

1. Record Nr.	UNINA9910254080203321
Autore	Brombin Chiara
Titolo	Parametric and Nonparametric Inference for Statistical Dynamic Shape Analysis with Applications / / by Chiara Brombin, Luigi Salmaso, Lara Fontanella, Luigi Ippoliti, Caterina Fusilli
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
ISBN	3-319-26311-0
Edizione	[1st ed. 2016.]
Descrizione fisica	1 online resource (120 p.)
Collana	SpringerBriefs in Statistics, , 2191-5458
Disciplina	519.5
Soggetti	Statistics Computer science - Mathematics Mathematical statistics Mathematics - Data processing Statistical Theory and Methods Probability and Statistics in Computer Science Computational Mathematics and Numerical Analysis
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 and index.
Nota di contenuto	Part I Offset Normal Distribution for Dynamic Shapes -- Basic Concepts and Definitions -- Shape Inference and the Offset-Normal Distribution -- Dynamic Shape Analysis Through the Offset-Normal Distribution -- Part II Combination-Based Permutation Tests for Shape Analysis -- Parametric and Non-Parametric Testing of Mean Shapes -- Applications of NPC Methodology -- Shape Inference and the Offset-Normal Distribution. .
Sommario/riassunto	This book considers specific inferential issues arising from the analysis of dynamic shapes with the attempt to solve the problems at hand using probability models and nonparametric tests. The models are simple to understand and interpret and provide a useful tool to describe the global dynamics of the landmark configurations. However, because of the non-Euclidean nature of shape spaces, distributions in shape spaces are not straightforward to obtain. The book explores the use of the Gaussian distribution in the configuration space, with

similarity transformations integrated out. Specifically, it works with the offset-normal shape distribution as a probability model for statistical inference on a sample of a temporal sequence of landmark configurations. This enables inference for Gaussian processes from configurations onto the shape space. The book is divided in two parts, with the first three chapters covering material on the offset-normal shape distribution, and the remaining chapters covering the theory of NonParametric Combination (NPC) tests. The chapters offer a collection of applications which are bound together by the theme of this book. They refer to the analysis of data from the FG-NET (Face and Gesture Recognition Research Network) database with facial expressions. For these data, it may be desirable to provide a description of the dynamics of the expressions, or testing whether there is a difference between the dynamics of two facial expressions or testing which of the landmarks are more informative in explaining the pattern of an expression. .
