

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

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

**COURSE NOTES**

**C1**

**FUNDAMENTALS AND**  
**OVERVIEW OF COMPUTER**  
**GRAPHICS**

**Chair**  
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**Independent**  
**Carl Machover**  
**Machover Associates**

# **SIGGRAPH 1991 Course #1**

**29 July, Las Vegas, Nevada**

## **Fundamentals and Overview of Computer Graphics**

**ORGANIZED BY  
Olin Lathrop**

### **Speakers**

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## **Course Description**

This course will start with a historical perspective of computer graphics and an introduction to the fundamental concepts. The current state of the industry and important trends will then be briefly discussed. The remaining 3/4 of the course is a survey of topics. Emphasis is on breadth of coverage, rather than on teaching the technical details. The guiding principle will be to give attendees an intuitive understanding of many concepts instead of the details of introductory issues.

Although this course will not supply the details, it will supply references to them. The course notes are intended to be useful as a reference source to determine where to look for an in-depth discussion of particular topics.

### **COURSE LEVEL**

Beginning. We will explain basics like "what's a pixel?". There will be no in-depth analysis.

### **WHO SHOULD ATTEND**

This course is for technical professionals and managers who are unfamiliar with computer graphics, and who desire a general understanding. It is also for those that have heard terms like "pixel", "CSG", "Z buffer", and "trackball", and would like a more global context in which to make sense of them and understand how they fit together. This course is not for those who want to learn specifics like how a Bresenham vector algorithm works, or how to best code a 3D transform.

### **PREREQUISITES**

No background in computer graphics or mathematics is required. Some exposure to computers and programming would be helpful. The course fee is mandatory.

## **Speaker Biographies**

### **DR. NORMAN I. BADLER**

Dr. Badler is the Cecilia Fidler Moore Professor and Chair of Computer and Information Science at the University of Pennsylvania, and has been on the faculty since 1974. He has been active in computer graphics since 1968 with more than 85 technical papers. His research focuses on human figure modeling, manipulation, and animation.

Dr. Badler is Co-Editor of the Journal "Graphical Models and Image Processing". He also directs the Computer Graphics Research Laboratory with two full time staff members and about 40 students.

Badler received the BA degree in Creative Studies Mathematics from the University of California at Santa Barbara in 1970, the MSc in Mathematics in 1971, and the Ph.D. in Computer Science in 1975, both from the University of Toronto.

## **RICHARD M. FICHERA**

Richard has worked extensively in systems and processor technology consulting as well as working on specialized emerging semiconductor technology studies. He has over twenty years of experience in the computer industry in fields such as software engineering, hardware architecture, processor technology, scientific computing, distributed systems technology, scientific visualization, and graphics technology. He has operational experience ranging from contributing engineer to V.P. of marketing at a rapidly growing technology company.

Richard's education includes a combined Operations Research, Statistics, and Computer Science B.S. from U.C. Berkeley, and Graduate studies in Econometrics and Policy Planning.

## **OLIN LATHROP**

Olin Lathrop is co-founder and Vice President of Research at Cognivision, Inc., a company specializing in data visualization software and services. He is currently interested in visualization algorithms, techniques, and how to best present information for human understanding. He previously worked at Apollo Computer on the DN10000/VS graphics subsystem, and at Raster Technologies on 3D products such as the Model One/25-S and the Model One/380. He received his bachelor's and master's degrees in electrical engineering from Rensselaer Polytechnic Institute in 1978 and 1980, respectively.

## **CARL MACHOVER**

Carl Machover is president of Machover Associates Corporation; a consultancy which provides a broad range of management, engineering, marketing and financial services world-wide to computer graphics users, suppliers and investors. Application areas served include CAD, CAM, CAE, CIM, business, slidemaking, art, animation, graphic arts, multi-media, process control, technical documentation, engineering and scientific. He is also an Adjunct Professor of Computer Graphics at Rensselaer Polytechnic Institute, and Past-President of NCGA.

Mr. Machover is an internationally recognized expert in computer graphics. He is on the editorial advisory boards of many industry publications. He has written numerous articles on computer graphics, has conducted computer graphics seminars and lectures world-wide, is editor of the "C4 Handbook", co-editor of the "CAD/CAM Handbook", co-author of "Japanese Computer Graphics Industry and Markets", consulting editor of the "S. Klein Computer Graphics Review", and Tab Professional & Reference Book series, "Computer Graphics Management and Technology". In 1988, Mr. Machover received the North Carolina State University Orthogonal Award, and he was inducted in the FAMI Computer Graphics Hall of Fame.

He graduated as an electrical engineer from Rensselaer Polytechnic Institute, and has over three decades of experience. He is a Fellow of the Society for Information Display (former National President), and the Computer Graphics Pioneers (former "Chief Old Timer"), among other professional societies.