

# Foreword to Second Edition

We are deluged by data—scientific data, medical data, demographic data, financial data, and marketing data. People have no time to look at this data. Human attention has become the precious resource. So, we must find ways to automatically analyze the data, to automatically classify it, to automatically summarize it, to automatically discover and characterize trends in it, and to automatically flag anomalies. This is one of the most active and exciting areas of the database research community. Researchers in areas including statistics, visualization, artificial intelligence, and machine learning are contributing to this field. The breadth of the field makes it difficult to grasp the extraordinary progress over the last few decades.

Six years ago, Jiawei Han's and Micheline Kamber's seminal textbook organized and presented Data Mining. It heralded a golden age of innovation in the field. This revision of their book reflects that progress; more than half of the references and historical notes are to recent work. The field has matured with many new and improved algorithms, and has broadened to include many more datatypes: streams, sequences, graphs, time-series, geospatial, audio, images, and video. We are certainly not at the end of the golden age—indeed research and commercial interest in data mining continues to grow—but we are all fortunate to have this modern compendium.

The book gives quick introductions to database and data mining concepts with particular emphasis on data analysis. It then covers in a chapter-by-chapter tour the concepts and techniques that underlie classification, prediction, association, and clustering. These topics are presented with examples, a tour of the best algorithms for each problem class, and with pragmatic rules of thumb about when to apply each technique. The Socratic presentation style is both very readable and very informative. I certainly learned a lot from reading the first edition and got re-educated and updated in reading the second edition.

Jiawei Han and Micheline Kamber have been leading contributors to data mining research. This is the text they use with their students to bring them up to speed on

the field. The field is evolving very rapidly, but this book is a quick way to learn the basic ideas, and to understand where the field is today. I found it very informative and stimulating, and believe you will too.

Jim Gray  
*In his memory*