Book review:

RESAMPLING METHODS:
A PRACTICAL GUIDE TO DATA ANALYSIS

by

Phillip I. Good

The second part of the book's title suggests indeed in a far more adequate way its contents. It is, in fact, a self-contained presentation of the entire domain of data analysis from the point of view of the sense and application of the resampling methods. Moreover, the book is explicitly meant for study purposes, and therefore not only does it provide a full course on the subject, but also a consistent parallel stream of exercises and tasks, accompanied by numerous empirical examples.

The teaching course covering estimation, hypothesis testing and classification contained within just a little bit more than 250 pages must, of necessity, be a selection, which in this case is guided not only by the reference to the definite resampling methods (permutations, cross-validation and the bootstrap), but also largely by the practical aspect of the knowledge provided. This orientation at practical use, expressed, in particular, through the very down-to-earth advice shown at each step in the boxes, is related, on the one hand, to potential use of this knowledge, and, on the other hand – to available tools and the best practices.

The consecutive chapters of the book are devoted to:
- descriptive statistics,
- cause and effect relations,
- hypothesis testing,
- definite distributions,
- estimation,
- power of tests,
- categorical data,
- experimental design and analysis,
- multiple variables and hypotheses,
- classification and discrimination,
- survival analysis and reliability, and
- the choice of the appropriate statistic.

The book is complemented with the appendices (altogether four of them),

software, both directly meant for the resampling methods and more general, requiring programming skills and ingenuity, as well as effort. The emphasis is, correctly, on the latter, since the use of the ready-made software products, often offering a host of options, quite frequently leads to mistakes resulting from the lack of understanding of the numerous assumptions behind such products, or of the deeper sense of these products in terms of conclusions to be (potentially) drawn from the results obtained with them.

Given the teaching purpose of the book and the orientation at practice it certainly is a surprise that the list of references contains more than 400 positions. This, indeed, is a piece of evidence that the course material presented is well founded. The volume ends with a subject index.

It is not so often that we review at this place the actual handbooks, especially of an apparent "non-advanced" nature (see the indication that the course can be taken by those with merely the knowledge of the introductory high-school algebra). Yet, let me note that, first, reviewing of this book was a true pleasure, owing to its internal consistency and elegance of lecture, as well as educational value. Second, even if an explicit effort was obviously undertaken to make the contents of the book possibly simple (implying also an appropriate selection of the material included), it remains very interesting, due to richness of the illustrating material and the clarity of presentation. It is certain that for numerous students using this handbook it will constitute just the starting point in their further work and/or study in the domain.

<div style="text-align: right;">Jan W. Owsiński</div>

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