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	Disciplina	519.5
	Soggetti	Statistics
		Machine learning
		Mathematical optimization
		Calculus of variations
		Statistical physics
		Probabilities
		Statistical Theory and Methods
		Machine Learning
		Calculus of Variations and Optimization
		Statistical Physics
		Probability Theory
		Estadística bayesiana
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		Llibres electrònics
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	Livello bibliografico	Monografia
	Nota di contenuto	-1. Introduction, rates I.-2. Rates II and first examples.-3. Adaptation I: smoothness.-4. Adaptation II: high-dimensions and deep neural networks -- 5. Bernstein-von Mises I: functionals -- 6. Bernstein-von Mises II: multiscale and applications -- 7. classification and multiple testing -- 8. Variational approximations.
	Sommario/riassunto	This up-to-date overview of Bayesian nonparametric statistics provides both an introduction to the field and coverage of recent research

topics, including deep neural networks, high-dimensional models and multiple testing, Bernstein-von Mises theorems and variational Bayes approximations, many of which have previously only been accessible through research articles. Although Bayesian posterior distributions are widely applied in astrophysics, inverse problems, genomics, machine learning and elsewhere, their theory is still only partially understood, especially in complex settings such as nonparametric or semiparametric models. Here, the available theory on the frequentist analysis of posterior distributions is outlined in terms of convergence rates, limiting shape results and uncertainty quantification. Based on lecture notes for a course given at the St-Flour summer school in 2023, the book is aimed at researchers and graduate students in statistics and probability. .