

1. Record Nr.	UNINA9910299769403321
Titolo	Nonparametric Bayesian Inference in Biostatistics // edited by Riten Mitra, Peter Müller
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-19518-2
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (448 p.)
Collana	Frontiers in Probability and the Statistical Sciences, , 2624-9987
Disciplina	519.5
Soggetti	Statistics Biostatistics Statistics for Life Sciences, Medicine, Health Sciences Statistical Theory and Methods
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Part I Introduction -- Bayesian Nonparametric Models -- Bayesian Nonparametric Biostatistics -- Part II Genomics and Proteomics -- Bayesian Shape Clustering -- Estimating Latent Cell Subpopulations with Bayesian Feature Allocation Models -- Species Sampling Priors for Modeling Dependence: An Application to the Detection of Chromosomal Aberrations -- Modeling the Association Between Clusters of SNPs and Disease Responses -- Bayesian Inference on Population Structure: from Parametric to Nonparametric Modeling -- Bayesian Approaches for Large Biological Networks -- Nonparametric Variable Selection, Clustering and Prediction for Large Biological Datasets -- Part III Survival Analysis -- Markov Processes in Survival Analysis -- Bayesian Spatial Survival Models -- Fully Nonparametric Regression Modelling of Misclassified Censored Time-to-Event Data -- Part IV Random Functions and Response Surfaces -- Neuronal Spike Train Analysis Using Gaussian Process Models -- Bayesian Analysis of Curves Shape Variation through Registration and Regression -- Biomarker-Driven Adaptive Design -- Bayesian Nonparametric Approaches for ROC Curve Inference -- Part V Spatial Data -- Spatial Bayesian Nonparametric Methods -- Spatial Species Sampling and

Product Partition Models -- Spatial Boundary Detection for Areal Counts
-- A Bayesian Nonparametric Causal Model for Regression
Discontinuity Designs -- Bayesian Nonparametrics for Missing Data in
Longitudinal Clinical Trials.

Sommario/riassunto

As chapters in this book demonstrate, BNP has important uses in clinical sciences and inference for issues like unknown partitions in genomics. Nonparametric Bayesian approaches (BNP) play an ever expanding role in biostatistical inference from use in proteomics to clinical trials. Many research problems involve an abundance of data and require flexible and complex probability models beyond the traditional parametric approaches. As this book's expert contributors show, BNP approaches can be the answer. Survival Analysis, in particular survival regression, has traditionally used BNP, but BNP's potential is now very broad. This applies to important tasks like arrangement of patients into clinically meaningful subpopulations and segmenting the genome into functionally distinct regions. This book is designed to both review and introduce application areas for BNP. While existing books provide theoretical foundations, this book connects theory to practice through engaging examples and research questions. Chapters cover: clinical trials, spatial inference, proteomics, genomics, clustering, survival analysis and ROC curve. Riten Mitra is Assistant Professor in the Department of Bioinformatics and Biostatistics at University of Louisville. His research interests include Bayesian graphical models and nonparametric Bayesian methods with a special emphasis on applications in genomics and bioinformatics. Peter Mueller is Professor in the Department of Mathematics and the Department of Statistics & Data Science at the University of Texas at Austin. He has published widely on nonparametric Bayesian statistics, with an emphasis on applications in biostatistics and bioinformatics.
