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Nota di contenuto	-- Basic Principles of Regression Analysis. -- Optimal Scaling, Discretization, and Regularization vs Traditional Linear Regression. -- Regularized Regression Analysis, Ridge, Lasso, Elastic Net Regression Coefficients. -- Effect of Predictors on Health Scores, 110 Patients, Traditional vs Regularized Regressions. -- Effect on Physical strength of Races, 60 Patients, Traditional Regression vs Regularized regressions. -- Effects of Genetic Polymorphisms on Clinical Outcomes, 250 Patients, Traditional vs Regularized Regressions. -- Effect of Old Treatment and Age on New Treatment, 35 Patients, Traditional vs Regularized Regressions. -- Effect on Paroxysmal Atrial Fibrillations of Four Predictors, 50 Patients, Traditional vs Regularized Regressions. -- Effect of Air Quality of Operating Rooms on Infections, 8 Operating Rooms, Traditional vs Regularized Regressions. -- Effect on Weightloss of Age, Calorieintake, Exercise, Interaction, 64 Patients, Traditional vs Regularized Regressions. -- Effect on Body Surface Measured of Gender, Age, Weight, Height, and Weight x Height Interaction, 90 Patients, Traditional vs Regularized Regressions. -- Effect on Paroxysmal Atrial Fibrillations of Gender, Treatment and Their Interaction, 40 Patients, Traditional vs Regularized Regressions. --

Effect on Hours of Sleep of Treatment Group, Age, Gender, Comorbidity, 20 Patients, Traditional vs Regularized Regressions. -- Effect of Betaagonist and Prednisone on Peak Expiratory Flow, 78 COPD Patients, Traditional vs Regularized Regressions. -- Effect on LDL Cholesterol Reduction of Five Predictors, 953 Patients, Traditional vs Regularized Regressions. -- Effect of Five Factors on Body Weight, 217 Patients, Traditional vs Regularized Regressions. -- Functional Data Analysis and Regularized Regressions.

Sommario/riassunto

This textbook is an important novel menu for multiple variables regression entitled "regularized regression". It is a must have for identifying unidentified leading factors. Also, you get fitted parameters for your overfitted data. Finally, there is no more need for commonly misunderstood p-values. Instead, the regression coefficient, R-value, as reported from a regression line has been applied as the key predictive estimator of the regression study. With simple one by one variable regression it is no wider than -1 to +1. With multiple variables regression it can easily get > +1 or < -1. This means we have a seriously flawed regression model, mostly due to collinearity or non-linear data. Completing the analysis will lead to overfitting, and thus a meaningless significant study due to data spread wider than compatible with random. In order for the regression coefficients to remain in the right size, fortunately a shrinking procedure has been invented. In the past two decades regularized regression has become a major topic of research, particularly with high dimensional data. Yet, the method is pretty new and infrequently used in real-data analysis. Its performance as compared to traditional null hypothesis testing has to be confirmed by prospective comparisons. Most studies published to date are of a theoretical nature involving statistical modeling and simulation studies. The journals Nature and Science published 19 and 10 papers of this sort in the past 8 years. The current edition will for the first time systematically test regularized regression against traditional regression analysis in 20 clinical data examples. The edition is also a textbook and tutorial for medical and healthcare students as well as recollection bench and help desk for professionals. Each chapter can be studied as a standalone, and, using, real as well as hypothesized data, it tests the performance of the novel methodology against traditional regressions. Step by step analyses of 20 data files are included for self-assessment. The authors are well qualified in their field. Professor Zwinderman is past-president of the International Society of Biostatistics and Professor Cleophas is past-president of the American College of Angiology. The authors have been working together for 25 years and their research can be characterized as a continued effort to demonstrate that clinical data analysis is a discipline at the interface of biology and mathematics.