complicated for an average reader, but Hough admits that we are dealing with a problem too complex to be explained by the existing theories.

The fourth chapter is on ground motions. As most other chapters in this book, this one also starts with a little bit of history of ground motion seismology and goes through concepts of seismic wave propagation and attenuation. Site response is dealt with in detail, with excellent illustrations of how seismic waves are modified in a valley or due to a low-velocity sediment layer. Damage in Mexico City, located about 300 km away from the source of the 1985 earthquake, is presented as a classic case, among other examples.

Recent years have seen many debates about earthquake prediction – a topic that cannot be ignored by any popular book on earthquakes. *Earthshaking Science* devotes a chapter to earthquake prediction, touching on various types of precursors and the physical basis for their occurrence. Of course, understanding earthquake processes and the physics of precursors form the basis of any meaningful prediction programme. A couple of pages each are devoted to the much talked about Parkfield prediction experiment, and also to the VAN prediction method. Although there are no immediate hopes of successfully catching an earthquake alive, there are many seismologists who see prediction in the horizon. Of course, there is an equal or more number of people who think otherwise. Hough presents the basis for both these views, but the prevalent tone is that of hope and optimism – perhaps a reflection of her own faith in science.

Earthquake prediction being a rather elusive goal, the emphasis in the recent years has been higher on predicting and mapping seismic hazards. The chapter on mapping seismic hazard, the one that I liked most in this book, is an excellent summary of what is done in a seismic hazard assessment programme. The important inputs – information on seismic sources, effects of attenuation and prediction of ground motion, frequency-dependent response of buildings and role of site response – are explained in simple language. The illustrations and boxes are useful in communicating these ideas. This chapter ends on a philosophical note that once in a while we should question ourselves about what we do not know. Perhaps, it is good practice to follow, not

only in dealing with earthquakes, but also in all other aspects of science and life. That there is a lot that we do not know about earthquakes is stated aloud, right in the cover page by adding a tailpiece to the caption: *What We Know (and Don't Know) about Earthquakes*. Those who attempt to predict hazard from future earthquakes would be the first to appreciate this confession, because they know that the list of unknowns is by no means small. But science has a way of getting there and this book brims with that hope. That hope and stimulus is what makes *Earthshaking Science* so special.

Chapter 7 is a journey back in time, dealing with the issue of how to extend our knowledge of past earthquakes beyond the instrumental and historic records. Reconstructing a region's past seismic history is no easy task, as evident from her narrations on the studies at New Madrid, southeastern United States, famous for the series of earthquakes of early 1800s. Perhaps there is no other site in the world that has been studied so extensively, and Hough gives an excellent summary of these efforts, including the inconsistencies in magnitude estimates. From New Madrid, Hough takes us to California, and to Pallet Creek where the science of palaeoseismology was born; she tells us how geologists work on imprints of past earthquakes to string together their story, sometimes with many links missing.

The last chapter on 'bringing the science home' essentially deals with translating knowledge on earthquake processes towards risk mitigation. Using examples of earthquakes from almost all over the United States, this chapter summarizes the general hazard scenario in that country. Seismicity in the stable continental regions, where earthquakes may occur much more infrequently, like that at Killari, also find place in this chapter. *Earthshaking Science* ends with a strong message that societal commitment to mitigate earthquake risk must be driven by public awareness and concern. Hough's definition of 'home' is North America, where she expects to find most readers. Understandably, most of the discussions in this book are on earthquakes and hazards in North America, but readers from other parts of the globe should also find it equally enjoyable. Hough's strength is not science alone; she is also gifted with a narrative style

and craft that makes her science more palatable to a wide spectrum of audience.

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The field of data mining is attracting the attention of engineers, scientists and business people due to its application potential in a variety of important areas, including medical sciences, bio-informatics, forecasting, large-scale pattern recognition, and knowledge discovery in databases. It can have a positive impact on every large-scale decision-making endeavour. There are not many good books on data mining. This is because the area is still in a state of infancy. In this context, a comprehensive book on data mining is highly welcome.

This book offers a wealth of information on data mining. It deals with topics that are of interest to both the database management systems community and machine-learning community. Also, parts of the book form authoritative sources for researchers and practitioners in the area of statistical pattern recognition. It can be used as a textbook for teaching senior undergraduate and junior graduate level courses on data mining and pattern recognition.

The material in the book is well-structured into nine chapters dealing with various aspects of data mining, and an excellent collection of references to relevant literature is provided at the end of each chapter. Chapters 1–3 in the book deal with fundamental aspects of data mining, to provide an excellent platform for describing and analysing statistical data mining components, tasks and algorithms in the rest of the book. The third chapter, dealing with an introduction to data mining is written in an authoritative and a reasonably thorough manner.

One of the most important activities under data mining is mining for association rules. Chapter 4 deals with association

rules in a detailed and comprehensive manner. It is possible to follow this chapter as it is in a course on data mining. Chapter 5 deals with clustering, another important activity in data mining. Most of the recent contributions to clustering, specifically on the topic of clustering large data sets is well documented in this chapter. However, in the process of doing justice to the recent literature some of the efficient clustering algorithms well-known in the literature for the past four decades, for example 'Leader', are not considered. It is important to note that schemes like 'BIRCH' are minor extensions of Leader.

Another topic that is well covered in the book is 'decision trees'. Various issues involved in the design and usage of axes-parallel decision trees are described well in chapter 6. This chapter would have been more comprehensive if a better coverage on oblique decision trees was provided by the author. As the author himself suggests, material in chapters 7–9 is not comprehensive and tends to be sketchy at places. Chapter 7 deals with some of the soft computing paradigms, but there is no mention of 'fuzzy sets'. However, references to recent important literature are provided at the end of these chapters for the benefit of readers looking for more details.

On the whole, the book forms a good reference text on a variety of topics under data mining. Material in chapters 3–6 can be directly used for teaching a course on data mining. Also, chapters 5 and 6 can be used for teaching part of a course on statistical pattern recognition. Exercises provided at the end of the chapters are good, and they can be used effectively by course instructors in tests and examinations. I strongly recommend this book to those interested in data mining and pattern recognition. The book would benefit by more careful editing.

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