

Programming OpenGL with X

Organizer
MARK KILGARD
Silicon Graphics, Inc.

Course **18** NOTES



SIGGRAPH 1995

22nd International Conference on Computer
Graphics and Interactive Techniques

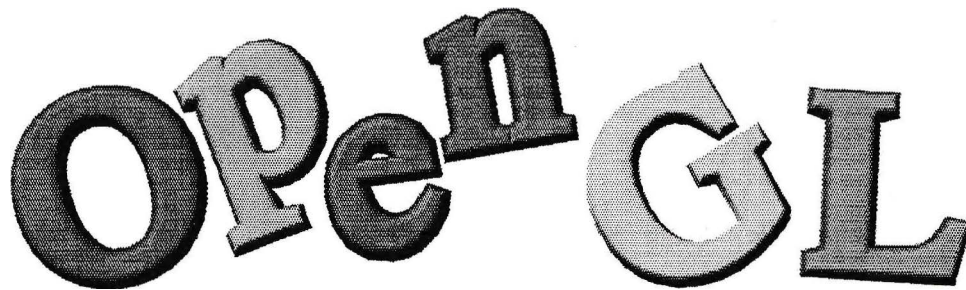
Conference/6-11 August 1995
Exhibition/8-10 August 1995
Los Angeles Convention Center
Los Angeles, California USA

Programming OpenGL with X

“3D meets the X Window System”

SIGGRAPH '95 Course

August 7, 1995

The word "OPENGL" is displayed in a large, 3D, textured font. The letters are dark with a lighter, stippled texture on the top and front surfaces, giving them a three-dimensional appearance. The letters are slightly slanted and spaced out.

Mark J. Kilgard
Silicon Graphics, Inc.

Abstract

This course teaches using the OpenGL graphics system with the X Window System to write sophisticated 2D and 3D graphics programs. The concepts underlying OpenGL's GLX extension to the X server are explained. Programming examples using OpenGL with both the Xlib and Motif programming interfaces are provided. The OpenGL Utility Toolkit (GLUT) is used to demonstrate fast prototyping of OpenGL programs for X. Course attendees will learn the concepts that underlie OpenGL's integration with the X Window System APIs and how to write useful OpenGL programs for X.

*OpenGL is a registered trademark of Silicon Graphics, Inc.
X Window System is a registered trademark of X
Consortium, Inc. Motif is a trademark of Open Software
Foundation, Inc. Spaceball is registered trademark of
Spatial Systems, Inc.*

*Copyright © 1994, 1995 Mark J. Kilgard.
All rights reserved.*

Table of Contents

Abstract	1
Speaker background	4
Course notes	5
Overview of OpenGL's intergration with X	6
GLX API for binding OpenGL to X	11
Issues for using OpenGL with X	17
Widgets, Motif, and OpenGL	26
OpenGL Utility Toolkit (GLUT)	36
More information	42
Article reprints	
OpenGL and X: an introduction	45
OpenGL and X: using OpenGL with Xlib	59
OpenGL and X: integrating OpenGL with Motif	79
An OpenGL Toolkit	93
System Support for OpenGL Direct Rendering	99
Documentation	
OpenGL widget man pages	111
New GLX 1.1 man pages	123
SGI glXIntro man page	126
Specifications	
The OpenGL Utility Toolkit (GLUT) Programming Interface, API version 2	131
OpenGL Graphics with the X Window System (Version 1.1), a.k.a. "the GLX spec"	179

The Speaker

Mark J. Kilgard

- o Member of the Technical Staff, Silicon Graphics, Inc.
- o Regular columnist on OpenGL for *The X Journal*.
- o Directly involved in the design and implementation of SGI's window system support for OpenGL.
- o Served as Compaq's representative to the OpenGL Architectural Review Board during OpenGL's design.
- o Karaoke rendition of Dolly Parton's "9 to 5" can't be beat.

Address: Silicon Graphics, Inc., Mail Stop 8U-590, 2011 N. Shoreline Blvd., Mountain View, CA 94043-1389.
Email: mjk@sgi.com *Phone:* 415-390-2028 *Fax:* 415-965-2658.