



**SIGGRAPH 1994**

*21st International Conference  
On Computer Graphics and  
Interactive Techniques*

*Orange County Convention Center  
Orlando, Florida  
July 24-29*

**Course Notes**

**20**

**GRAPHIC DESIGN FOR  
USABLE USER INTERFACES**

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## **Lecture Notes For Tutorial: Graphic Design for Usable User Interfaces**

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Aaron Marcus and Associates, Inc.**

**Wolfgang Heidrich, Designer/Analyst  
Aaron Marcus and Associates, Inc.**

**Jay Melican, Designer/Analyst  
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**SIGGRAPH '94  
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## Tutorial Abstract

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The tutorial will introduce terminology, principles, guidelines, and heuristics for using information-oriented, systematic graphic design in graphical user interfaces (GUIs), especially for the design of icons, dialogue boxes and control panels, metaphors, mental models, and other navigational devices that often are not prescribed by window management systems.

Participants will be exposed to a wide body of existing knowledge and practical advice that are immediately useful, as well as potential research topics in user interface design. They will observe and analyze techniques for making displays more intelligible, functional, aesthetic, and marketable.

Extensively illustrated lectures and demo excerpts will cover perceptual, conceptual, and communication issues in typography, symbol systems, color, spatial composition, animation, and sequencing, including the design of the following:

Metaphors	Charts and diagrams
Mental models and navigation	Icons and cursors
Look and feel	Windows and menus
Proportion and composition: grids	Dialogue boxes/control panels
Color selection	Visual semiotics conventions
Tables and forms	Style guides

Practical pen-and-paper design problems with critical review and commentary by the instructor will give participants experience in designing components of graphical user interfaces, such icons, dialogue boxes, and metaphors.

## Instructor Biographies

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**Aaron Marcus,  
President**

Aaron Marcus received a BA in Physics from Princeton University (1965) and a BFA and MFA in Graphic Design from Yale University Art School (1968). He is an internationally recognized authority on the design of user interfaces, interactive multimedia, and printing/publishing documents, including charts, forms, icons, and screens. Mr. Marcus has given tutorials at SIGGRAPH, NCGA, and SIGCHI conferences in addition to seminars at businesses and academic institutions in Australia, Canada, Finland, Israel, Singapore, South Korea, the USA, and Japan. He co-authored *Human Factors and Typography for More Readable Programs* (1990), *The Computer Image* (1982), and authored *Graphic Design for Electronic Documents and User Interfaces* (1992), all published by Addison-Wesley.

Mr. Marcus was the world's first professional graphic designer to be involved full-time in computer graphics (1967), the first graphic designer to program a desktop publishing system (for the AT+T Picturephone, 1969-71), the first graphic designer to design virtual realities (1971-73), the first graphic designer to establish an independent computer-based graphic design firm for the purpose of designing user interfaces, electronic documents, and multimedia (1982), the only graphic designer to be co-awarded a research grant (\$500,000 for three years) by the US Defense Department's Advanced Research Projects Agency (DARPA) to develop new document design standards for programming languages (1982-85), and the only graphic designer to receive the National Computer Graphics Association (NCGA/USA) Industry Achievement Award for contributions to computer graphics (1992).

**Wolfgang Heidrich,  
Designer/Analyst**

Mr. Heidrich received his BA degree in graphic design from the College of Design Schwäbisch Gmünd in Germany and his MA in graphic design from the Central St. Martins College of Art and Design in London. He has done corporate identity design for several German cities and information-oriented graphic design for Bosch GmbH in Germany. He has worked as a user interface designer in the Human Factors Division of BT Laboratories in England, where he specialized in the design of interactive multimedia and graphical user interfaces for network management applications.

**Jay Melican,  
Designer/Analyst**

Mr. Melican received his BA degree in semiotics from Brown University (1988) and his MFA in graphic design from Rhode Island School of Design (1993). During his graduate studies, he worked as a freelance designer and as a designer and copy editor with the school's publications department. He has designed corporate symbols and multimedia displays using Macromedia Director.

At Aaron Marcus and Associates, Inc., Mr. Marcus, Mr. Heidrich, and Mr. Melican design for and consult with marketing and development groups at Apple, Applicon-Schlumberger, Beckman Instruments, Digital Equipment, Dupont, Eastman Kodak, Hewlett-Packard, IBM, Linotype-Hell, MCC, McDonnell-Douglas, Motorola, NCR, Reuters, Ricoh, 3M, and Xerox, among others.

## **Agenda for the Tutorial**

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<b>Time</b>	<b>Topic</b>
<b>Tutorial</b> <i>27 July 1994</i> <i>Morning Session</i>	
8:30-9:30	Lecture 1: Principles of Effective Visual Communication
9:30-10:15	Lecture 2: Grid Systems in GUI Design
10:15-10:30	Break
10:30-11:15	Lecture 3: Icon Design, Semiotics
11:15-12:00	Project 1: Icon Design
12:00-1:30	Lunch
<i>Afternoon Session</i>	
1:30-2:00	Lecture 4: Dialogue Design
2:00-2:45	Project 2: Dialogue Design
2:45-3:00	Break
3:00-3:45	Lecture 5: The Future of User Interface Design
3:45-4:15	Lecture 6: Metaphor Design
4:15-5:00	Project 3: Metaphor Design