
Povzetek

V diplomskem delu obravnavamo multikvadrirno radialno bazno funkcijo v okviru sodobne teorije radialnih baznih funkcij. Ukvarjamo se z obstojem multikvadrirnih interpolantov na končni množici centrov iz \mathbb{R}^n in s konvergenco ter obstojem multikvadrirnih interpolantov na kardinalnih mrežah $h\mathbb{Z}$. V obeh primerih pokažemo, da ima interpolacijski problem, ki pripada multikvadrirni radialni bazni funkciji, enolično rešitev.

Abstract

In this thesis, we discuss the multiquadric radial basis function in the context of the modern radial basis function theory, focusing on the existence of multiquadric interpolants on a finite set of centres in \mathbb{R}^n and the convergence and existence of multiquadric interpolants on scaled cardinal grids $h\mathbb{Z}$. In both cases, we prove that the interpolation problem associated with the multiquadric radial basis function has a unique solution.

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Ključne besede: multikvadrirna radialna bazna funkcija, interpolacija, popolna monotonost, Schönbergov izrek, Micchellijev izrek, polinomska reprodukcija, kva-zi-interpolacija, Poissonova sumacijska formula, diskretna Fourierova transformacija.

Keywords: multiquadric radial basis function, interpolation, complete monotonicity, Schönberg's theorem, Micchelli's theorem, polynomial reproduction, quasi-interpolation, Poisson summation formula, discrete Fourier transform.

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