A modern approach to statistical learning and its applications through visualization methods

With a unique and innovative presentation, Multivariate Nonparametric Regression and Visualization provides readers with the core statistical concepts to obtain complete and accurate predictions when given a set of data. Focusing on nonparametric methods to adapt to the multiple types of data generating mechanisms, the book begins with an overview of classification and regression.

The book then introduces and examines various tested and proven visualization techniques for learning samples and functions. Multivariate Nonparametric Regression and Visualization identifies risk management, portfolio selection, and option pricing as the main areas in which statistical methods may be implemented in quantitative finance. The book provides coverage of key statistical areas including linear methods, kernel methods, additive models and trees, boosting, support vector machines, and nearest neighbor methods. Exploring the additional applications of nonparametric and semiparametric methods, Multivariate Nonparametric Regression and Visualization features:

- An extensive appendix with R-package training material to encourage duplication and modification of the presented computations and research
- Multiple examples to demonstrate the applications in the field of finance
- Sections with formal definitions of the various applied methods for readers to utilize throughout the book
Multivariate Nonparametric Regression and Visualization is an ideal textbook for upper-undergraduate and graduate-level courses on nonparametric function estimation, advanced topics in statistics, and quantitative finance. The book is also an excellent reference for practitioners who apply statistical methods in quantitative finance.

ABOUT THE AUTHOR

JUSSI KLEMELÄ, PhD, is Senior Research Fellow in the Department of Mathematical Sciences at the University of Oulu. He has written numerous journal articles on his research interests, which include density estimation and the implementation of cutting edge visualization tools. Dr. Klemelä is the author of Smoothing of Multivariate Data: Density Estimation and Visualization, also published by Wiley.

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