

Book Review

Jan Rauch
Observational Calculi and Association Rules
Studies in Computational Intelligence Series no. 469
Springer, Heidelberg, New York, Dordrecht, London
ISBN: 978-3-643-11736-7
16 Chapters. 296 pages

Association Rules perhaps have significant impact in data mining than any other technique. In the last couple of years we have been encountering with many newer specific mining techniques and methods. Besides, we have mining of atomic level concepts to gain understanding of the data we have.

Jan Rauch took the mathematical formulation, the Observational Calculi which was formulated by Petr Hajek and Tomas Havranek to understand how the association rules can able to support the scientific hypotheses verification. He developed a theory based on the statement, "if we accept theoretical assumptions and verify a particular statement about the observed data, we accept a conclusion-a theoretical statement". Statistical techniques are warranted to make the theoretical assumptions to reality. Based on this concept, he produced the documentation on calculi association rules.

This book has four parts with 16 chapters which spread into a very large number of sub-sections. The Part I discusses the logical calculi behind the association rules. A basic chapter on the Data Matrices forms a component in this section. The core of the association rules is the Boolean attributes which are derived from an analysis of data matrix. The data matrices are explained using good examples where transactions are presented. The interpretations of Boolean attributes are given in the subsequent chapter. The 4ft quantifiers are described with properties and lemmas. The theorems, implications and possible extensions are outlined with good amount of descriptions in the next couple of chapters which leads the young researchers to gain understanding of the quantifiers.

There is an exclusive chapter on deduction rules in the calculi of association rules in this book that discuss the properties with adequate number of theorems. The GUHA methods were introduced with the intention of framing formulas for observational calculi. The GUHA methods are elaborately discussed with the SD4ft-Miner and Ac4ft miner for mine which enable to form strong measures for association rules in an exclusive chapter.

The book is supplemented with an extensive bibliography, references used and glossary. The author could have given possible applications for different domains which is required.

I found this book as the useful addition to the stock of knowledge on data mining. The author has made it clear that the present research community needs to look at not only journal literature but new books on specific themes for generating valuable research. This is a compendium to the data mining researchers on newer tasks.

Daisy Jacobs
University of Zululand
Natal, South Africa