Contents

	Preface	vii
	Acknowledgments	ix
1	ook in this field rather than to attempt a complete but less	detuiled any
1	Genetic Algorithms: An Overview	I te cause a 1
	A Brief History of Evolutionary Computation	2
	The Appeal of Evolution	3
	Biological Terminology	5
	Search Spaces and Fitness Landscapes	6
	Elements of Genetic Algorithms	8
	A Simple Genetic Algorithm	10
	Genetic Algorithms and Traditional Search Methods	12
	Some Applications of Genetic Algorithms	15
	How Do Constis Algorithms Work?	17
	Thought Exercises	2/
	Computer Exercises	31
	Computer Excluses	boundari
2	Genetic Algorithms in Problem Solving	35
	Evolving Computer Programs	35
	Data Analysis and Prediction	55
	Evolving Neural Networks	65
	Thought Exercises	79
	Computer Exercises	81
3	Genetic Algorithms in Scientific Models	85
	Modeling Interactions Between Learning and Evolution	87
	Modeling Sexual Selection	100
	Modeling Ecosystems	104
	Measuring Evolutionary Activity	108
	Thought Exercises	113
	Computer Exercises	113
-	re very young, and most of the important problems remain	
4	Theoretical Foundations of Genetic Algorithms	117
	Schemas and the Two-Armed Bandit Problem	117
	Royal Roads	127
	Exact Mathematical Models of Simple Genetic Algorithms	138

	Statistical-Mechanics Approaches Thought Exercises Computer Exercises	
5	Implementing a Genetic Algorithm When Should a Genetic Algorithm Be Used? Encoding a Problem for a Genetic Algorithm Adapting the Encoding Selection Methods Genetic Operators Parameters for Genetic Algorithms Thought Exercises	
	Computer Exercises	
6	Conclusions and Future Directions	
	Appendix A Selected General References Appendix B Other Resources Bibliography Index	
	Elements of Genetiz'Algerithtics (- m-gaigalata) astegno) for ya A Simple Genetic Algorithm Genetic Algorithms and Traditional Search MethodsalaM Jase Some Applicities 6465 white algorithms are an antra- Two Brief Examples	
	Cenetic Algorithms in Problem Solving Evolving Gauge uter Programs Data Anglysis and Prediction Evolving Neural Networks	
	Thought Exercises Computer Exercises	