

Supercomputing

The Magazine of High-Performance Computing

REVIEW

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Special Report: *Super Graphics*

Animation Showcase

Scientific Visualization –

Where Science and Art Merge

Computer Imaging –

New Insights into Old Problems

Evaluating Workstations



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Now, however, using the latest hardware and software like Wavefront or Pixar's RenderMan, the palette available for rendering — roughly equivalent to filling in the spaces on a by-the-numbers oil painting — is vastly broader and more flexible.

The artist has almost unlimited choice in changing, more or less immediately, the texture, lighting, color mix, or shape of the object — or all at once. The operator can choose

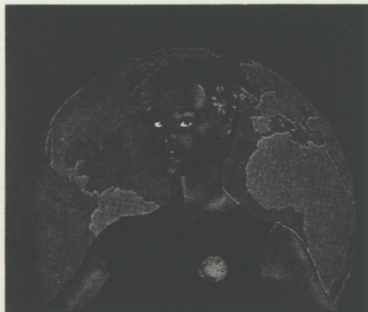
near-photographic realism, the region beyond realism of painters like Arp, Mondrian, Klee, Jackson Pollock, or de Koonig, Batmannish brutality, Tom-and-Jerry camera angles, Disney-whimsy, or something totally distinctive.

Computer animation, like surfing, was once thought of as primarily a California phenomenon. This was never very true, and it is even less accurate now. Computer animation

is being turned out in New York, Chicago, Virginia and elsewhere in North America in addition to the Bay Area and Southern California. It thrives in France and other parts of Europe.

What happens when the wave of the future turns into the mainstream? This may not make sense to a hydrologist, but it is happening in computer animation. More detailed evidence will be provided in later issues of *Supercomputing Review*. **SR**

More about our cover . . .



Modeling Natural Behavior

Making pictures that really look like living things, especially people, has long been a goal for animators. Disney and many other conventional animators have demonstrated again and again that furry squirrels or caricature people are easier to represent convincingly than ordinary human beings. Computer animators attempting to climb this difficult summit include John Lasseter and his associates at Pixar, whose "Tin Toy," featuring a somewhat wooden but believable (and very funny) toddler, won the 1989 Academy Award for animated short films.

Jeff Kleiser and Diana Walczak have been especially persistent. They invented a new word, *synthespian*, to describe their latest character, Dozo, shown in the sequence opposite and on this month's cover. She (no one would describe this image as an "it") stars in a three-minute music video, "Don't Touch Me."

As the globe in the final shot sug-

gests, the title refers to the earth as well as Dozo's own self. The video is in fact a plea for more tenderness to Mother Earth.

Some of the lyrics read:
"The vibrant dreams of Nature's way
Lie smoldering in ashen gray . . .
Gaia's dying, can't you see?
While you're wasting time on me . . ."

Hardware for the project was supplied by Hewlett-Packard; production software by Wavefront Technologies. Dozo is modeled from Perla Batalia, who also sang the lyrics, which were by Kleiser and Walczak; music by Frank Serafine. Motion data by Motion Analysis, Inc.; animation software by Larry Weinberg and Frank Vitz; support work by Erika Walczak, Ed Batres, and DeGraf-Wahrman. Produced and directed by Jeff Kleiser and Diana Walczak. Courtesy of Kleiser-Walczak Construction Company, who also hold copyright © 1989 on these pictures and Dozo character.

Which one is a computer image?

The answer: The mouse on the top of the initial page in this article was drawn using conventional animation techniques by Celluloid Studios, Denver, Colorado. (Courtesy Celluloid Studios.) The pastoral scene on the bottom is part of the introductory sequence of NBC's coverage of the Seoul Olympics. It was developed by Filigree Films of New York City, using the same system of Apollo workstations employed for the NBC logo on an earlier page of this article. (Courtesy Apollo Computer, Inc.)