

Numerical integration on multivariate irregularly distributed data by a class of splines

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We consider the problem of numerical integration on multivariate irregularly distributed data by means of a class of spline functions, called *Lobachevsky splines* [1]. In particular, we construct new quadrature and cubature formulas based on Lobachevsky spline interpolants, which take advantages of their feature of being expressible in the multivariate setting as a product of univariate functions. Besides simplicity in computation of integrals, numerical experiments show stability and accuracy of Lobachevsky splines.

References

- [1] G. Allasia, R. Cavoretto, A. De Rossi, *Lobachevsky spline functions and interpolation to scattered data*, Department of Mathematics, University of Turin, Technical Report 1 (2011), pp. 1–23, submitted.