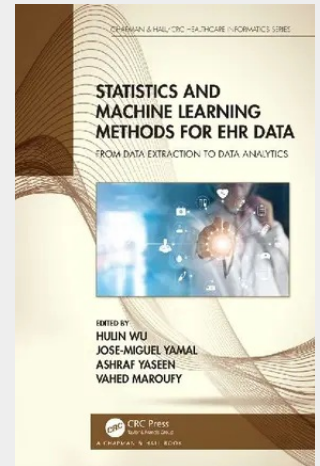


Statistics and Machine Learning Methods for EHR Data

From Data Extraction to Data Analytics

The use of Electronic Health Records (EHR)/Electronic Medical Records (EMR) data is becoming more prevalent for research. However, analysis of this type of data has many unique complications due to how they are collected, processed and types of questions that can be answered. This book covers many important topics related to using EHR/EMR data for research including data extraction, cleaning, processing, analysis, inference, and predictions based on many years of practical experience of the authors. The book carefully evaluates and compares the standard statistical models and approaches with those of machine learning and deep learning methods and reports the unbiased comparison results for these methods in predicting clinical outcomes based on the EHR data. Key Features: - Written based on hands-on experience of contributors from multidisciplinary EHR research projects, which include methods and approaches from statistics, computing, informatics, data science and clinical/epidemiological domains. - Documents the detailed experience on EHR data extraction, cleaning and preparation - Provides a broad view of statistical approaches and machine learning prediction models to deal with the challenges and limitations of EHR data. - Considers the complete cycle of EHR data analysis. The use of EHR/EMR analysis requires close collaborations between statisticians, informaticians, data scientists and clinical/epidemiological investigators. This book reflects that multidisciplinary perspective.

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