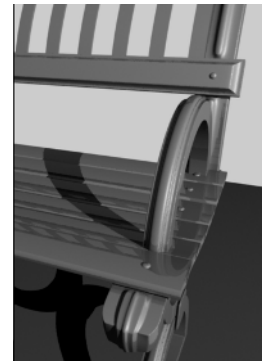


Contents

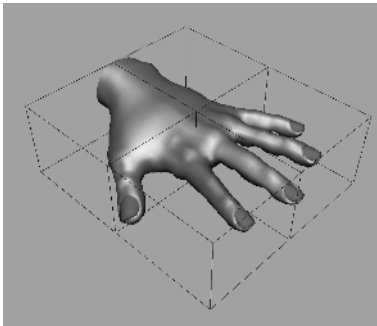
Introduction	xiii
Chapter 1 ■ Introduction to Computer Graphics and 3D	1
Embrace the Art	2
Computer Graphics	2
The Stages of Production	4
The CG Production Workflow	8
Core Concepts	12
Basic Film Concepts	24
Summary	30
Chapter 2 ■ The Maya 2008 Interface	31
Navigating in Maya	32
A Screen Roadmap	32
Panels and Frequently Used Windows	45
Maya Object Structure	66
Summary	69
Chapter 3 ■ Your First Maya Animation	71
Project Overview: The Solar System	72
The Preproduction Process: Planning	72
Creating a Project	73
The Production Process: Creating and Animating the Objects	74
Using the Outliner	92
Summary	95
Chapter 4 ■ Modeling with Polygons	97
Planning Your Model	98
Polygon Basics	105
Poly Editing Tools	107



Putting the Tools to Use: Making a Simple Hand	111
Creating Areas of Detail on a Poly Mesh	117
Modeling Complex Objects: The Classic Steam Locomotive	126
Suggestions for Modeling Polygons	152
Summary	152

Chapter 5 ■ Modeling with NURBS 155

Ways to Make NURBS	156
NURBS Modeling: Creating the Red Rocket	167
Editing NURBS Surfaces	215
Using NURBS Surfacing to Create Polygons	218
Converting NURBS to Polygons	219
Patch Modeling: A Locomotive Detail	220
Using Artisan to Sculpt NURBS	234
Summary	236



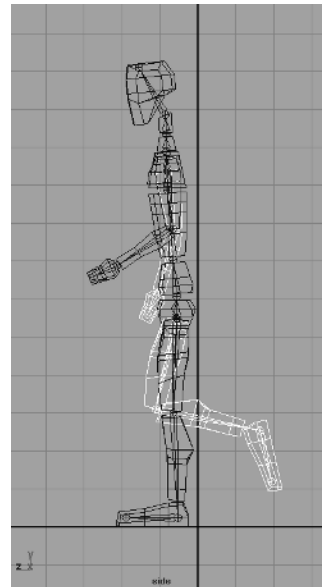
Chapter 6 ■ Further Modeling Topics: Deformers and Subdivision Surfaces 237

Modeling with Simple Deformers	238
The Lattice Deformer	244
Animating Through a Lattice	248
Subdivision Surfaces	252
Creating a Starfish	252
Building a Teakettle	257
Summary	266

Chapter 7 ■ Maya Shading and Texturing 267

Maya Shading	268
Shader Types	268
Shader Attributes	272
Texturing the Axe	276
Textures and Surfaces	286
Texturing the Red Rocket	296

UVs, Polygons, and Images: Color My Pear	308
Summary	312
Chapter 8 ■ Introduction to Animation	313
Keyframe Animation—Bouncing a Ball	314
Throwing an Axe	323
Replacing an Object	341
Animating Flying Text	343
Rigging the Locomotive, Part One	348
Animating a Catapult	351
Summary	357
Chapter 9 ■ Further Animation Practices	359
Skeletons and Kinematics	360
Skeletons: The Hand	373
Inverse Kinematics	388
Basic Relationships: Constraints	392
Basic Relationships: Set Driven Keys	398
Application: Rigging the Locomotive	400
Summary	409
Chapter 10 ■ Maya Lighting	411
Basic Lighting Concepts	412
Maya Lights	416
Light Linking	423
Adding Shadows	424
Soft Shadow Maps with mental ray	428
mental ray Lighting	430
Global Illumination with mental ray	432
Lighting Effects	437
Lighting the Red Rocket	442
Further Practice	445
Tips for Using and Animating Lights	446
Summary	448



Chapter 11 ■ Maya Rendering 449

The Rendering Setup 450

Previewing Your Render: The Render View Window 459

Reflections and Refractions 462

Using Cameras 464

Motion Blur 468

Batch Rendering 469

Rendering the Wine Bottle 470

mental ray for Maya 474

Render Layers 478

Ambient Occlusion 488

Final Gather 495

Rendering the Red Rocket 498

Summary 516

Chapter 12 ■ Maya Dynamics 517

An Overview of Dynamics 518

Rigid and Soft Dynamic Bodies 518

Animating with Dynamics:
The Pool Table 522

Emitting Particles 532

Particle Dynamics 533

Animating a Particle Effect:
Locomotive Steam 540

Introduction to Paint Effects 548

Summary 552

Where Do You Go from Here? 552

Appendix ■ About the Companion CD 565

Glossary 559

Index 565

