IMPLEMENTING AND INTERACTING WITH REALTIME MICROWOLRDS

COURSE # 29

CHAIR:

DavidZeltzer
MIT Media Lab

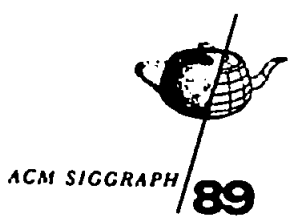
SPEAKERS:

FredBrooks
University of North Carolina

RodDeyo
Evans & Sutherland

ScottFisher
NASA Ames Research Center

DavidSturman
MIT Media Lab



Boston, Massachusetts
31 July - 4 August 1989

Implementing and Interacting with Realtime Microworlds

SIGGRAPH 89 Course #29

Chair

David Zeltzer, MIT

Lecturers

Frederick P. Brooks, University of North Carolina

Roderic Deyo, Evans and Sutherland

Scott Fisher, NASA/Ames Research Center

David Sturman, MIT

Course Description

This course will cover the design and implementation of realtime, graphical simulation systems for animating and interacting with virtual environments — *microworlds* — for a variety of applications. We will pay special attention to practical issues involving performance/realism tradeoffs; experience with human/computer interaction, especially novel input devices and paradigms; and simulating kinematic and dynamic behaviors in realtime.

Table of Contents

Schedule

8:30 — 8:45 Course Introduction. *Zeltzer*
8:45 — 10:15 The UNC Walkthrough and GROPE III Systems. *Brooks*
10:15 — 10:30 Break
10:30 — 12:00 Virtual Environments, Personal Simulation and Telepresence. *Fisher*
12:00 — 1:30 Lunch
1:30 — 3:00 Real-Time Vehicle Simulation. *Deyo*
3:00 — 3:15 Break
3:15 — 4:45 MIT Graphical Simulation Platform. *Zeltzer* and *Sturman*
4:45 — 5:00 Closing remarks, questions. *Zeltzer*

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Introduction

David Zeltzer,
Course Chair

Welcome! This course is being offered at SIGGRAPH for the first time in 1989, in large part due to the continuing evolution of graphics hardware and software. Various realtime simulation systems have been either available as high-end commercial flight simulators, or under development as prototype laboratory systems, for a number of years. In general, such systems have been viewed as beyond the reach of all but a small community of researchers; the military; or large, corporate training programs. However, current and soon-to-be available computing and graphics engines now present many end-users with the hitherto unheard of opportunity to implement such high-performance simulators in their own shops and laboratories. It is timely, therefore, to offer SIGGRAPH attendees an in-depth treatment of designing, implementing and using sophisticated, realtime simulation environments. To that end, this course brings together speakers from government, industry and academia to share their theoretical understanding and practical experience in this exciting and rapidly expanding area.

The goal of this course is to provide you enough information — through the lectures and readings — to begin to implement realtime, virtual world simulators in your own shop or laboratory. This course has been structured to give each of the speakers 90 minutes to describe their simulation environment in some detail. In this way, we will explore the design principles and decisions, interaction techniques and practical considerations that are important to implementing and interacting with realtime microworlds.

Speaker List

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TABLE OF CONTENTS