Learning Classifier Systems (LCS) are a machine learning paradigm introduced by John Holland in 1976. They are rule-based systems in which learning is viewed as a process of ongoing adaptation to a partially unknown environment through genetic algorithms and temporal difference learning. This book provides a unique survey of the current state of the art of LCS and highlights some of the most promising research directions. The first part presents various views of leading people on what learning classifier systems are. The second part is devoted to advanced topics of current interest, including alternative representations, methods for evaluating rule utility, and extensions to existing classifier system models. The final part is dedicated to promising applications in areas like data mining, medical data analysis, economic trading agents, aircraft maneuvering, and autonomous robotics. An appendix comprising 467 entries provides a comprehensive LCS bibliography.