Nonparametric Statistics Theory And Methods By Jayant V

This book is devoted to the theory and applications of nonparametic functional estimation and prediction. Chapter 1 provides an overview of inequalities and limit theorems for strong mixing processes. Density and regression estimation in discrete time are studied in Chapter 2 and 3. The special rates of convergence which appear in continuous time are presented in Chapters 4 and 5. This second edition is extensively revised and it contains two new chapters. Chapter 6 discusses the surprising local time density estimator. Chapter 7 gives a detailed account of implementation of nonparametric method and practical examples in economics, finance and physics. Comarison with ARMA and ARCH methods shows the efficiency of nonparametric forecasting. The prerequisite is a knowledge of classical probability theory and statistics. Denis Bosq is Professor of Statistics at the Unviersity of Paris 6 (Pierre et Marie Curie). He is Editor-in-Chief of "Statistical Inference for Stochastic Processes" and an editor of "Journal of Nonparametric Statistics". He is an elected member of the International Statistical Institute. He has published about 90 papers or works in nonparametric statistics and four books.

This volume presents the latest advances and trends in nonparametric statistics, and gathers selected and peer-reviewed contributions from the 3rd Conference of the International Society for Nonparametric Statistics (ISNPS), held in Avignon, France on June 11-16, 2016. It covers a broad range of nonparametric statistical methods, from density estimation, survey sampling, resampling methods, kernel methods and extreme values, to statistical learning and classification, both in the standard i.i.d. case and for dependent data, including big data. The International Society for Nonparametric Statistics is uniquely global, and its international conferences are intended to foster the exchange of ideas and the latest advances among researchers from around the world, in cooperation with established statistical societies such as the Institute of Mathematical Statistics, the Bernoulli Society and the International Statistical Institute. The 3rd ISNPS conference in Avignon attracted more than 400 researchers from around the globe, and contributed to the further development and dissemination of nonparametric statistics knowledge.

An extensive array of examples drawn from actual experiments illustrates clearly how to use nonparametric approaches to handle one- or two-sample location and dispersion problems, dichotomous data, and one-way and two-way layout problems.

Following in the footsteps of its bestselling predecessors, the Handbook of Parametric and Nonparametric Statistical Procedures, Fifth Edition provides researchers, teachers, and students with an all-inclusive reference on univariate, bivariate, and multivariate statistical procedures.New in the Fifth Edition:Substantial updates and new material th

This book gives a systematic, comprehensive, and unified account of modern nonparametric statistics of density estimation, nonparametric regression, filtering signals, and time series analysis. The companion software package, available over the Internet, brings all of the discussed topics into the realm of interactive research. Virtually every claim and development mentioned in the book is illustrated with graphs which are available for the reader to reproduce and modify, making the material fully transparent and allowing for complete interactivity.

This book demonstrates that nonparametric statistics can be taught from a parametric point of view. As a result, one can exploit various parametric tools such as the use of the likelihood function, penalized likelihood and score functions to not only derive well-known tests but to also go beyond and make use of Bayesian methods to analyze ranking data. The book bridges the gap between parametric and nonparametric statistics and presents the best practices of the former while enjoying the robustness properties of the latter. This book can be used in a graduate course in nonparametrics, with parts being accessible to senior undergraduates. In addition, the book will be of wide interest to statisticians and researchers in applied fields.

Focussing on applications, this book covers a very broad range, including simple and complex univariate and multivariate density estimation, nonparametric regression estimation, categorical data smoothing, and applications of smoothing to other areas of statistics. It will thus be of particular interest to data analysts, as arguments generally proceed from actual data rather than statistical theory, while the "Background Material" sections will interest statisticians studying the field. Over 750 references allow researchers to find the original sources for more details, and the "Computational Issues" sections provide sources for statistical software that use the methods discussed. Each chapter includes exercises with a heavily computational focus based upon the data sets used in the book, making it equally suitable as a textbook for a course in smoothing.

Thoroughly revised and reorganized, the fourth edition presents in-depth coverage of the theory and methods of the most widely used nonparametric procedures in statistical analysis and offers example applications appropriate for all areas of the social, behavioral, and life sciences. The book presents new material on the quantiles, the calculation of exact and simulated power, multiple comparisons, additional goodness-of-fit tests, methods of analysis of count data, and modern computer applications using MINITAB, SAS, and STATXACT. It includes tabular guides for simplified applications of tests and finding P values and confidence interval estimates.

The number of books on Nonparametric Methodology is quite small as compared to, say, on Design of Experiments, Regression Analysis, Multivariate Analysis, etc. Because of being perceived as less effective, nonparametric methods are still the second choice. Actually, it has been demonstrated time and again that they are useful. We feel that there is still need for proper texts/applications/reference books on Nonparametric Methodology.This book will introduce various types of data encountered in practice and suggest the appropriate nonparametric methods, discuss their properties through null and non-null distributions whenever possible and demonstrate the very minor loss in power and efficiency in the nonparametric method, if any.The book will cover almost all topics of current interest such as bootstrapping, ranked set sampling, techniques for censored data and Bayesian analysis under nonparametric set ups.

A New Way of Analyzing Object Data from a Nonparametric Viewpoint Nonparametric Statistics on Manifolds and Their Applications to Object Data Analysis provides one of the first thorough treatments of the theory and methodology for analyzing data on manifolds. It also presents in-depth applications to practical problems arising in a variety of fields, including statistics, medical imaging, computer vision, pattern recognition, and bioinformatics. The book begins with a survey of illustrative examples of object data before moving to a review of concepts from mathematical statistics, differential geometry, and topology. The authors next describe theory and methods for working on various manifolds, giving a historical perspective of concepts from mathematics and statistics. They then present problems from a wide variety of areas, including diffusion tensor imaging, similarity shape analysis, directional data analysis, and projective shape analysis for machine vision. The book concludes with a discussion of current related research and graduate-level teaching topics as well as considerations related to computational statistics. Researchers in diverse fields must combine statistical methodology with concepts from projective geometry, differential geometry, and topology to analyze data objects arising from non-Euclidean object spaces. An expert-driven guide to this approach, this book covers the general nonparametric theory for analyzing data on manifolds, methods for working with specific spaces, and extensive applications to practical research problems. These problems show how object data analysis opens a formidable door to

the realm of big data analysis.
Confidence Intervals for Proportions and Related Measures of Effect Size illustrates the use of effect size measures and corresponding confidence intervals as more informative alternatives to the most basic and widely used significance tests. The book provides you with a deep understanding of what happens when these statistical methods are applied in situations far removed from the familiar Gaussian case. Drawing on his extensive work as a statistician and professor at Cardiff University School of Medicine, the author brings together methods for calculating confidence intervals for proportions and several other important measures, including differences, ratios, and nonparametric effect size measures generalizing Mann-Whitney and Wilcoxon tests. He also explains three important approaches to obtaining intervals for related measures. Many examples illustrate the application of the methods in the health and social sciences. Requiring little computational skills, the book offers user-friendly Excel spreadsheets for download at www.crcpress.com, enabling you to easily apply the methods to your own empirical data.
Proven Material for a Course on the Introduction to the Theory and/or on the Applications of Classical Nonparametric Methods Since its first publication in 1971, Nonparametric Statistical Inference has been widely regarded as the source for learning about nonparametric statistics. The fifth edition carries on this tradition while thoroughly revising at least 50 percent of the material. New to the Fifth Edition Updated and revised contents based on recent journal articles in the literature A new section in the chapter on goodness-of-fit tests A new chapter that offers practical guidance on how to choose among the various nonparametric procedures covered Additional problems and examples Improved computer figures This classic, best-selling statistics book continues to cover the most commonly used nonparametric procedures. The authors carefully state the assumptions, develop the theory behind the procedures, and illustrate the techniques using realistic research examples from the social, behavioral, and life sciences. For most procedures, they present the tests of hypotheses, confidence interval estimation, sample size determination, power, and comparisons of other relevant procedures. The text also gives examples of computer applications based on Minitab, SAS, and StatXact and compares these examples with corresponding hand calculations. The appendix includes a collection of tables required for solving the data-oriented problems. Nonparametric Statistical Inference, Fifth Edition provides in-depth yet accessible coverage of the theory and methods of nonparametric statistical inference procedures. It takes a practical approach that draws on scores of examples and problems and minimizes the theorem-proof format. Jean Dickinson Gibbons was recently interviewed regarding her generous pledge to Virginia Tech.
"The number of books on Nonparametric Methodology is quite small as compared to, say, on Design of Experiments, Regression Analysis, Multivariate Analysis, etc. Because of being perceived as less effective, nonparametric methods are still the second choice. Actually, it has been demonstrated time and again that they are useful. We feel that there is still need for proper texts/applications/reference books on Nonparametric Methodology. This book will introduce various types of data encountered in practice and suggest the appropriate nonparametric methods, discuss their properties through null and non-null distributions whenever possible and demonstrate the very minor loss in power and efficiency in the nonparametric method, if any. The book will cover almost all topics of current interest such as bootstrapping, ranked set sampling, techniques for censored data and Bayesian analysis under nonparametric set ups."--Publisher's website.
Offering an alternative to traditional statistical procedures which are based on least squares fitting, the authors cover such topics as one and two sample location models, linear models, and multivariate models. Both theory and applications are examined.
Balancing the "cookbook" approach of some texts with the more mathematical approach of others, Nonparametric Statistical Methods for Complete and Censored Data introduces commonly used non-parametric methods for complete data and extends those methods to right censored data analysis. Whenever possible, the authors derive their methodology from the general theory of statistical inference and introduce the concepts intuitively for students with minimal backgrounds. Derivations and mathematical details are relegated to appendices at the end of each chapter, which allows students to easily proceed through each chapter without becoming bogged down in a lot of mathematics. In addition to the nonparametric methods for analyzing complete and censored data, the book covers optimal linear rank statistics, clinical equivalence, analysis of block designs, and precedence tests. To make the material more accessible and practical, the authors use SAS programs to illustrate the various methods included. Exercises in each chapter, SAS code, and a clear, accessible presentation make this an outstanding text for a one-semester senior or graduate-level course in nonparametric statistics for students in a variety of disciplines, from statistics and biostatistics to business, psychology, and the social scientists. Prerequisites: Students will need a solid background in calculus and a two-semester course in mathematical statistics.
Provides a unified account of the most popular approaches to nonparametric regression smoothing. This edition contains discussions of boundary corrections for trigonometric series estimators; detailed asymptotics for polynomial regression; testing goodness-of-fit; estimation in partially linear models; practical aspects, problems and methods for confidence intervals and bands; local polynomial regression; and form and asymptotic properties of linear smoothing splines.
"Ratio Method of Estimation - This is an ideal textbook for researchers interested in sampling methods, survey methodologists in government organizations, academicians, and graduate students in statistics, mathematics and biostatistics. This textbook makes"
Modern apparatuses allow us to collect samples of functional data, mainly curves but also images. On the other hand, nonparametric statistics produces useful tools for standard data exploration. This book links these two fields of modern statistics by explaining how functional data can be studied through parameter-free statistical ideas. At the same time it shows how functional data can be studied through parameter-free statistical ideas, and offers an original presentation of new nonparametric statistical methods for functional data analysis.

This unified volume is a collection of invited chapters presenting recent developments in the field of data analysis, with applications to reliability and inference, data mining, bioinformatics, lifetime data, and neural networks. The book is a useful reference for graduate students, researchers, and practitioners in statistics, mathematics, engineering, economics, social science, bioengineering, and bioscience.

The essentials of regression analysis through practical applications Regression analysis is a conceptually simple method for investigating relationships among variables. Carrying out a successful application of regression analysis, however, requires a balance of theoretical results, empirical rules, and subjective judgement. Regression Analysis by Example, Fourth Edition has been expanded and thoroughly updated to reflect recent advances in the field. The emphasis continues to be on exploratory data analysis rather than statistical theory. The book offers in-depth treatment of regression diagnostics, transformation, multicollinearity, logistic regression, and robust regression. This new edition features the following enhancements: Chapter 12, Logistic Regression, is expanded to reflect the increased use of the logit models in statistical analysis A new chapter entitled Further Topics discusses advanced areas of regression analysis Reorganized, expanded, and upgraded exercises appear at the end of each chapter A fully integrated Web page provides data sets Numerous graphical displays highlight the significance of visual appeal Regression Analysis by Example, Fourth Edition is suitable for anyone with an understanding of elementary statistics. Methods of regression analysis are clearly demonstrated, and examples containing the types of irregularities commonly encountered in the real world are provided. Each example isolates one or two techniques and features detailed discussions of the techniques themselves, the required assumptions, and the evaluated success of each technique. The methods described throughout the book can be carried out with most of the currently available statistical software packages, such as the software package R. An Instructor's Manual presenting detailed solutions to all the problems in the book is available from the Wiley editorial department.

Guided by problems that frequently arise in actual practice, James Higgins’ book presents a wide array of nonparametric methods of data analysis that researchers will find useful. It discusses a variety of nonparametric methods and, wherever possible, stresses the connection between methods. For instance, rank tests are introduced as special cases of permutation tests applied to ranks. The author provides coverage of topics not often found in nonparametric textbooks, including procedures for multivariate data, multiple regression, multi-factor analysis of variance, survival data, and curve smoothing. This truly modern approach teaches non-majors how to analyze and interpret data with nonparametric procedures using today’s computing technology.

Nonparametric Statistical Tests: A Computational Approach describes classical nonparametric tests, as well as novel and little-known methods such as the Baumgartner-Weiss-Schindler and the Cucconi tests. The book presents SAS and R programs, allowing readers to carry out the different statistical methods, such as permutation and bootstrap tests. The author considers example data sets in each chapter to illustrate methods. Numerous real-life data from various areas, including the bible, and their analyses provide for greatly diversified reading. The book covers: Nonparametric two-sample tests for the location-shift model, specifically the Fisher-Pitman permutation test, the Wilcoxon rank sum test, and the Baumgartner-Weiss-Schindler test Permutation tests, location-scale tests, tests for the nonparametric Behrens-Fisher problem, and tests for a difference in variability Tests for the general alternative, including the (Kolmogorov-)Smirnov test, ordered categorical, and discrete numerical data Well-known one-sample tests such as the sign test and Wilcoxon’s signed rank test, a modification suggested by Pratt (1959), a permutation test with original observations, and a one-sample bootstrap test are presented. Tests for more than two groups, the following tests are described in detail: the Kruskal-Wallis test, the permutation F test, the Jonckheere-Terpstra trend test, tests for umbrella alternatives, and the Friedman and Page tests for multiple dependent groups The concepts of independence and correlation, and stratified tests such as the van Elteren test and combination tests The applicability of computer-intensive methods such as bootstrap and permutation tests for non-standard situations and complex designs Although the major development of nonparametric methods came to a certain end in the 1970s, their importance undoubtedly persists. What is still needed is a computer assisted evaluation of their main properties. This book closes that gap.

What do you do when you realize that the data set from the study that you have just completed violates the sample size or other requirements needed to apply parametric statistics? Nonparametric Statistics for Health Care Research by Marjorie A. Pett was developed for such scenarios—research undertaken with limited funds, often using a small sample size, with the primary objective of improving client care and obtaining better client outcomes. Covering the most commonly used nonparametric statistical techniques available in statistical packages and on open-resource statistical websites, this well-organized and accessible Second Edition helps readers, including those beyond the health sciences field, to understand when to use a particular nonparametric statistic, how to generate and interpret the resulting computer printouts, and how to present the results in table and text format.

“…a very useful resource for courses in nonparametric statistics in which the emphasis is on applications rather than on theory. It also deserves a place in libraries of all institutions where introductory statistics courses are taught." –CHOICE This Second Edition presents a practical and understandable approach that enhances and expands the statistical toolset for readers. This book includes: New coverage of the sign test and the Kolmogorov-Smirnov two-sample test in an effort to offer a logical and natural progression to statistical power SPSS® (Version 21) software and updated screen captures to demonstrate how to perform and recognize the steps in the various procedures Data sets and odd-numbered solutions provided in an appendix, and tables of critical values Supplementary material to aid in reader comprehension, which includes: narrated videos and screen animations with step-by-step instructions on how to follow the tests using SPSS; online decision trees to help users determine the needed type of statistical test; and additional solutions not found within the book.

Praise for previous editions: "... a classic with a long history." – Statistical Papers "The fact that the first edition of this book was published in 1971 ... [is] testimony to the book's success over a long period." – ISI Short Book Reviews "... one of the best books available for a theory course on nonparametric statistics. ... very well written and organized ... recommended for teachers and graduate students." – Biometrics "... There is no competitor for this book and its comprehensive development and application of nonparametric methods. Users of one of the earlier editions should certainly consider upgrading to this new edition." – Technometrics "... Useful to students and research workers ... a good textbook for a beginning graduate-level course in nonparametric statistics." – Journal of the American Statistical Association Since its first publication in 1971, Nonparametric Statistical Inference has been widely regarded as the source for learning about nonparametrics. The Sixth Edition carries on this tradition and incorporates computer solutions based on R. Features Covers the most commonly used nonparametric procedures States the assumptions, develops the theory behind the procedures, and illustrates the techniques using realistic examples from the social, behavioral, and life sciences Presents tests of hypotheses, confidence-interval estimation, sample size determination, power, and comparisons of competing procedures Includes an Appendix of user-friendly tables needed for solutions to all data-oriented examples Gives examples of computer applications based on R, MINITAB, STATXACT, and SAS Lists over 100 new references Nonparametric Statistical Inference, Sixth Edition, has been thoroughly revised and rewritten to make it more readable and reader-friendly. All of the R solutions are new and make this book much more useful for applications in modern times. It has been updated throughout and contains 100 new citations, including some of the most recent, to make it more current and useful for researchers.

This volume consists of 22 research papers by leading researchers in Probability and Statistics. Many of the papers are focused on themes that Professor Bhattacharya has published on research. Topics of special interest include nonparametric inference, nonparametric curve fitting, linear model theory, Bayesian nonparametrics, change point problems, time series analysis and asymptotic theory. This volume presents state-of-the-art research in statistical theory, with an emphasis on nonparametric inference, linear model theory, time series analysis and asymptotic theory. It will serve as a valuable reference to the statistics research community as well as to practitioners who utilize methodology in these areas of emphasis.

Probability theory; Statistical inference; Some tests based on the binomial distribution; Contingency tables; Some methods based on ranks; Statistics of the koolmogorov-smirnov type.

Applying Contemporary Statistical Techniques explains why traditional statistical methods are often inadequate or outdated when applied to modern problems. Wilcox demonstrates how new and more powerful techniques address these problems far more effectively, making these modern robust methods understandable, practical, and easily accessible. * Assumes no previous training in statistics * Explains how and why modern statistical methods provide more accurate results than conventional methods * Covers the latest developments on multiple comparisons * Includes recent advances in risk-based methods * Features many illustrations and examples using data from real studies * Describes and illustrates easy-to-use s-plus functions for applying cutting-edge techniques * Covers many contemporary ANOVA (analysis of variance) and regression methods not found in other books

Highlighting the latest advances in nonparametric and semiparametric statistics, this book gathers selected peer-reviewed contributions presented at the 4th Conference of the International Society for Nonparametric Statistics (ISNPS), held in Salerno, Italy, on June 11-15, 2018. It covers theory, methodology, applications and computational aspects, addressing topics such as nonparametric curve estimation, regression smoothing, models for time series and more generally dependent data, varying coefficient models, symmetry testing, robust estimation, and rank-based methods for factorial design. It also discusses nonparametric and permutation solutions for several different types of data, including ordinal data, spatial data, survival data and the joint modeling of both longitudinal and time-to-event data, permutation and resampling techniques, and practical applications of nonparametric statistics. The International Society for Nonparametric Statistics is a unique global organization, and its international conferences are intended to foster the exchange of ideas and the latest advances and trends among researchers from around the world and to develop and disseminate nonparametric statistics knowledge. The ISNPS 2018 conference in Salerno was organized with the support of the American Statistical Association, the Institute of Mathematical Statistics, the Bernoulli Society for Mathematical Statistics and Probability, the Journal of Nonparametric Statistics and the University of Salerno.

This book explores both non parametric and general statistical ideas by developing non parametric procedures in simple situations. The major goal is to give the reader a thorough intuitive understanding of the concepts underlying nonparametric procedures and a full appreciation of the properties and operating characteristics of those procedures covered. This book differs from most statistics books by including considerable philosophical and methodological discussion. Special attention is given to discussion of the strengths and weaknesses of various statistical methods and approaches. Difficulties that often arise in applying statistical theory to real data also receive substantial attention. The approach throughout is more conceptual than mathematical. The "Theorem-Proof" format is avoided; generally, properties are "shown," rather than "proved." In most cases the ideas behind the proof of an im portant result are discussed intuitively in the text and formal details are left as an exercise for the reader. We feel that the reader will learn more from working such things out than from checking step-by-step a complete presen tation of all details.

Nonparametric techniques in statistics are those in which the data are ranked in order according to some particular characteristic. When applied to measurable characteristics, the use of such techniques often saves considerable calculation as compared with more formal methods, with only slight loss of accuracy. The field of nonparametric statistics is occupying an increasingly important role in statistical theory as well as in its applications. Nonparametric methods are mathematically elegant, and they also yield significantly improved performances in applications to agriculture, education, biometrics, medicine, communication, economics and industry.

This volume contains most of the invited and contributed papers presented at the Conference on Robustness of Statistical Methods and Nonparametric Statistics held in the castle oj'Schwerin, Mai 29 - June 4 1983. This conference was organized by the Mathematical Society of the GDR in cooperation with the Society of Physical and Mathematical Biology of the GDR, the GDR-Region of the International Biometric Society and the Academy of Agricultural Sciences of the GDR. All papers included were thoroughly reviewed by scientist listed under the heading "Editorial Collabora tories·'. Some contributions, we are sorry to report, were not recommended for publi cation by the rf'vif'wers and do not appear in these proceedings. The editors thank the reviewers for their valuable comments and suggestions. The conference was organizf'd bv a Programme Committee, its chairman was Prof. Dr. Dieter Rasch (Research Centre of Animal Production, Dummerstorf-Rostock). The members of the Programme Committee were Prof. Dr. ,Johannes Adam (Martin-Luther-University Halle) Prof. Dr. Heinz Ahrens (Academy of Sciences of the GDR, Berlin) Doz. Dr. Jana Jureckova (Charles University Praha) Prof. Dr. Moti Lal Tiku (McMaster University, Hamilton, Ontario) The aim of the conference was to discuss several aspects of robustness but mainly to present new results regarding the robustness of classical statistical methods especially tests, confidence estimations, and selection procedures, and to compare their perfor mance with nonparametric procedures. Robustness in this sens~ is understood as intensivity against. violation of the normal assumption.

A unique approach to understanding the foundations of statistical quality control with a focus on the latest developments in nonparametric control charting methodologies Statistical Process Control (SPC) methods have a long and successful history and have revolutionized many facets of industrial production around the world. This book addresses recent developments in statistical process control bringing the modern use of computers and simulations along with theory within the reach of both the researchers and practitioners. The emphasis is on the burgeoning field of nonparametric SPC (NSPC) and the many new methodologies developed by researchers worldwide that are revolutionizing SPC. Over the last several years research in SPC, particularly on control charts, has seen phenomenal growth. Control charts are no longer confined to manufacturing and are now applied for process control and monitoring in a wide array of applications, from education, to environmental monitoring, to disease mapping, to crime prevention. This book addresses quality control methodology, especially control charts, from a statistician’s viewpoint, striking a careful balance between theory and practice. Although the focus is on the newer nonparametric control charts, the reader is first introduced to the main classes of the parametric control charts and the associated theory, so that the proper foundational background can be laid. Reviews basic SPC theory and terminology, the different types of control charts, control chart design, sample size, sampling frequency, control limits, and more Focuses on the distribution-free (nonparametric) charts for the cases in which the underlying process distribution is unknown Provides guidance on control chart selection, choosing control limits and other quality related matters, along with all relevant formulas and tables Uses computer simulations and graphics to illustrate concepts and explore the latest research in SPC Offering a uniquely balanced presentation of both theory and practice, Nonparametric Methods for Statistical Quality Control is a vital resource for students, interested practitioners, researchers, and anyone with an appropriate background in statistics interested in learning about the foundations of SPC and latest developments in NSPC.

Papers from a 1988 symposium on the estimation and testing of models that impose relatively weak restrictions on the stochastic behaviour of data.

This book is a practical introduction to statistical techniques called nonpara metric methods. Using examples, we explain assumptions and demonstrate procedures; theory is kept to a minimum. We show how basic problems are tackled and try to clear up common misapprehensions so as to help both students of statistics meeting the methods for the first time and workers in other fields faced with data needing simple but informative analysis. An analogy between experimenters and car drivers describes our aim. Statistical analyses may be done by following a set of rules without understanding their logical basis, but this has dangers. It is like driving a car with no inkling ofhow the internal combustion engine, the gears, the ignition system, the brakes actually work. Understanding the rudiments helps one get better performance and makesdrivingsafer;appropriate gearchanges become a way to reduce engine stress, prolong engine life, improve fuel economy, minimize wear on brake linings. Knowing how to change the engine oil or replace worn sparking plugs is notessential for adriver, but it will reduce costs. Learning such basics will not make one a fully fledged mechanic, even less an automotive engineer; but it all contributes to more economical and safer driving, alertingone to the dangers ofbald tyres, aleakingexhaust, worn brake linings.

This text provides the reader with a single book where they can find accounts of a number of up-to-date issues in nonparametric inference. The book is aimed at Masters or PhD level students in statistics, computer science, and engineering. It is also suitable for researchers who want to get up to speed quickly on modern nonparametric methods. It covers a wide range of topics including the bootstrap, the nonparametric delta method, nonparametric regression, density estimation, orthogonal function methods, minimax estimation, nonparametric confidence sets, and wavelets. The book’s dual approach includes a mixture of methodology and theory.

Introduces many of the practical adaptive statistical methods and provides a comprehensive approach to tests of significance and confidence intervals.