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Preface

The objective of this book is two-fold. Firstly, it is aimed at bringing together key research articles concerned with methodologies for knowledge discovery in databases and their applications. Secondly, it also contains articles discussing fundamentals of rough sets and their relationship to fuzzy sets, machine learning, management of uncertainty and systems of logic for formal reasoning about knowledge. Applications of rough sets in different areas such as medicine, logic design, image processing and expert systems are also represented. The articles included in the book are based on selected papers presented at the International Workshop on Rough Sets and Knowledge Discovery held in Banff, Canada in 1993. The primary methodological approach emphasized in the book is the mathematical theory of rough sets, a relatively new branch of mathematics concerned with the modeling and analysis of classification problems with imprecise, uncertain, or incomplete information. The methods of the theory of rough sets have applications in many sub-areas of artificial intelligence including knowledge discovery, machine learning, formal reasoning in the presence of uncertainty, knowledge acquisition, and others. This spectrum of applications is reflected in this book where articles, although centered around knowledge discovery problems, touch a number of related issues. The book is intended to provide an important reference material for students, researchers, and developers working in the areas of knowledge discovery, machine learning, reasoning with uncertainty, adaptive expert systems, and pattern classification.

As editor, I would like to express my sincere thanks to all contributors for their efforts to submit the high quality articles on time and within the specified size and format constraints. The preparation of this book was supported in part by a grant from the Natural Sciences and Engineering Research Council of Canada. The Computer Science Department of the University of Regina has provided all necessary technical facilities and support for the editorial work and rapid communication with contributors. Finally, I would like to thank Ms. Rosie Kemp, the Editorial Assistant for Springer-Verlag, and Mr. Ning Shan for their help in the preparation of this book.

Wojciech Ziarko
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