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Titolo	Modern Methodology and Applications in Spatial-Temporal Modeling / / edited by Gareth William Peters, Tomoko Matsui
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Collana	JSS Research Series in Statistics, , 2364-0065
Disciplina	519.536
Soggetti	Statistics Mathematical statistics - Data processing Statistical Theory and Methods Statistics and Computing Statistics in Engineering, Physics, Computer Science, Chemistry and Earth Sciences
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	1 Nonparametric Bayesian Inference with Kernel Mean Embedding (Kenji Fukumizu) -- 2 How to Utilise Sensor Network Data to Efficiently Perform Model Calibration and Spatial Field Reconstruction (Gareth W. Peters, Ido Nevat and Tomoko Matsui) -- 3 Speech and Music Emotion Recognition using Gaussian Processes (Konstantin Markov and Tomoko Matsui) -- 4 Topic Modeling for Speech and Language Processing (Jen-Tzung Chien).
Sommario/riassunto	This book provides a modern introductory tutorial on specialized methodological and applied aspects of spatial and temporal modeling. The areas covered involve a range of topics which reflect the diversity of this domain of research across a number of quantitative disciplines. For instance, the first chapter deals with non-parametric Bayesian inference via a recently developed framework known as kernel mean embedding which has had a significant influence in machine learning disciplines. The second chapter takes up non-parametric statistical methods for spatial field reconstruction and exceedance probability estimation based on Gaussian process-based models in the context of wireless sensor network data. The third chapter presents signal-

processing methods applied to acoustic mood analysis based on music signal analysis. The fourth chapter covers models that are applicable to time series modeling in the domain of speech and language processing. This includes aspects of factor analysis, independent component analysis in an unsupervised learning setting. The chapter moves on to include more advanced topics on generalized latent variable topic models based on hierarchical Dirichlet processes which recently have been developed in non-parametric Bayesian literature. The final chapter discusses aspects of dependence modeling, primarily focusing on the role of extreme tail-dependence modeling, copulas, and their role in wireless communications system models.
