Contents

Preface vii Acknowledgments xi Introduction 1

Part I ALGORITHMS

	Computation and Algorithms – Hansel and Gretel	
	1 A Path to Understanding Computation	19
	2 Walk the Walk: When Computation Really Happens	33
	Representation and Data Structures – Sherlock Holmes	
	3 The Mystery of Signs	49
	4 Detective's Notebook: Accessory after the Fact	63
	Problem Solving and Its Limitations – Indiana Jones	
	5 The Search for the Perfect Data Structure	83
	6 Sorting out Sorting	103
	7 Mission Intractable	121
Part II	LANGUAGES	
	Language and Meaning – Over the Rainbow	
	8 The Prism of Language	141
	9 Finding the Right Tone: Sound Meaning	159
	Control Structures and Loops – Groundhog Day	
	10 Weather, Rinse, Repeat	175
	11 Happy Ending Not Guaranteed	189
	Recursion – Back to the Future	
	12 A Stitch in Time Computes Fine	205
	13 A Matter of Interpretation	205
		22)
	Types and Abstraction – Harry Potter	
	14 The Magical Type	245
	15 A Bird's Eye View: Abstracting from Details	263
	Glossary 287	

Glossary 287 Notes 303 Index 313