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EOT-PACI Members Present Computing Insights at Educause '99

LONG BEACH, Calif. -- Leading members of NPACI's [Education, Outreach, and Training](#) (EOT) thrust area held a panel discussion October 29, as part of [Educause '99](#), the annual conference on information technology in higher education.

The panel, titled "[Super-Partnerships: Computational Science Curricula, High Performance Computing and the Professional Organizations](#)," consisted of three presentations. The [first presentation](#), delivered by Kris Stewart, director of the [Education Center on Computational Science and Engineering](#) at San Diego State University, was "Building a Faculty Community to Support Curriculum Development in Computational Science and Engineering." The focus of the Education Center is to build a comprehensive educational infrastructure to support the incorporation of high-performance computational science tools into undergraduate education. Through SDSU's Faculty Fellows program, collaboration with NPACI and NCSA researchers, in-house project development, and various outreach efforts, the Ed Center has established an environment encouraging the curriculum enhancement in sciences and engineering with modern simulation and visualization technologies.



Eric Frost, professor of geological sciences at San Diego State University (SDSU), and Kris Stewart, director of SDSU's Education Center on Computational Science

and Engineering, at Educause '99, the annual conference on information technology in higher education

This was a summary presentation on what faculty could accomplish, Stewart said. "The Faculty Fellows program was developed to provide buy-out time for NPACI technology," she said. "The program encourages conversation between faculty members--not only between different departments, but between different colleges. Faculty are usually trained to talk only to people in the niche of their discipline, so this is different."

Initiated by the Ed Center, the Faculty Fellows program provides release time to faculty members who work on changing their regular courses to include computational approaches. This support allows the faculty fellows to use various compute-intensive approaches in undergraduate teaching ranging from interpretation of satellite imagery and Web-based collaborative visualization of large geological data sets, to the exploration of the Network of Workstations (NOW) distributed architecture implemented on a cluster of SUN workstations at SDSU's College of Engineering, to investigating new Web-based 3-D visualization strategies for geographic data in an experimental class composed of geographers and computer scientists. The synergy developed through a series of faculty fellows meetings and discussions at the Ed Center, has resulted in collaborative research projects involving faculty from different colleges. "It's a very interesting thing when you get people talking to each other who wouldn't normally talk to each other," Stewart said. "It fosters camaraderie. The program is an example of working within the system."

The [second presentation](#) in the panel was "Repositories and On-line Tools," given by Roscoe Giles, deputy director of the [Boston University Center for Computational Science](#), a partner of the National Computational Science Alliance. "We are moving from static data repositories to 'workbenches' and 'portals,' designed to support science and education more effectively," Giles said. "One of the goals of the presentation was to stimulate useful discussions of requirements and design goals for new tools."

In particular, the [Biology WorkBench](#) has served as a successful prototype of several aspects of a scientific portal: availability of a wide variety of data and computational tools, persistent user state, and behind-the-scenes translations of data formats. "The WorkBench allows biologists to search many popular protein and nucleic acid sequence databases," Giles said. "Database searching is integrated with access to a wide variety of analysis and modeling tools, all within a point-and-click interface that eliminates file format compatibility problems."

Giles also discussed the expected impacts of newer Web technology such as XML on the efforts to build effective computational science repositories. XML gives us a framework for organizing and exchanging data of all types. Led by efforts like NPACI's Mediation of Information using XML (MIX) project, scientific communities are beginning to put their information resources in machine readable form on the Web.

The [third presentation](#) by Ilya Zaslavsky, a staff scientist with the NPACI Education Center at SDSU, was "Sociology Workbench, an Analytical Interface to Distributed Resources for Social Scientists." The [Sociology Workbench](#) (SWB) is a collection of on-line computational tools and resources for social scientists that allows faculty and students to share and analyze social science data (questionnaire surveys, public opinion polls, and similar data) on the Web. "It's a project that would appeal to diverse groups of users at SDSU and beyond, introducing them to distributed computing and Web-based analytical applications," Zaslavsky said. "We envisioned that faculty would be able to use the Sociology Workbench in classes involving survey data analysis, like psychology or sociology. Faculty and students would be able to share analytical access to information in an interactive fashion. Not only would they be able to access surveys already formatted within SWB, but they would also be able to add their own data sets and examine and share them with SWB."

"In essence, it is a free, on-line statistical package implementing a unique data analysis methodology," Zaslavsky said. "I think SWB's got far-reaching potential, due to its very simple interface, transparent analytical tools, and its integration with the Web. "Educause is a very good forum for showing things like this because it has a good combination of educators and vendors."

About Educause

The mission of Educause is to help shape and enable transformational change in higher education through the introduction, use, and management of information resources and technologies in teaching, learning, scholarship, research, and institutional management. --*AV*

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