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	Nota di contenuto	Part 1 Review and Theoretical Framework in Data Science -- Ch 1 Statistical Distances and Their Role in Robustness -- Ch 2 The Out-source Error in Multi-source Cross Validation-type Procedures -- Ch 3 -- Meta-Analysis for Rare Events as Binary Outcomes -- Ch 4 New Challenges and Strategies in Robust Optimal Design for Multicategory Logit Modelling -- Ch 5 Testing of Multivariate Spline Growth Model -- Part 2 Complex and Big Data Analysis -- Ch 6 Uncertainty Quantification Using the Neighbor Gaussian Process -- Ch 7 Tuning Parameter Selection in the LASSO with Unspecified Propensity -- Adaptive Filtering Increases Power to Detect Differently Expressed Genes -- Ch 9 Estimating Parameters in Complex Systems with Functional Outputs - A Wavelet-based Approximate Bayesian Computation Approach -- Ch 10 A maximum Likelihood Approach for Non-invasive Cancer Diagnosis Using Methylation Profiling of Cell-free DNA from Blood -- Part 3 Clinical Trials, Statistical Shape Analysis and Application -- Ch 11 A Simple and Efficient Statistical Approach for Designing an Early Phase II Clinical Trial - Ordinal Linear Contrast Test

-- Ch 12 Landmark-constrained Statistical Shape Analysis of Elastic Curves and Surfaces -- Ch 13 Phylogeny-based kernels with Application to Microbiome Association Studies -- Ch 14 Accounting for Differential Error in Time-to-event Analyses using Imperfect Electronic Health Record-derived Endpoints -- Part 4 Statistical Modeling and Data Analysis -- Ch 15 Modeling Inter-trade Durations in the Limit Order market -- Ch 16 Assessment of Drug Interactions with Repeated Measurements -- Ch 17 Statistical Indices for Risk Tracking in Longitudinal Studies -- Ch 18 Statistical Analysis of Labor market Integration: A Mixture Regression Approach -- Ch 19 Bias Correction in Age-Cohort Models Using Eigen Analysis.

Sommario/riassunto	This book is comprised of the presentations delivered at the 25th ICSA Applied Statistics Symposium held at the Hyatt Regency, Atlanta, on June 12-15, 2016. This symposium attracted more than 700 statisticians and data scientists working in academia, government, and industry from all over the world. The theme of this conference was the "Challenge of Big Data and Applications of Statistics," in recognition of the advent of big data era, and the symposium offered opportunities for learning, receiving inspirations from old research ideas and for developing new ones, and for promoting further research collaborations in the data sciences. The invited contributions addressed rich topics closely related to big data analysis in the data sciences, reflecting recent advances and major challenges in statistics, business statistics, and biostatistics. Subsequently, the six editors selected 19 high-quality presentations and invited the speakers to prepare full chapters for this book, which showcases new methods in statistics and data sciences, emerging theories, and case applications from statistics, data science and interdisciplinary fields. The topics covered in the book are timely and have great impact on data sciences, identifying important directions for future research, promoting advanced statistical methods in big data science, and facilitating future collaborations across disciplines and between theory and practice.