Electronic Journal: Southwest Journal of Pure and Applied Mathematics
Internet: http://rattler.cameron.edu/swjpam.html
ISBN 1083-0464
Issue 1 July 2000, pp. 74 – 81
Submitted: June 14, 1999. Published: July 15, 2000

A GENERALIZATION OF 2-PERIODIC TRIGONOMETRIC INTERPOLATION

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ABSTRACT. It is well-known that the interpolation theory plays an important role in many fields of computer vision, especially in surface reconstruction and Image processing. In this paper, we introduce a new kind of 2-period interpolation of functions with period 2π at the nodes $x_k = x_{k,n} = k\pi/n, \quad (k = 0, 1, \cdots, 2n-1)$. We find out the necessary and sufficient conditions for regularity of this new interpolation problem. Moreover, a closed form expression for the interpolation polynomial is given. Our interpolation is of more practical significance. Our results provide the theoretical basis for using our interpolation in practical problems.

1991 A.M.S. (MOS) Subject Classification Codes. 65

Key words and phrases. Interpolation, Trigonometric polynomial, Regularity, Computer vision

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This work was supported by the Chinese National Science Foundation
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Typeset by $\mathcal{AMS}$-TEX