

Contents

Acknowledgments	xiii
Introduction	xv
Chapter 1: Basic Training	1
Working as a 3D Artist	1
Experience	2
Disciplines	2
Education: It's up to You	3
Resource Library: The Life Blood of a 3D Artist	4
Technical Information	4
Assets	5
Software: It's Only a Tool	6
Learning to See: Switching off Auto Mode	7
Emotional Content	7
Flipping the Switch	8
Summary	12
Chapter 2: Becoming a Modonaut	13
Way of the modo: User Interface and Customization	14
Form and Input Editors	15
Statistics and Information	17
Display	19
Preferences	20
The Work Plane	24
Action Centers, Snapping, and Falloffs	26
Action Centers	26
Snapping	28
Falloffs	30
The Tool Pipe	30

The Shader Tree	32
Item List and Groups	34
Item List	35
Groups.....	35
Preset Browser	36
Modeling and Animation Toolsets	37
Animation Tools.....	37
Modeling Tools	41
Painting and Sculpting Toolsets	43
Painting Tools.....	43
Sculpting Tools	47
Vertex Maps	48
Weight Maps.....	49
Rendering.....	51
Scripting and Commands	52
Modo for Maya Users.....	52
Differences	53
Commonalities	54
The Modo Community	55
Summary	56
Chapter 3: Modeling	57
Modeling Methods	58
Subdivision Modeling.....	58
Patch Modeling	63
Modeling Reference	67
Backdrop Item	67
Making Selections.....	69
Loop Selections	69
Using the Arrow Keys	69
Select Connected	70
Selection Sets	71
Detailing the Mesh.....	71
Adding Detail	72
Shaping the Mesh	77

Topology	78
Creating a Clean Geometry	79
Polygon Flow	80
Edge Loops	83
Replicators	86
Groups	86
Vertex Maps	87
Surface Generators	87
Working with Hair	89
Creating Hair	89
Styling Hair	93
Summary	97
Chapter 4: UV Mapping	99
Understanding UV Space	99
UV Coordinates	100
Maximizing Detail	101
UV Aspect Ratio	104
Mapping Out a Strategy	109
Single UV Map	109
Multiple UV Maps	110
Surveying the Model	112
UV Tiles	114
UV Unwrap	117
Unwrap Tool	117
UV Relax	120
Understanding UV Seams	121
Unwrapping a Hand	124
Summary	131
Chapter 5: Texturing	133
Collecting Reference	133
Using Texture Maps	134
Setting Material Properties	134
Map Types	136

The Shader Tree	152
Groups.....	152
Group Masks	154
Texturing Hair	156
Fur Material	156
Using the Strip Type.....	158
Using Gradients	159
Summary.....	162
Chapter 6: Animation.....	163
Morph Maps.....	164
Working with Morph Maps	164
Adding Morph Deformers	165
Creating a Controller.....	165
Creating the User Channels.....	167
Creating a Link to the Morph Deformers	168
Direct Link	169
Configuring the Morph Controller	172
Adding an Assembly Command.....	173
Inverse Kinematics	173
Setting Up IK	174
Rigging the Robot Arm	175
Summary.....	186
Chapter 7: The Camera: Bringing It into Focus	187
The Camera.....	187
Focal Length	188
Film Back.....	190
The Resolution Gate and Film Aspect Ratio	191
Depth of Field.....	192
Lens Artifacts.....	193
Motion Blur.....	206
Matching Real-World Cameras.....	208
Aspect Ratio.....	209
Matching the Camera	211
Summary.....	217

Chapter 8: Lighting and Rendering	219
Characteristics of Light and Shadow	219
Light	220
Shadow	225
Photometric Lights	228
Deep Shadows	229
Global Illumination	229
Irradiance Caching	230
Monte Carlo	231
Environment	231
Image-Based Lighting	232
Using sIBL in 401	236
Lighting Phenomena: Volumetrics and Caustics	237
Volumetrics	237
Caustics	239
Light Linking	240
Studio Lighting: Reflectors	242
Render Settings	243
Antialiasing	243
Geometry	245
Ray Tracing	249
Rendering for Print	250
Summary	252
Chapter 9: Advanced Lighting and Rendering: Working in Linear Space	253
Dynamic Range	254
Floating Point	255
Gamma	257
Setting Up a Linear Workflow in Modo	258
Rendering and Saving in Linear Space	258
Gamma Correcting Renders	263
Render Outputs	263
Render Passes	264
Material Masks	265

Tone Mapping	266
Summary	267
Chapter 10: Using modo with Maya	269
Why Use Maya?	269
My Workflow	270
FBX	270
Working Units	272
Animation	275
Camera	275
Adjusting Curves	277
MDD	279
Summary	290
Chapter 11: Creating Real-time Assets	291
Examples	292
Tug Example	292
Simple Building Example	305
Summary	323
Bonus Resources	325
Index	327