

InfoWorld

The Newsweekly for Microcomputer Users

April 5, 1982

Volume 4, Number 13

\$1.25

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ZGRASS opens new vistas for computer artists

By David Needle, IW Staff

CHICAGO, IL—Computer artists working in areas such as animation and video synthesis have usually had to negotiate access to expensive (\$80,000-plus) mini- and mainframe computer systems. Now the creator of a high-level graphics language called ZGRASS says he's developed a far less expensive system that costs about \$11,000 and is more interactive than the equipment video artists are used to dealing with.

ZGRASS was developed by Professor Thomas De Fanti of the information engineering department of the University of Illinois at Chicago Circle. Much of the groundwork for ZGRASS had been done previously in another graphics language De Fanti developed called GRASS (Graphics Symbiosis System). GRASS was designed to run on the university's PDP-11/45 minicomputer.

"ZGRASS falls somewhere between Pascal, Smalltalk, Lisp and BASIC. I've tried to take the best features of each one," explained De Fanti. "You don't have to deal with storage allocation because one third of the code is directly related to graphics. You can just say circle and you have one; you don't need an algorithm."

Words probably don't do the ZGRASS system justice; it is a visual and "nonstatic" medium. Describing the ineffable is a problem De Fanti is used to dealing with. "I've devoted my career to doing things you can't do in print—then I always get asked to describe my work," he said.

ZGRASS runs only on the UV-1 computer system. The UV-1 offers less reso-

lution and fewer colors than larger, more expensive systems, but De Fanti said, "If you're moving images (which is what ZGRASS is designed to do), you don't need as much resolution. And when you use character generators and paint programs, those are not done in real time—which makes for major production problems," De Fanti said.

De Fanti formed a software company called Real Time Design (RTD) to market and further develop ZGRASS (RTD is currently working on a consumer version of the ZGRASS system).

A separate company called Data-max, Inc., sells the complete UV-1 package, which includes ZGRASS firmware (32K EPROM), 32K RAM expandable to 64K for CP/M compatibility, Z80A microprocessor, Winchester hard-disk drive, 320 x 202 x 2-bit resolution, 256 colors with four colors per area, two RS-232 ports, video output and NTSC (National Television Standard Code) compatibility.

"ZGRASS is a language that's easy for artists to use because it gives immediate feedback," said Copper Giloth, a computer-graphics artist at RTD.

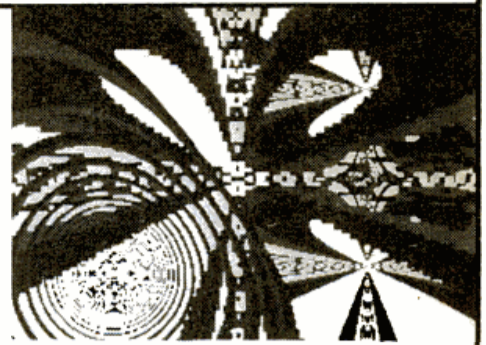
Many other artists involved in computers and video in the Chicago area use ZGRASS as well. Jane Veeder and Philip Morton have used it for several productions, combining computer graphics, video synthesis and film and audio synthesis into unique sound-and-motion works that have appeared on public television.

Veeder bought one of the first UV-1 systems a little more than a year ago when she was an artist-in-residence for the city of Chicago. Veeder said she

doubts she would even be using computers in her work today if it weren't for the UV-1.

"If I had had to go back to school to learn FORTRAN or some other language—forget it, I would never have done it. I went from practically a know-nothing having to do with programming to [ZGRASS] becoming my main addiction. It's an extremely rational system that does a lot for you without getting in your way," she said.

Veeder works mainly in the area of video synthesis, which—before getting the UV-1—meant using large analog computers to generate patterns



By Copper Giloth, Real Time Design

and manipulate video images. Veeder would then record the images on tape or use them in live performances.

"Computers are just at the point where real-time processing is a capability, and ZGRASS is just fast enough

See ZGRASS, page 26

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Computer group establishes connection between art and science

By Scott Mace, IW Staff

As home computers become more common, artists are discovering them, while computer enthusiasts use the power of the computer to discover their innate artistic abilities. Both groups are creating new forms of art and sharing their works through groups such as Ylem in Palo Alto, California.

Ylem (pronounced *eye-lem*) is the ancient Greek word for matter, and it was a term used by inventors of the Big Bang theory of the origin of the universe to signify the matter-and-energy ball that existed before that primordial explosion. Trudy Reagan, who formed

the Ylem group in February 1981, said people have been "coming out of the woodwork" to join the club. The group currently has 50 members.

"Science has an impact in a lot of different ways on culture, and that's not reflected in art very much," Reagan said. "We have technical people who are trying to become more artistic, and artistic people becoming more scientific."

"One of the most interesting things is using the computer to get a novel image and then taking the image to another medium," she said. One Ylem member is using computers to help design quilts and coordinate weaving

projects. Since the computer punch card grew out of 19th-century textile-industry methods, Reagan said it's like bringing the computer full circle.

Another common Ylem activity is visiting Silicon Valley companies that work with computer art, such as Ampex. Reagan also told of visits to firms such as DeAnza, which works with digitized image enhancement, and Calma, which develops computer-aided design (CAD) projects.

Ylem partially grew out of another Silicon Valley group called the Graphics Gathering. "Our groups supplement each other," Reagan said. The Graphics Gathering deals with the

popularized use of computers for aesthetic purposes. It includes people who design graphics hardware and software.

Reagan herself works with an Apple to put out Ylem's bimonthly newsletter. She also works with various designs on a computer at Ramtek. In addition, Reagan and some of her friends are thinking of purchasing the Logo language for the Apple to explore its artistic possibilities.

Since her husband works in a scientific capacity in Silicon Valley, Reagan doesn't consider herself an unusual resident of that high-technology area. With the art background she acquired in college, she may be part of a growing number of mathematically oriented artists.

Reagan feels the proliferation of home-computer art is just around the corner. "I think there's going to be a point where [artists are] going to see that somebody has something in their home that does something they always wanted to do, and then it's going to take off. A lot of artists don't respond to things like that the way they would to, say, color Xerox, but when they begin to see a certain amount of rich effects [on the home computer] happening, then word will spread like wildfire."

Ylem meets next on the third Saturday in May at the Palo Alto Friends Meeting House.

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ZGRASS

continued from preceding page
to get into that," continued Veeder. "I wouldn't work with a computer-graphics system where you had to work with a series of still pictures. ZGRASS offers the artist incredible latitude of control and personal evolution, which is extremely important to most artists," she said.

Fellow artist Morton, a professor at the School of the Arts Institute in Chicago, uses a UV-1 and about a dozen Bally arcade "home-computer video games" to help give his art students hands-on experience in computer graphics using the arcade's BASIC language capability and sound synthesizer. (The three customized video chips in the UV-1 were developed by Bally for its Wizard and Gorf video games.)

Morton said the UV-1 is in use "24 hours a day." In addition, many of his students take home the Bally arcade games to create graphic images they can manipulate across the screen while making various sounds with the sound synthesizer. "ZGRASS is the hottest thing moving right now in terms of graphics," he said.

Morton claimed that most of the students in his classes "know that in order to be an effective electronic-image producer they're going to have to use computers, and they're looking for the fastest, hottest, most powerful way of getting there. Even the classic problem student just goes like wildfire in ZGRASS because the little bit of effort that goes in turns back such a huge reward compared to [personal computers], video games and other things they're familiar with."