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Nota di contenuto	Preface -- List of Contributors -- 1 An introduction to the (postponed) 5th edition of the International Workshop on Functional and Operatorial Statistics -- 2 Analysis of Telecom Italia Mobile Phone Data by Space-time Regression with Differential Regularization -- 3 Some Numerical Test on the Convergence Rates of Regression with Differential Regularization -- 4 Learning with Signatures -- 5 About the Complexity Function in Small-ball Probability Factorization -- 6 Principal Components Analysis of a Cyclostationary Random Function -- 7 Level Set and Density Estimation on Manifolds -- 8 Pseudo-metrics as Interesting Tool in Nonparametric Functional Regression -- 9 Testing a Specification Form in Single Functional Index Model -- 10 A

New Method for Ordering Functional Data and its Application to Diagnostic Test -- 11 A Functional Data Analysis Approach to the Estimation of Densities over Complex Regions -- 12 A Conformal Approach for Distribution-free Prediction of Functional Data -- 13 G-Lasso Network Analysis for Functional Data -- 14 Modelling Functional Data with High-dimensional Error Structure -- 15 Goodness-of-fit Tests for Functional Linear Models Based on Integrated Projections -- 16 From High-dimensional to Functional Data: Stringing Via Manifold Learning -- 17 Functional Two-sample Tests Based on Empirical Characteristic Functionals -- 18 Some Remarks on the Nelson–Siegel Model -- 19 Modeling the Effect of Recurrent Events on Time-to-event Processes by Means of Functional Data -- 20 On Robust Training of Regression Neural Networks -- 21 Simultaneous Inference for Function-valued Parameters: a Fast and Fair Approach -- 22 Single Functional Index Model under Responses MAR and Dependent Observations -- 23 O2S2 for the Geodata Deluge -- 24 Riemannian Distances between Covariance Operators and Gaussian Processes -- 25 Depth in Infinite-dimensional Spaces -- 26 Variable Selection in Semiparametric Bi-functional Models -- 27 Local Inference for Functional Data Controlling the Functional False Discovery Rate -- 28 Optimum Scale Selection for 3D Point Cloud Classification through Distance Correlation -- 29 Generalized Functional Partially Linear Single-index Models -- 30 Functional Outlier Detection through Probabilistic Modelling -- 31 Topological Object Data Analysis Methods with an Application to Medical Imaging -- 32 Distribution-free Pointwise Adjusted α -values for Functional Hypotheses -- Authors Index.

Sommario/riassunto

This book presents the latest research on the statistical analysis of functional, high-dimensional and other complex data, addressing methodological and computational aspects, as well as real-world applications. It covers topics like classification, confidence bands, density estimation, depth, diagnostic tests, dimension reduction, estimation on manifolds, high- and infinite-dimensional statistics, inference on functional data, networks, operatorial statistics, prediction, regression, robustness, sequential learning, small-ball probability, smoothing, spatial data, testing, and topological object data analysis, and includes applications in automobile engineering, criminology, drawing recognition, economics, environmetrics, medicine, mobile phone data, spectrometrics and urban environments. The book gathers selected, refereed contributions presented at the Fifth International Workshop on Functional and Operatorial Statistics (IWFOS) in Brno, Czech Republic. The workshop was originally to be held on June 24-26, 2020, but had to be postponed as a consequence of the COVID-19 pandemic. Initiated by the Working Group on Functional and Operatorial Statistics at the University of Toulouse in 2008, the IWFOS workshops provide a forum to discuss the latest trends and advances in functional statistics and related fields, and foster the exchange of ideas and international collaboration in the field.