Tutorial: Introduction to Computer Graphics

Dr. John Beatty, Chairman

Monday August 3, 1981

9:00	Introduction and Outline of Tutorial/Beatty
9:30	Basic Software/Beatty
10:45	Break
11:00	Basic Hardware I/Booth
12:00	Lunch
1:30	Basic Hardware II/Booth
2:15	Raster Hardware/Matthies
3:30	Break
3:45	Advanced Software I/Beatty

Tuesday August 4, 1981

8:30	Advanced Software II/Matthies
9:30	Graphics Input Hardware and Interaction Techniques I/Wein
10:30	Break
10:45	Graphics Input Hardware and Interaction Techniques II/Wein
12:00	Lunch
2:00	Color and Color Perception/Beatty
2:45	Animation/Beatty
3:30	Break
3:45	Graphics Packages/Booth
4:45	Overview of Conference/Booth

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A Script for the Tutorial

Introduction to Computer Graphics

Siggraph 1981

John C. Beatty
Kellogg S. Booth
Larry H. Matthies
Marceli Wein

Why computer graphics ...

a picture is worth a 10,000 words - or an infinity of numbers

it allows us to visualize situations which do not yet exist, or cannot

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Applications

data analysis

3

Several slides illustrating the use of line graphics for data analysis.

4

An example of false coloring: the stress on a beam.

5

Applications

presentation graphics

documentation graphics

real estate, advertising, news magazines

6

An example of business graphics (data presentation).

7

Example: the merger of text and illustrations in a computer typeset technical paper.

8

Example: the merger of continuous tone illustrations with text in a computer typeset real estate listing.

9

Applications

Computer Aided Design (CAD)

Computer Aided Manufacturing (CAM)

10

Example: printed circuit board layout on a color terminal.

11

Example: an engineering schematic created on a line-drawing display.

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Applications

flight simulators

13

Example: the use of synthetic color 3d images in flight simulation.

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Applications

molecular modeling

(ATOMSLLL, Nelson Max)

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What we won't talk about today ...

becoming a super graphics programmer

building the world's greatest hardware

putting together the perfect graphics system

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What we will talk about today ...

hardware

software

human factors

acquiring a system

current trends

17

And why ...

introduce graphics fundamentals

prepare for the conference

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Resources - Conferences

Siggraph

NCGA

Harvard Computer Graphics Week

Man-Computer Communications Conference

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Resources - Books

Newman & Sproull (2nd edition)

Booth

Freeman

Rogers & Adams

Chasen

Giloi

20

Resources - Periodicals

Computer Graphics (Siggraph Quarterly)

Computer Graphics & Applications (IEEE)

Computers & Graphics

Computer Graphics & Image Processing

The Anderson Report; The Harvard Newsletter

The Seybold Reports

SIGOA (Office Automation)

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Hardware

cathode ray tubes (CRT's)

calligraphic and raster graphics

plotters & other hardcopy devices

film recorders

color graphics

graphics input devices

large screen projection

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Software

device communication

display files

modeling transformations, perspective, clipping

data structures

hidden line/surface removal

shading, texturing & shadowing

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Acquiring a system

commercial subroutine packages

vendor software

graphics standards (GSPC CORE)

turn-key systems

purchasing a system