

Preface

Learning classifier systems are rule-based systems that exploit evolutionary computation and reinforcement learning to solve difficult problems. They were introduced in 1978 by John H. Holland, the father of genetic algorithms, and since then they have been applied to domains as diverse as autonomous robotics, trading agents, and data mining.

At the Second International Workshop on Learning Classifier Systems (IWLCS 99), held July 13, 1999, in Orlando, Florida, active researchers reported on the then current state of learning classifier system research and highlighted some of the most promising research directions. The most interesting contributions to the meeting are included in the book *Learning Classifier Systems: From Foundations to Applications*, published as LNAI 1813 by Springer-Verlag.

The following year, the Third International Workshop on Learning Classifier Systems (IWLCS 2000), held September 15–16 in Paris, gave participants the opportunity to discuss further advances in learning classifier systems. We have included in this volume revised and extended versions of thirteen of the papers presented at the workshop.

The volume has been organized into four parts. Part I is dedicated to important theoretical issues of learning classifier systems research including formal models for studying convergence properties and analysis of performance. Part II contains papers discussing applications of learning classifier systems such as medical data analysis, market analysis, data mining, and control. Part III presents some advanced architectures in which classifier systems interact to achieve common goals. Part IV contains the most updated learning classifier systems bibliography with more than 600 references. An appendix contains a paper presenting a formal description of XCS, currently the most intensively studied learning classifier system model.

We believe this volume will be the ideal companion for researchers interested in learning classifier systems and will provide useful insights into the most relevant topics and the most interesting open issues.

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Organization

The Third International Workshop on Learning Classifier Systems (IWLCS 2000) was held September 15–16, 2000 in Paris, France, between the Sixth International Conference on the Simulation of Adaptive Behavior (SAB 2000) and the The Sixth International Conference on Parallel Problem Solving from Nature (PPSN VI).

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