
Table of Contents

Preface	vii
Introduction	xv
 1. Robots Made from Interesting Materials	 1
Project: Make Actuated Paper	4
What It Does	4
Where It Came From	4
How It Works	7
Making the Project	8
Project Parameters	8
What You Need to Know	9
Project: Make an Inflatable Robot	22
What It Does	22
Where It Came From	23
How It Works	24
Making the Project	25
Project Parameters	25
What You Need to Know	26
 2. Robots That Get Around	 33
Project: Make a Compressible Tensegrity Robot	36
What It Does	36
Where It Came From	36
How It Works	38
Making the Project	39
Project Parameters	40

What You Need to Know	40
Gather Your Materials	40
Directions	41
Project: Design a Wheel-Leg Hybrid	48
What It Does	48
Where It Came From	48
How It Works	49
How Does a 3D Printer Work?	50
Making the Project	53
Project Parameters	53
What You Need to Know	54
Gather Your Materials	54
Directions	54
3. Unevolved Robots	73
Project: Make a Swarm of Gliding Vibrobots	77
What Is a Vibrobot?	77
What It Does	77
Where It Came From	77
How It Works	78
Making the Project	78
Project Parameters	78
What You Need to Know	79
Project: Make a Souped-Up Solar BEAM Wobblebot	83
What Is a BEAM Robot?	83
What It Does	83
Where It Came From	83
How It Works	84
Making The Project	84
Project Parameters	85
4. Robot Friends and Helpers	105
Project: Make a Chatbot Program	107
What Is a Chatbot?	107
What It Does	107
Where It Came From	107
How It Works	108
Making the Project	110
Project Parameters	112
What You Need to Know	112
Gather Your Materials	112
Project: Picture Yourself in the Uncanny Valley	124
What Is the Uncanny Valley?	124
What It Does	124
Where It Came From	124

How It Works	126
Making the Project	127
Project Parameters	127
What You Need to Know	127
Gather Your Materials	128
5. Fun, Artsy Robots	135
Project: Make a littleBits Plotter	136
What Is a Plotter?	136
What It Does	137
Where It Came From	137
How It Works	139
Making the Project	140
Project: Make FiberBot, an E-Textile Arduino Robot	153
What Are E-Textiles?	153
What It Does	154
Where It Came From	154
How It Works	155
Making the Project	156
Afterword: What I Learned Writing This Book.	191
Index	195