ABOUT THE COVER

Cherries in Needlepoint Texture
Jeffrey Schier, computer graphics consultant

Figure 1. Some of the steps in making Cherri 2. In (a) a single cherry cluster is drawn, then the banana is peeled away. In (b) the cluster is replicated across the screen, while (c) shows the full version, from which our cover was taken. In (d), a closeup of a leaf and stem on one of the 64 tiles shows the dither pattern.

This month's cover, Cherri 2, is by Diana Dosch, a computer graphics artist who lives and works in the Bay area of California. Cherri 2 was generated on a computer graphic paint system with the output sent to a "drop on demand" color ink jet printer. The image expresses Dosch's fascination with form and texture.

Dosch's home system, which she used to produce Cherri 2, consists of a Compaq PC, Cubicomp frame buffer, tablet, RGB monitor, Diablo C150 color ink jet printer, and the Time Arts Lumena paint program. The frame buffer resolution is 512 by 512 pixels, with up to 4096 simultaneous colors available out of a color palette of 16,777,216. Under Dosch's direction, we developed the custom programs to adjust color, pattern, and size of the ink jet printer's output.

Cherries at SIGGRAPH
Cherri 2 was created at cherry blossom time in Berkeley, California. A single cherry cluster with leaf was drawn (see Figure 1a). The cluster was replicated across the screen (see Figure 1b), then merged with pseudorandom patterns. Rectangular brush strokes of white and gray were applied, forming the "blossoms" of the foreground and background (see Figure 1c).

As displayed at the SIGGRAPH 85 Art Show and the SIGGRAPH traveling art show, the work consists of
Figure 2. This is a frame from a group of images called the Drown series, a dream sequence with torsos, broken columns, and blue whirlpools.

Figure 3. La Mer.

Figure 4. Flame is a tapestrylike fantasy.

The ink jet process
With ink jet printing, says Dosch, "the colors are punchy, and the fabriclike texture adds an extra dimension," resembling tapestry and needlepoint. Pin points of ink coalesce into "islands of woven color" after landing on the clay-coated paper surface. "Once I knitted videotape," recalls Dosch, "now I knit pixels."

The texture is based on dithering, converting frame buffer values into computer-generated halftone patterns. Computer dithering is a "breakthrough in the printing process, directly forming halftones that automate and individualize the Ben Day process," says Dosch. The pattern of sprinkled dots constructs color and shade, using only four inks: black, cyan, magenta, and yellow. Shades are formed by distributing dots of ink over an area, with more ink coverage resulting in more saturated colors.

The output size and texture are treated as independent quantities. A huge print "gives the dither pattern room to breathe," and the big picture "takes on a life of its own," Dosch explains.

Personal creative tools
A live-in graphics system is a necessity for maintaining control of the creative process. The machines are available whenever needed to record what Dosch calls the "visual echo in my head." Personal computer systems avoid a taxicab metering on machine use, allowing extended dialogue and rapport between artist and tools.

Beginnings
Diana Dosch attended Pratt Institute and received a BA in art history from the State University of New York at Buffalo. She was influenced by Impressionism, Georges Seurat, POP art, and especially Roy...
Lichtenstein's stenciled images. Her work reflects an interest in strong graphic forms, grain, and texture.

Dosch started in the traditional media of pen and ink, watercolors, pastels, and photography. Her work later shifted toward bare wood furniture sculpture and experiments in image puncture, piercing canvas with soldering irons. She moved from these creative methods into the electronic arena, with small-format experimental video.

While in Buffalo, Dosch met Woody and Steina Vasulka, pioneers in experimental video art. Inspired by them, Dosch crafts the electronic image through a fertile human-machine interface. The artistic process of creating an image is often equal in importance to the image itself. This process-art orientation has naturally evolved into computer graphics and picture manipulation.

Visual freedom

Computer imaging offers Dosch a sense of visual freedom not found in material media. Ideas are transformed, excerpted, and collaged into a personalized view of her environment. The electronic image exists as an information abstraction, open to manipulation until captured in light or printed in ink jet form. The images are "chronological pictographs, a series of thoughts over time." Dosch views computer graphics as "the next best thing to conceptual art."

Dosch presented a live installation, "Dither by Number" at Digicon 85 in Vancouver, BC. Currently she shows her work with A5R, a San Francisco area technological art group.

Future directions

Dosch sees further development of her "personalized graphics tool kit," she says. "This includes video, but will cross over to other fields, including textiles, ceramics, and color printing." Epic installations, mosaics, and ink jet frescoes are also planned. "I want machines that will do paintings on walls, rooms, and tiles. Machines on stilts will make pictures controlled directly from the base of the skull." Her art is firmly meshed in the computer age. At home in the electronic medium, Dosch truly "calls the dots."

Jeffrey Schier wrote the suite of ink jet programs used by Dosch, and he designed the "image articulator" for the Vasulkas. He has collaborated with Dosch in numerous live electronic performances. Schier holds a BSEE from the State University of New York at Buffalo. He now works with Aurora Systems, and consults in digital video and computer graphics. Dosch or Schier can be reached at 3871 Piedmont Ave., Box 26, Oakland, CA 94611.