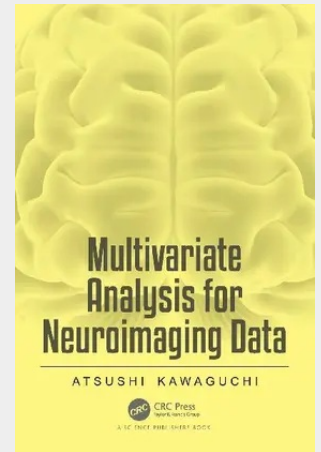


Multivariate Analysis for Neuroimaging Data

This book describes methods for statistical brain imaging data analysis from both the perspective of methodology and from the standpoint of application for software implementation in neuroscience research. These include those both commonly used (traditional established) and state of the art methods. The former is easier to do due to the availability of appropriate software. To understand the methods it is necessary to have some mathematical knowledge which is explained in the book with the help of figures and descriptions of the theory behind the software. In addition, the book includes numerical examples to guide readers on the working of existing popular software. The use of mathematics is reduced and simplified for non-experts using established methods, which also helps in avoiding mistakes in application and interpretation. Finally, the book enables the reader to understand and conceptualize the overall flow of brain imaging data analysis, particularly for statisticians and data-scientists unfamiliar with this area. The state of the art method described in the book has a multivariate approach developed by the authors' team. Since brain imaging data, generally, has a highly correlated and complex structure with large amounts of data, categorized into big data, the multivariate approach can be used as dimension reduction by following the application of statistical methods. The R package for most of the methods described is provided in the book. Understanding the background theory is helpful in implementing the software for original and creative applications and for an unbiased interpretation of the output. The book also explains new methods in a conceptual manner. These methodologies and packages are commonly applied in life science data analysis. Advanced methods to obtain novel insights are introduced, thereby encouraging the development of new methods and applications for research into medicine as a neuroscience.

This book enables us to analyze statistically brain imaging data. It is meant for a wide range of researchers interested in biostatistics, data science, and neuroscience. It is useful to understand the background theory of standard software for neuroimaging data analysis.

**101,10 €**

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