

The Case of the Artistic Computer



Richard Helmick teaches "Topics in Computer Aided Design." Here, a CRT has been programmed to show a picture of the Columns.

Garbage in, garbage out! is the computer programmer's axiom. But how do you get art out of a computer?

Richard Helmick, assistant professor of housing and interior design in the College of Home Economics is experimenting with using a computer (the University's IBM Model 370/165) artistically. And this summer, he's teaching a course called "Topics in Computer Aided Design."

He's created fabric designs and prints and even drawn floor plans using the computer. During the eight-week summer school, his students also are turning out a variety of creations.

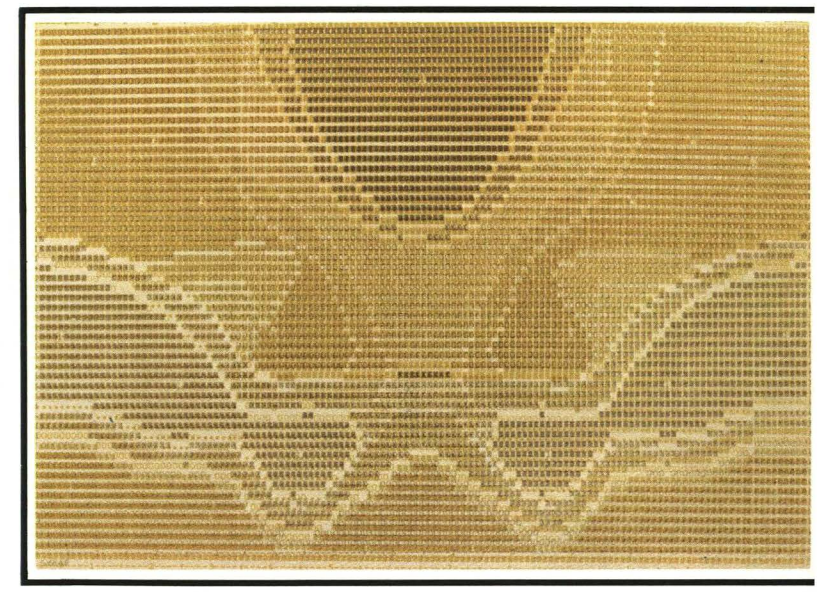
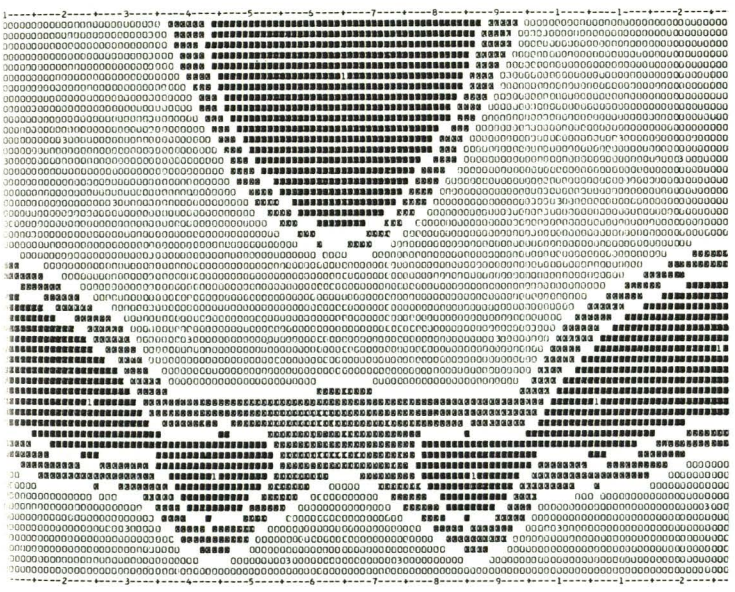
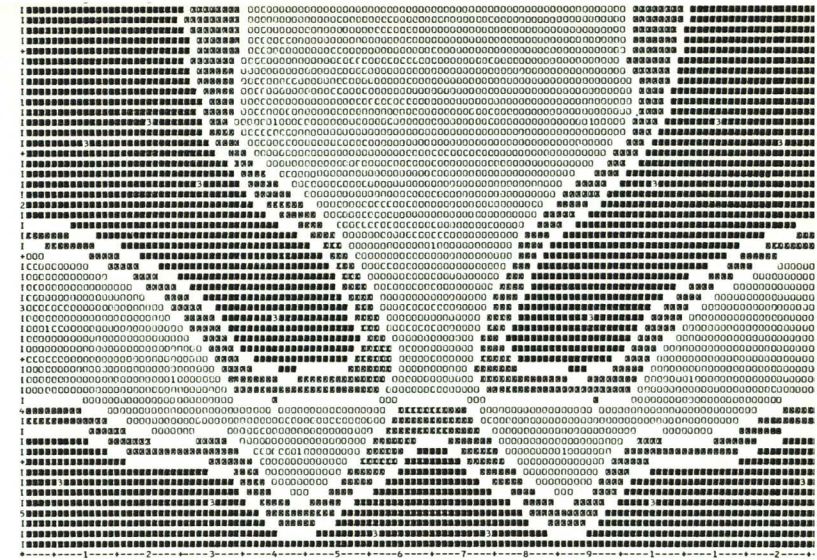
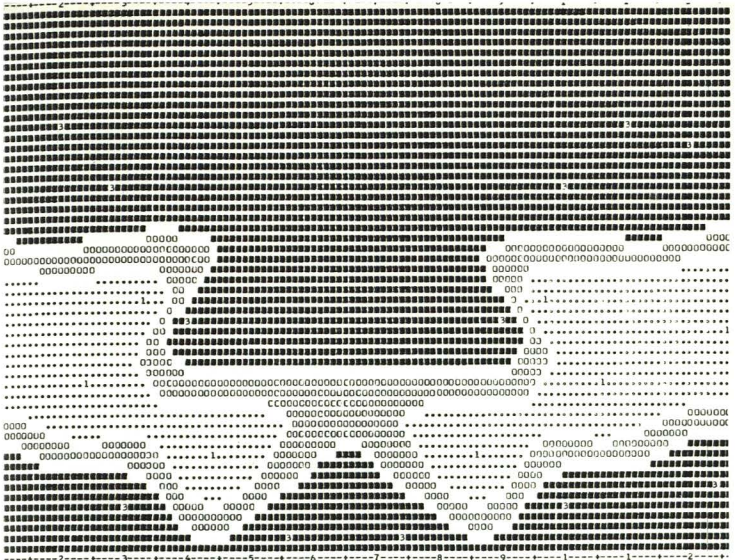
This is the second year for the experimental course. Helmick thinks it's the first computer aided design course for undergraduates in any college of home economics. Last year, 10 students were enrolled. Most were in home economics design, although an art student generated drawings suitable for animation, photographed each drawing and made an animated short film. This year, there are 17 students. It's a more

varied group, including majors in art, landscape design, and architecture (from Oklahoma State).

Helmick praises the optimum combination of resources and facilities on Campus. "We couldn't have done it without the equipment that's available and the Computer Center that's very user oriented. The computer science department chairman was looking for relevant projects for his graduate students, and interested graduate and undergraduate students from fine arts and home economics design helped make the class a reality," he says.

To be or not to be a programmer? is the big question currently among artists working with computer graphics. Helmick is not a programmer and his students are not required to have programming experience. They do prepare instructions for previously-written programs to generate the drawings and designs to suit their individual purposes.

"I think the purpose of computer science is to de-



Three black and white designs were computer generated, the printouts were photographed, then made into stencils for the tri-color print.

velop high level languages to use for a variety of purposes in various disciplines. We, essentially, 'subvert' existing programs to our artistic purposes," Helmick says.

The textbook for the course is a manual that tells the students how to keypunch, how to enter programs into the computer, and what forms the output (art) will take. The students were able, using the manual, to prepare input that produced a graphics display on the computer printer during their first class period.

Most of the students in home economics are female and are culturally conditioned to fear math and computers, Helmick thinks. This course may help them overcome their fears. "It's a method for hooking art and design students on this tool. We make it very easy for them to use the computer, and we don't think it's insulting to make it palatable."

The earliest programs available to Helmick and his students were mapping programs, not intended for artists or designers. Next, a pro-

gram called "Boxes" was added to the computer graphics library on Campus. It draws boxes (six-sided figures) in perspective and was written to introduce art and design students to computer graphics.

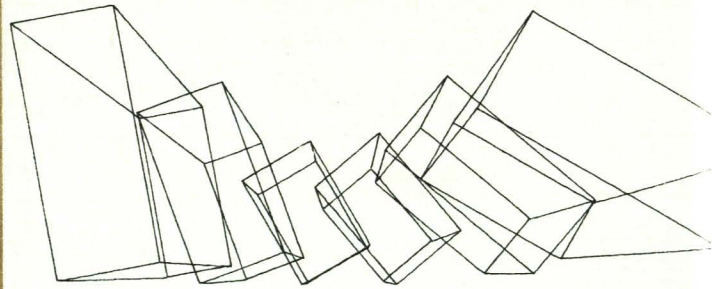
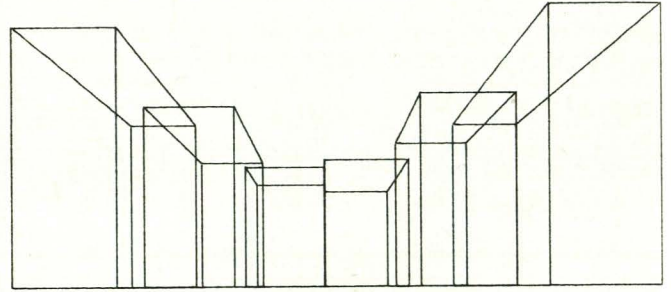
A Mizzou grad student in computer science, Chris Korschgen, AB '72, MS '73, wrote "Structures" just for Helmick's class. Interior design grad student Judy Kleinsorge told Korschgen what the designers needed and worked with him. This sort of collaboration between designer and programmer is ideal, Helmick thinks. "It was an interdisciplinary effort to create a new tool for interior design education."

Students can do a lot with the "Structures" program, which is a versatile means of planning and visualizing spatial design and alternative arrangements for modular housing.

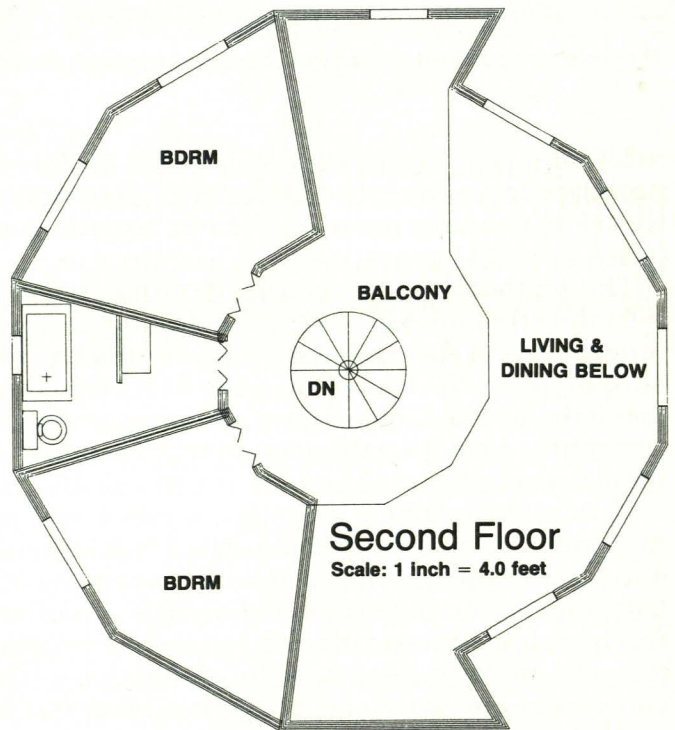
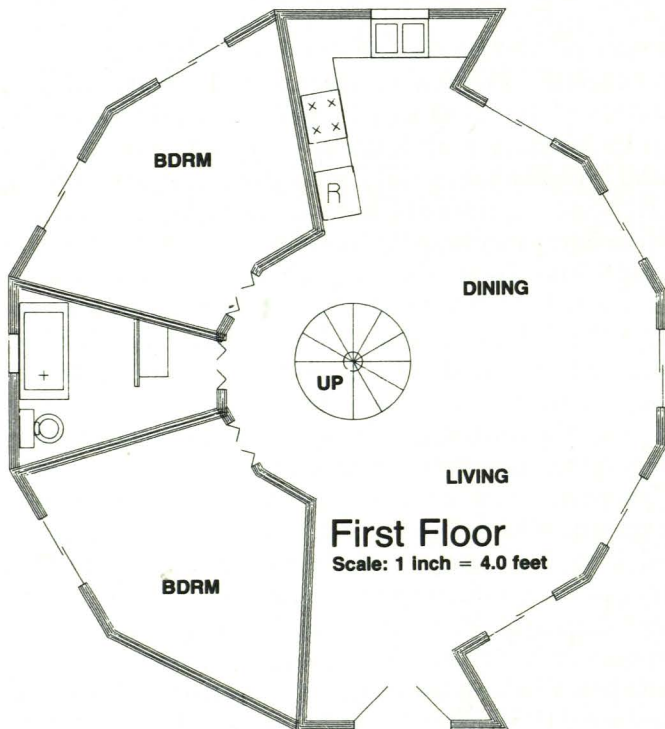
Students tell the computer the length and angle of walls, windows, doors, and other architectural features for each room of the structure. They can vary wall thickness, styles of doors and windows,



The pattern for this rya rug is a computer printout similar to the patterns used in the gold print. The rug was the project of a student taking a problems course last year.



Each frame of the "falling dominoes" was drawn by a mechanical plotter which received directions from the computer. The designer supplied instructions to the computer by way of a recent program called "Boxes," which was developed at KU.



Students can draw floor plans using a program, "Structures," created at Mizzou by two graduate students. The mechanical plotter draws the plans. It is directed by the student's instructions to the computer. Above are unconventional circle plans.

and placement of standard furniture and fixtures. The designer can have drawn at his command any line, broken or unbroken, or closed figures to complete his plan. Parts of the plan (and this is the beauty of using a computer) may be deleted, added to, moved, rotated, enlarged, reduced or repeated in subsequent drawings by adding two or three appropriately punched cards to the program input card deck.

"This program promises to be most useful in drafting floor plans of modular buildings. The program can readily re-arrange any given modular design," Helmick explains.

Practical applications are obvious. Computers could aid in the design of hospitals, restaurants, trailers, motels and of course, homes.

Manual architectural drafting will become the architect's Latin, one architect believes. Computers can also draw buildings from any angle, so the architect can show the client just what the finished structure will look like.

Computer art is only two decades old. One of the first drawing machines was made in 1957 by the art form's "Old Master" John Whitney of California.

"Pop Art and Op Art and several 'isms have caught fire and burned brightly in recent years, but they've burned out quickly, too. Computer art has been glowing steadily underneath, and interest in computer graphics is growing," Helmick says.

Helmick got involved in using the computer in design work several years ago. He had been doing optical illusions in prints and paintings, but became dissatisfied with the "limited complexity of designs out of my own head." The computer has the capacity to repeat a pattern or form from different points of view with accurate perspective. The computer can almost instantly, for example, draw a row of dominoes and then repeat and repeat and repeat the pattern to show the dominoes falling. To draw by hand, successive pictures of dominoes falling would, obviously, be a laborious undertaking.

So Helmick, to make a long story short, knew he needed the computer, but had no idea how to make use of one for his projects. Then he attended the bi-annual Sculptor's Conference at the University of Kansas in 1972. Part of the program was devoted to investigating the relation of the

computer to the visual arts. During the next year, Helmick brought two of the program speakers to Campus. They sparked the interest that's led to his ongoing investigation of the potentials of the computer in design.

"It's a pretty big jump for most artists to get into computer art," he says, reflecting on his own soul searching. "The dominant feeling is that the

Is it cheating for an artist to use a computer?

computer is not a tool for the artist."

Many people think the artist should not use any mechanical aids or devices, and that to use anything of the sort is "cheating." "The artist is traditionally anti-mechanization," Helmick explains.

We tend to think of artists alone with their paints and brushes and canvases or hammers and chisels and stone. The computer artist must, of course, not only work with a programmer but also must work with the machine. "Artists are retarded in their development along these lines."

Helmick, whose primary interest is woodcarving, has thought a lot about taking the plunge into computer graphics. He's had to defend his choice, since some artists and critics seem to question whether one can create "serious" art by computer.

"The art world is full of theories," he says with a smile. "What's Pop Art? Is it serious? Are the artists who paint Campbell's Soup cans reflecting society, criticizing it or what? Some people even say that Pop Art is Americana — sort of quaint, like folk art."

You can argue for ages about what's art and what's serious art. "I think computer art is serious art," Helmick says. Time will decide.

Why is a design school concerned with computer aided design at all? "I believe that students should be educated to the future as well as the past and present," he says. "We should make an effort to predict how our field will change as our students reach mid-career in 2001." — *Anne Baber*.