
Contents

Preface	ix
Acknowledgements.....	xiii
1 An Overview of Scene Graphs and OpenSceneGraph.....	1
1.1 History of OpenSceneGraph	1
1.2 Installing OSG	3
1.2.1 Hardware Requirements.....	4
1.2.2 Apple Mac OS X.....	4
1.2.3 Fedora Linux.....	4
1.2.4 Microsoft Windows.....	5
1.2.5 Verifying Your OSG Installation	5
1.3 Running osgviewer	6
1.3.1 Getting Help	7
1.3.2 Display Modes	8
1.3.3 Environment Variables.....	8
1.3.4 Statistics Display.....	9
1.3.5 Recording an Animation	10
1.4 Compiling OSG Applications	11
1.4.1 Apple Mac OS X.....	11
1.4.2 Fedora Linux.....	11
1.4.3 Microsoft Visual Studio.....	12
1.5 Introduction to Scene Graphs	13
1.5.1 Scene Graph Features.....	14
1.5.2 How Scene Graphs Render.....	16
1.6 Overview of OpenSceneGraph	17
1.6.1 Design and Architecture.....	18
1.6.2 Naming Conventions.....	19
1.6.3 Components.....	19

2	Building a Scene Graph	31
2.1	Memory Management	31
2.1.1	The Referenced Class.....	34
2.1.2	The ref_ptr<> Template Class	34
2.1.3	Memory Management Examples.....	35
2.2	Geodes and Geometry	38
2.2.1	An Overview of Geometry Classes.....	42
2.3	Group Nodes.....	45
2.3.1	The Child Interface	45
2.3.2	The Parent Interface	47
2.3.3	Transform Nodes	48
2.3.4	The LOD Node.....	52
2.3.5	The Switch Node.....	54
2.4	Rendering State	55
2.4.1	Attributes and Modes	56
2.4.2	State Inheritance	58
2.4.3	Example Code for Setting State	59
2.4.4	Texture Mapping	63
2.4.5	Lighting.....	67
2.5	File I/O.....	72
2.5.1	Interface.....	73
2.5.2	Plugin Discovery and Registration.....	74
2.6	NodeKits and osgText	75
2.6.1	osgText Components.....	76
2.6.2	Using osgText	76
2.6.3	Text Example Code	80
2.6.4	The .osg File Format.....	81
3	Using OpenSceneGraph in Your Application	87
3.1	Rendering.....	87
3.1.1	The Viewer Class.....	88
3.1.2	CompositeViewer	91
3.2	Dynamic Modification.....	91
3.2.1	Data Variance.....	92
3.2.2	Callbacks.....	93
3.2.3	NodeVisitors	98
3.2.4	Picking.....	100

Appendix: Where to Go From Here	103
Glossary.....	103
Bibliography	103
Index	103
Revision History	103