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Autore	Catoni Olivier
Titolo	Statistical Learning Theory and Stochastic Optimization : Ecole d'Eté de Probabilités de Saint-Flour XXXI - 2001 / / by Olivier Catoni ; edited by Jean Picard
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Collana	École d'Été de Probabilités de Saint-Flour ; ; 1851
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Soggetti	Probabilities Statistics Mathematical optimization Artificial intelligence Computer science - Mathematics Numerical analysis Probability Theory Statistical Theory and Methods Optimization Artificial Intelligence Mathematical Applications in Computer Science Numerical Analysis
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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.