

**SIGGRAPH 1991**  
**18th International Conference**  
**On Computer Graphics and**  
**Interactive Techniques**

**Las Vegas Convention Center**  
**28 July - 2 August**

## COURSE NOTES

## C24

**GENERATION OF THREE  
DIMENSIONAL DATA FOR  
COMPUTER IMAGE  
SYNTHESIS**

***Co-Chairs***

**Wayne E Carlson**  
**The Ohio State University**  
**Richard E Parent**  
**The Ohio State University**

***Lecturers***

**Kevin Weiler**  
**Kubota Pacific Computer, Inc**  
**Turner Whitted**  
**Numerical Design, Ltd**

# Siggraph '91

July 28 - August 2, 1991

Las Vegas, Nevada

Wayne Carlson  
Richard Parent  
Course Co-Chairs

## *Introduction to the Course Notes*

**Abstract:** This course is designed to present the issues associated with generating the necessary geometric data necessary for complex computer generated images. The underlying foundations of geometric modeling are described, and a survey of model construction techniques is presented. The following collection of notes represents the contributions of the 4 speakers, and includes copies of presentation slides used by the speakers. Where appropriate, reprints of articles from the existing literature are included.

## **COURSE SCHEDULE**

<b>Time</b>	<b>Speaker</b>	<b>Topic</b>	<b>Page #</b>
1.5 Hr	Carlson	Introduction and Fundamentals	4 - 52 185-222
15 Min	BREAK		
1.5 Hr	Parent	Techniques for Generating the Data	53-96
1.5 Hr	LUNCH		
1.5 Hr	Weiler	Solid Modeling	117-144 223-267
15 Min	BREAK		
1.5 Hr	Whitted	Alternative Data Sources	152-177 268-274
15 Min	All	Question Forum	

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## **Biographies of the Speakers**

All of the speakers in this course have been active for many years in the Computer Graphics discipline, as educators, researchers, and practitioners. They have all made significant contributions to the area in the form of research publications, conference presentations, and activity in the ACM-Siggraph organization. All are actively working in the area of Geometric Modeling and the design of data to be used in Image Synthesis.

**Richard Parent** is an Associate Professor in the Department of Computer and Information Science at The Ohio State University. He received a PhD in Computer Science from Ohio State in 1977. He was formerly the associate director of the Computer Graphics Research Group at Ohio State.

**Wayne Carlson** is an Assistant Professor in the Department of Computer and Information Science and Acting Director of the Advanced Computing Center for the Arts and Design (ACCAD) at The Ohio State University. He received a PhD in Computer Science from Ohio State in 1982. He was formerly Vice President of Research and Development at Cranston/Csurri Productions. He is currently a Director on the Executive Committee of SIGGRAPH.

**Kevin Weiler** is at Kubota Pacific Computer, Inc. He received a PhD in Computer Science from Rensselaer Polytechnic University in 1986. He was formerly the Director of Advanced Graphics at Stardent Computer.

**Turner Whitted** is founder and Technical Director of Numerical Design, Ltd., and an Adjunct Associate Professor of Computer Science at the University of North Carolina. He received a PhD in Computer Science from North Carolina State University in 1978. He was formerly with the Computer Systems Research Laboratory of Bell Laboratories. Turner is the 1986 winner of the prestigious Computer Graphics Achievement Award, given by ACM-Siggraph in recognition of outstanding contributions to the discipline of computer graphics.