

N Widths In Approximation Theory

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N Widths In Approximation Theory

Approximation Error and Approximation Theory

N-widths in Approximation Theory, Springer-Verlag, New York, 1980 Although the book is very technical, the first 8 pages contain an excellent introduction to the subject The other great thing about this book is that you do not need to understand every

arXiv:1404.5035v2 [math.FA] 11 Jul 2014

n-WIDTHS AND APPROXIMATION THEORY ON COMPACT RIEMANNIAN MANIFOLDS Daryl Geller 1 Isaac Z Pesenson 2 Abstract We determine upper asymptotic estimates of Kolmogorov and linear n-widths of unit balls in Sobolev and Besov norms in L_p -spaces on compact Riemannian manifolds The proofs rely on estimates for the near-diagonal lo-

Nonlinear approximation

8 Highly nonlinear approximation 121 9 Lower estimates for approximation: n-widths 131 10 Applications of nonlinear approximation 135 References 146 1 Nonlinear approximation: an overview The fundamental problem of approximation theory is to resolve a possibly complicated function, called the target function, by simpler, easier to com-

Some Problems in the Approximation of Functions of Two ...

APPROXIMATION AND N-WIDTHS 53 It is remarkable that this extremal property of the series (12) also remains true when we give K the usual operator norm defined by $\|f\|_2 = (\int_0^1 |f(x)|^2 dx)^{1/2}$ The fact that K_n is the best rank n approximation

The relative n-widths of Sobolev classes with restrictions

Keywords: Approximation of Sobolev classes; Width of a function class; Kolmogorov width; Relative n-width of a function class 1 Introduction One of the central problems in approximation theory is the problem of estimating the widths of function classes or sets Various aspects of best

approximation, reconstruction or coding are

Optimal Subspaces for n-Widths of p-Ellipsoids

JOURNAL OF APPROXIMATION THEORY 34, 9 1-96 (I 982) Optimal Subspaces for n-Widths of p-Ellipsoids BORIS MITYAGIN AND JOSEPH TOROK
Department of Mathematics, Ohio State University Columbus, Ohio 43210 n-WIDTHS OF p-ELLIPSOIDS 93 THEOREM Let L ...

Wavelet compression and nonlinear n-widths*

rate n^{-s} whenever $f \in B_{p,q}^s(L)$ where $1/s = a/d + 1/p$, thus $0 < s < 1/2$ Nonlinear widths In this section, we are going to introduce various nonlinear widths and derive comparisons between them Most of these comparisons are not new, but we bring their proofs here for the sake of completeness

Approximation Theory and Approximation Practice

4 Approximation Theory and Approximation Practice In summary, here are some distinctive features of this book: • The emphasis is on topics close to numerical algorithms • Everything is illustrated with Chebfun • Each chapter is a publishable M-file, available online • There is a bias toward theorems and methods for analytic

Universal Approximation Bounds for Superpositions of a ...

agreement with the theory of Kolmogorov n-widths for other similar classes of functions (see, eg, [3, pp 232-233]) This vanishingly small approximation rate ($2/d$ instead of 1 in the exponent of $1/11$,) is a "curse of dimensionality" that does not apply to the methods of approximation advocated here for functions in the given class

Approximation of Eigenfunctions in Kernel-based Spaces ...

connections to n-widths in Approximation Theory, and they establish that errors of optimal approximations are closely related to the decay of the eigenvalues Though the eigenspaces and eigenvalues are not readily available, they can be well approximated using the standard n-dimensional sub-

and linear n-widths in $L_2(u, E)$ of the restriction to E of the unit ball of $H_2^q(G)$, where $1/p + 1/q = 1$ We remark that n-widths are important in approximation theory since they enable one to obtain best or near-best methods of approximation and interpolation as

Estimates for n-widths of multiplier operators of multiple ...

Keywords: n-widths, multiplier operators, multiple Walsh series, approximation theory 1 Introduction In [2,3,16,17,18,19,20,21,22] techniques to study asymptotic estimates for n-widths of multiplier operators defined for functions on the torus and on two-points homogeneous spaces

Estimates for the Approximation numbers and n-widths of ...

where $\rho_n(T)$ stands for any of the following: the Approximation numbers of T , Kolmogorov, Gel'fand or Bernstein n-widths of T We mention here that in the case $u = v = 1$ (ie non-weighted case) the problem of description of Approximation numbers and n-widths for the non-

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graph on n-widths in approximation theory should appear soon A good deal of the monograph is original work, not only in its pre-sentation, but also in many of the results In addition, the principal investigator was invited to contribute a survey paper on n-widths at the conference in approximation theory held in College Station, Texas in

On Blaschke products associated with n-widths

L Baratchart et al / Journal of Approximation Theory 126 (2004) 40-51 41 where d_n ; d_n ; and d_n are the Kolmogorov, Gelfand and linear n-widths of A_p in the space $L_{q,m}(\mathbb{E})$ (see, for example, [10]), and $\| \cdot \|_{q,m}$ is the norm in the space $L_{q,m}(\mathbb{E})$: Let $1 \leq p < \infty$; $1 \leq m < \infty$: Set $m \leq n \leq \frac{1}{4} m$

Best Approximations, Lethargy Theorems and Smoothness

In this paper we consider sequences of best approximation We first examine the $\hat{\cdot}$ best approximation function and its applications, through an example in approximation theory and two new examples in calculating n -widths We then further discuss approximation theory by examining a modern proof of Weierstrass's Theorem us-

Olga V. Holtz UC Berkeley & TU Berlin

Olga V Holtz UC Berkeley & TU Berlin Stanford January 2009 History and Introduction Main idea Constructions Approximation theory Compressed Sensing: History Compressed Sensing (CS) Connection with Gelfand widths Gelfand widths For K a compact set in X and $m \in \mathbb{N}$, the Gelfand width of K of order m is

Compressed sensing and best k -term approximation

Compressed sensing and best k -term approximation * Albert Cohen, Wolfgang Dahmen, and Ronald DeVore July 24, 2006 Abstract Compressed sensing is a new concept in signal processing where one seeks to minimize the number of measurements to be taken from signals while still retaining the information necessary to approximate them well

n -Widths of Sobolev ...

The topic of n -widths in approximation theory is concerned with the study of these quantities (especially the first two), their properties, characterizations of optimal sub-spaces or operators (if possible), and the determination of their asymptotic behaviour

Electron Stark Broadening Database for Atomic N, O, and C ...

broadening widths between 1,000K and 50,000K for atomic N, O, and C lines based on the Baranger impact theory [11-13] and a semi-classical approximation [14] using the complete set of energy levels and line lists compiled in Ref 7 We also show that the Stark ...