International J. of Engg. Research & Indu. Appls. (IJERIA).
ISSN 0974-1518, Vol.4, No. II (May 2011), pp 15-24

IMPLEMENTATION OF 2D FrFT FROM 1D FrFT TO AN IMAGE

P. V. MURALIDHAR, CH. RAJASEKHARA RAO, S. K. NAYAK AND T. SAHU

Abstract

Given the widespread use of ordinary Fourier Transform (FT) in science and engineering, it is important to recognize this integral transform as the fractional power of FT. Indeed, it has been this recognition, which has inspired most of the many recent applications replacing the ordinary FT with Fractional Fourier Transform (FrFT) adding an additional degree of freedom to problem, represented by the fraction or order parameter *a*. This in turn may allow either a more general formulation of the problem or improvement based on possibility of optimizing over *a*. The FrFT has been found to have several applications in the areas of optics and signal processing and it also lead to generalization of notion of time or space and frequency domains which are central concepts of signal and image processing. In every area where FT and frequency domain concepts are used, there exists the potential for generalization and implementation by using FrFT. The proposed paper implements 2D FrFT from 1D FrFT in MATLAB. An attempt has also been taken for analyze the image for different values a, b of 2D FrFT, and also the same image is obtain when apply inverse 2D FrFT for same values a, b.