

Resources

News

NeXT scientist wins Computerworld Smithsonian Award

NeXT Computer chief scientist, Richard Crandall was awarded the 1991 Computerworld Smithsonian Award in the Science category. Crandall received the award for a software program called Zilla, the "community supercomputer" that bestows supercomputer capability onto preexisting networks of workstations. Zilla "recycles" the power of a network of workstations by using those computers whose owners are not using their machines. The Computerworld Smithsonian Award program honors individuals "who have achieved outstanding progress for society through the visionary use of information technology."

"Distributed network computation is nothing new, but Zilla is unique in two ways," says Crandall. "It's a convenient, friendly application that brings the benefits of supercomputing to users across many fields, from art to physics, who are not necessarily expert programmers and systems people. Second, Zilla is smart and polite, able to detect human presence on NeXT workstations, by backing away when a person returns to use a machine."

Zilla can reach Cray-level supercomputer speeds on some problems by distributing pieces of the problems to computers, running separately and often at different times. A network of 100 NeXTstation computers, for example, performs like a supercomputer but costs less than ten percent as much to purchase and requires far less electricity and maintenance to operate.

Zilla is well-suited for a wide range of problems in areas such as analyzing large numbers, doing quantum-theoretic calculations, modeling black hole collapse or weather patterns, designing new medicines, simulating a living brain, creating synthetic movies by making one frame per machine, or generating symphony orchestration, with one instrument synthesized per machine. Zilla has already made four numerical discoveries that are important in the world of advanced mathematics.

Mills College hosts second NeXT workshop for humanists

Participants of the Liberal Arts Multimedia Exploration Project, sponsored by Mills College, University of California at Berkeley, and Reed College, met June 21-22, 1991 at Mills College. The meeting served as a follow up to last year's workshop on developing NeXT courseware for the humanities and fine arts. Attendees met this year to demonstrate their courseware and share experiences over the past year as NeXT courseware developers.

The group first met in June 1990 to begin a year-long development project. Fifteen faculty participated based on courseware proposals; no experience with NeXT computers was required. At the workshop faculty became familiar with NeXT computers, scanning and sound equipment, and development tools—MediaStation and Interface Builder. By the end of the week, participants presented prototypes and left the conference with a goal: to create a courseware module to show at a follow-up meeting in the summer of 1992.

More than 75 percent of the participants returned for this year's workshop. Over the course of the year, faculty became further acquainted with NeXT development tools, and mastered scanning and sound digitizing techniques. Some attended NeXT developer camp; others employed student assistants. In most cases, the multimedia capabilities of NeXT computers suggested new ways to convey information with interactive sounds, images, and text working together.

This year, faculty demonstrated their courseware and discussed their development decisions. Gary Greenberg of Northwestern University decided to move from MediaStation to Interface Builder for developing his courseware module on the composer Anton von Webern. Greenberg created a MediaStation archive of photographs and biographical information on Webern, and used the NeXT Music Kit to navigate through Webern's recordings. To use the Music Kit, he learned to program using Interface Builder.

Peggy Wheeler from Allegheny College also used MediaStation to develop a multimedia archive about the opera Don Giovanni. Wheeler digitized sounds and images from variety of scenes. Using the archive, she is able to isolate particular passages, play them back, and explain to students what each passages symbolizes. She can also play them in the proper order to show how different musical passages work together to express social class conflicts.

The faculty are excited by what they accomplished in a single year. The project organizers and participants plan to sponsor similar conferences in the future and hope to design a conference that trims development time even further. The participants feel that first-time developers can learn to develop courseware over one summer and have the courseware modules available for classes the following fall.

***Mathematica 2.0* now shipping for NeXT**

NeXT Computer, Inc. announced that *Mathematica 2.0*, a significantly enhanced version of the popular system for doing mathematics by computer, began shipping in August for NeXT computers. NeXT bundles a copy of *Mathematica* with all of its computers sold to education users in North America.

Mathematica 2.0 adds 283 functions to its 1.0 predecessor for a total of 843, including the ability to solve numerical differential equations. *Mathematica 2.0* offers a Notebook front end tuned for the NeXTstep graphical user interface, in which users can integrate text, animated graphics, sound, and math. The addition of sound capabilities is a feature that allows users to hear as well as see their mathematical functions. *Mathematica 2.0* on the NeXT platform also provides users with the ability to create custom *Mathematica* applications. Users can write custom front ends to the *Mathematica* kernel, thereby creating programs designed for specific needs.

All NeXT users who received *Mathematica 1.0* or 1.2 with NeXT's Software Release 1, will receive *Mathematica 2.0* if they have sent NeXT the upgrade card included with NeXT's Software Release 2. Education users running Release 2 on any of NeXT's 68040-based workstations, can obtain *Mathematica 2.0* from their campus resellers.

PhaseScope 1.2 available

PhaseScope 1.2 is available via FTP from [sonata.cc.purdue.edu](ftp://sonata.cc.purdue.edu/pub/next/2.0-release/demos/PhaseScope_1.2.app.tar.Z) in [/pub/next/2.0-release/demos/PhaseScope_1.2.app.tar.Z](ftp://sonata.cc.purdue.edu/pub/next/2.0-release/demos/PhaseScope_1.2.app.tar.Z) and from [cs.orst.edu](ftp://cs.orst.edu/pub/next/demos/PhaseScope_1.2.app.tar.Z) in [/pub/next/demos/PhaseScope_1.2.app.tar.Z](ftp://cs.orst.edu/pub/next/demos/PhaseScope_1.2.app.tar.Z). Registered users can enable the demo with their user and host license keys.

Created by Michael J. Mezzino, Jr. of the University of Houston - Clear Lake, PhaseScope is a comprehensive user interface and general graphical display program for analyzing the solution and characteristics of systems of first order ordinary differential equations. PhaseScope is a front end to *Mathematica*.

PhaseScope was the first winner of the Impact Software Contest. For more information, see "PhaseScope energizes the study of mathematics," NeXT on Campus, Winter 1991. Please direct questions about PhaseScope or the Impact Software Contest to Impact Software Publishing, Inc.: impact@impact.shaman.com