1. Record Nr. UNISA996466497103316

Autore	Catoni Olivier
Titolo	Statistical Learning Theory and Stochastic Optimization [[electronic resource]] : Ecole d'Eté de Probabilités de Saint-Flour XXXI - 2001 / / by Olivier Catoni ; edited by Jean Picard
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2004
ISBN	3-540-44507-2
Edizione	[1st ed. 2004.]
Descrizione fisica	1 online resource (VIII, 284 p.)
Collana	École d'Été de Probabilités de Saint-Flour, , 0721-5363 ; ; 1851
Disciplina	519.5
Soggetti	Probabilities Statistics Mathematical optimization Artificial intelligence Information theory Numerical analysis Probability Theory and Stochastic Processes Statistical Theory and Methods Optimization Artificial Intelligence Information and Communication, Circuits Numerical Analysis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Universal Lossless Data Compression -- Links Between Data Compression and Statistical Estimation -- Non Cumulated Mean Risk -- Gibbs Estimators -- Randomized Estimators and Empirical Complexity -- Deviation Inequalities -- Markov Chains with Exponential Transitions -- References -- Index.
Sommario/riassunto	Statistical learning theory is aimed at analyzing complex data with necessarily approximate models. This book is intended for an audience with a graduate background in probability theory and statistics. It will be useful to any reader wondering why it may be a good idea, to use as

is often done in practice a notoriously "wrong" (i.e. over-simplified) model to predict, estimate or classify. This point of view takes its roots in three fields: information theory, statistical mechanics, and PAC-Bayesian theorems. Results on the large deviations of trajectories of Markov chains with rare transitions are also included. They are meant to provide a better understanding of stochastic optimization algorithms of common use in computing estimators. The author focuses on non-asymptotic bounds of the statistical risk, allowing one to choose adaptively between rich and structured families of models and corresponding estimators. Two mathematical objects pervade the book: entropy and Gibbs measures. The goal is to show how to turn them into versatile and efficient technical tools, that will stimulate further studies and results.