Guest Editors' Introduction

Art and Animation

Thomas A. DeFanti and Charles A. Csuri

We have selected articles of interest to technicians, written by artists, which tend to be personal opinions and somewhat different in style from formal, detached scientific papers. We did not consider subjective filtering of information to be anything negative but rather a challenge to the reader. In fact, we hope that some of you will feel obliged to submit critiques of these articles for future publication in CG&A. We believe it is essential for practicing computer graphics professionals to understand and appreciate the technological and cultural concerns of people whose life work is producing visuals.

Thomas A. DeFanti is an associate professor in the Department of Electrical Engineering and Computer Science at the University of Illinois at Chicago, where he is also director of the Electronic Visualization Laboratory. He is chairman of SIGGRAPH, and previously secretary. His published work includes 13 papers, two chapters, and one book. He has also produced 15 videotapes, one of which, Spiral PTL, has won three international awards. He provided material for two commercial films: Star Wars, on which he worked with Larry Cuba, and UFO Target Earth. DeFanti is also president of Real Time Designs, Inc. Queens College awarded DeFanti his BA in 1969, and he received his PhD from Ohio State University in 1970.

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Charles A. Csuri is professor of art education and computer and information science at Ohio State University, where he is also director of the Computer Graphics Research Group, directing a full range of research tasks. Csuri is also executive vice president of Cranston/Csuri Productions of Columbus, Ohio, where he oversees creation of the firm's 3-D computer-generated animation for major TV networks worldwide and for leading advertising agencies. Csuri has been featured in magazines internationally from Business Week to The London Sunday Times, has been a prolific contributor to professional publications, and has had his art exhibited in museums worldwide, including a piece in the permanent collection of the Museum of Modern Art in New York. Csuri received his Master of Fine Arts from Ohio State University in 1948.

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"Bridget Riley's Painting 'Currents'," 1966 by A. Michael Noll, is an early attempt at simulating an existing painting with a computer. Much of "op art" uses repetitive patterns that usually can be expressed very simply in mathematical terms. These waveforms were generated as parallel sinusoids with linear increasing period and drawn on a microfilm plotter. A. Michael Noll also approximated Piet Mondrian's painting "Composition With Lines" statistically and created a digital version with pseudorandom numbers. Xerographic reproductions of both pictures were shown to 100 subjects, and the computer-generated picture was preferred by 59.

"Sculpture," 1968 by Georg Nees, is one of the earliest sculptures created completely under computer control. This piece was exhibited at the Biennale in Venice in 1969. Nees had a long-standing interest in the study of artificial visual complexity in connection with the chance-determination relation. He programmed a Siemens 4004 computer to generate pseudorandom numbers, which were tightly controlled to determine width, length, and depth of rectangular objects. The three-dimensional data was stored on magnetic tape and used to drive an automatic milling machine off line. The sculpture was cut from a block of wood.