



FIFTH ANNUAL CONFERENCE ON
COMPUTER GRAPHICS AND INTERACTIVE TECHNIQUES
SPONSORED BY SIGGRAPH/ACM

August 23-25, 1978

Atlanta Hyatt Regency Hotel

NOTES

INTRODUCTION TO RASTER GRAPHICS TUTORIAL

AUGUST 21-22, 1978

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An Introduction to Raster Graphics

J. D. Foley

1. What is Raster Graphics?

Raster graphics is an area of computer graphics based upon a particular technology for displaying images: the simple CRT raster scan used by the millions of TV sets around the world. In a raster scan, the CRT's electron beam follows a fixed pattern, which is repeated about 30 times a second. An image is created by varying the intensity of the electron beam. In simple systems the intensity variation is between the on and off states, while more complex systems allow multiple levels of intensity and/or color.

A basic raster scan is shown in Figure 1-1. The CRT beam starts at the upper left of the screen, and moves horizontally to the right, defining a scan-line. It is during the left-to-right sweep that the beam intensity is modulated. At the right edge the beam is blanked, and repositioned to the left edge, down one unit from the previous scan, as shown by the dotted line. After all scan-lines have been drawn, the beam returns to the upper-left corner. While U. S. Commercial TV operates with 525 scan-lines, raster graphics systems use anywhere from 100 to 1000. There are also other detailed differences.

On a raster display the outline of a house would be drawn as shown in Figure 1-2, which shows the scan-lines and the points at which they are intensified, but not the beam movement between scan lines.

The raster-scan display method is in marked contrast to the more traditional use of random scan or vector graphics