1. Record Nr. UNISA996466508503316

Autore	Graf Siegfried
Titolo	Foundations of Quantization for Probability Distributions [[electronic resource] /] / by Siegfried Graf, Harald Luschgy
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2000
ISBN	3-540-45577-9
Edizione	[1st ed. 2000.]
Descrizione fisica	1 online resource (X, 230 p.)
Collana	Lecture Notes in Mathematics, , 0075-8434 ; ; 1730
Disciplina	519.24
Soggetti	Probabilities Statistics Pattern recognition Operations research Decision making Electrical engineering Probability Theory and Stochastic Processes Statistical Theory and Methods Pattern Recognition Operations Research/Decision Theory Communications Engineering, Networks
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 (pages [215]-224) and index.
Nota di contenuto	I. General properties of the quantization for probability distributions: Voronoi partitions. Centers and moments of probability distributions. The quantization problem. Basic properties of optimal quantizers. Uniqueness and optimality in one dimension -- II. Asymptotic quantization for nonsingular probability distributions: Asymptotics for the quantization error. Asymptotically optimal quantizers. Regular quantizers and quantization coefficients. Random quantizers and quantization coefficients. Asymptotics for the covering radius -- III. Asymptotic quantization for singular probability distributions: The quantization dimension. Regular sets and measures of dimension D. Rectifiable curves. Self-similar sets and measures.

Sommario/riassunto

Due to the rapidly increasing need for methods of data compression, quantization has become a flourishing field in signal and image processing and information theory. The same techniques are also used in statistics (cluster analysis), pattern recognition, and operations research (optimal location of service centers). The book gives the first mathematically rigorous account of the fundamental theory underlying these applications. The emphasis is on the asymptotics of quantization errors for absolutely continuous and special classes of singular probabilities (surface measures, self-similar measures) presenting some new results for the first time. Written for researchers and graduate students in probability theory the monograph is of potential interest to all people working in the disciplines mentioned above.