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Virtual reality gets serious

Researchers find uses from car sales to Egyptology

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PITTSBURGH — Virtual reality, the whizbang technology capable of creating synthetic three-dimensional worlds, is struggling to move beyond its reputation as the new frontier for computer game players bored with joysticks.

The concept of computerized games in which players interact in a synthesized world is amazing — and potentially hugely lucrative. But virtual reality experts maintain that the complicated technology can be applied to much more.

Researchers at Carnegie Mellon University in Pittsburgh, with the support of corporate backers including Apple Computer Inc., Ford Motor Co. and Intel Corp., are developing applications for education, industry and pop culture.

"This is the first truly new medium since film," said Carl Loeffler, project director for telecommunications and virtual reality at the university.

Carnegie Mellon researchers have developed a virtual car show room for Ford Motor Co., which allows visitors to "see," "feel" and "drive" a new automobile.

They also have created a virtual museum into which people can look at artwork or even play in a fun house.

Researchers have developed the ability to network virtual reality applications across conventional telephone lines.

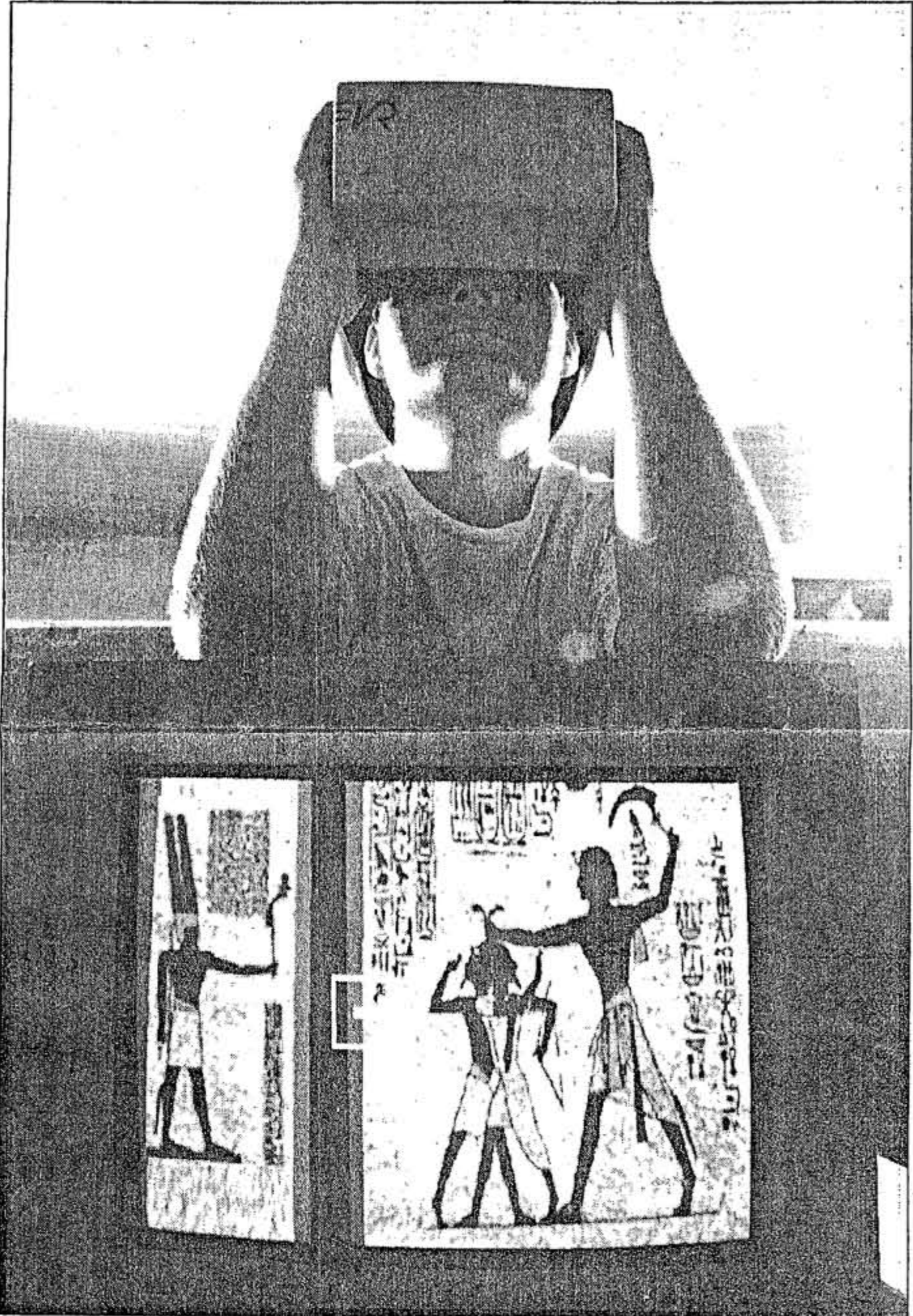
That means more than one person in the same room or even on different continents can experience virtual environments simultaneously and even see one another while they do it.

The Carnegie Mellon team this year simultaneously linked users in Pittsburgh, Germany and Japan to the museum application.

The researchers also are discussing a movie featuring virtual reality with George Romero, a director best known for the classic horror film "Night of the Living Dead."

But the application about which the Carnegie Mellon team currently is most enthusiastic is a "networked immersion environment" for education.

The project, funded by computer-chip maker Intel Corp., will create a virtual version of the ancient Egyptian Temple of Horus in Edfu.



Carnegie Mellon University student Phil Nemea enters the world of virtual reality, using a helmet and a computer to take him into a reconstructed Egyptian temple.

Although one of the best preserved temples in Egypt, the building today is only a shadow of its former self, besides being out of the reach of visits by most students, said Lynn Holden, an Egyptologist and project director for the virtual reality effort going on at Carnegie Mellon.

Computer experts from Carnegie Mellon and the University of Pittsburgh are applying virtual reality technology to actually reconstruct the huge temple inside a computer, with every stone and brightly colored art and hieroglyphics intact.

The temple also will include computerized renderings of works of art that have been taken from the ruins at Edfu and moved to museums and private collections around the world.

thousands of miles apart will be able, starting in October, to don virtual reality helmets, pick up computer controls or gloves and feel like they are walking inside the temple as it was millennia ago.

Virtual reality systems use headsets with advanced liquid crystal displays in front of the wearers' eyes, so they feel as though they are in a different world, driving fast cars, piloting space rockets or exploring an ancient temple.

Loeffler said the Royal Melbourne Institute of Technology in Australia, Keio University in Tokyo and the Banff Center for the Arts in Canada are among the centers that have agreed to participate

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—Carl Loeffler

in the Egyptian project, either by linking up and gaining access to the virtual temple or by housing one of the servers on which the project's software will reside.

Access to the project will be free, though CMU will receive a small licensing fee for the computer software needed to connect to the network.

And users won't need expensive computer hardware to participate. Loeffler said high-end microcomputers priced as low as \$1,500 can connect to the system.

Servers, the computers that actually run the software, will be computer workstations running the Unix operating system, such as those made by Silicon Graphics Inc., Digital Equipment Corp. and Sun Microsystems Inc.

Re-building an Egyptian temple inside a computer might seem like a risk of the wrath of ancient gods to some — what could be further from the secrets of the Sphinx that the world of cyberpunks and microchips?

But Holden, who has devoted much of his life to studying the ancient world, sees it differently.

Alluding to the quantities of painting, art and jewels left in temples, and Egyptians devotion to preservation through mummification, he said he thought followers of the Egyptian god Horus would be pleased by the researchers' work.

"They'd actually be on our side," he said. "That was the purpose of putting all this stuff in the temples and tombs, that people remember this and preserve it."