Julia Medin and Jim Parsons.



"Medin", from pg. 1

be revered."

He brought national awareness to UCF's fledgling simulation research efforts, said Joe Wallace, executive director of Central Florida Research Park, where IST is located. Partly due to Dr. Medin's efforts the Army, Navy and Airforce have a major simulation and training presence in the research park.

An interim director will lead the Institute while the university conducts a nationwide search for a new head.



"VITSEC", from pg. 3

booth's displays. IST's HLA research is sponsored by STRICOM. Douglas Wood is Principal Investigator on the project.

IST's exhibit on the convention center floor was made possible with the help of the National Center for Simulation, sponsor of the booth. Sharing the booth

with IST were Enterprise Florida, the University of Central Florida, the I-4 High Tech Corridor Council, the Economic Development Commission of Mid Florida, Central Florida Research Park, Florida Power Corporation and Simulation Systems and Applications, Inc.



University of Central Florida
Institute for Simulation & Training
P.O. Box 25000
Orlando, FL 32816

**NON-PROFIT
ORGANIZATION
U.S. POSTAGE PAID
PERMIT NO. 3575
ORLANDO, FL**