

Tomographic Image Reconstruction Using Filtered Back Projection (FBP) And Algebraic Reconstruction Technique (ART)

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Abstract : This paper presents comparative study and experimentation of Algebraic Reconstruction Technique (ART) and Filter Back Projection (FBP). The ART and FBP methods are used to reconstruct the object from the X-ray projection. The process of creating back the object image from the Radon Transform of the object is known as Image Reconstruction. Image reconstruction is a famous and interesting field which comes under computed tomography. Computed Tomography is used for identifying the hidden or inner defects of objects. In this paper Algebraic Reconstruction technique and Filter Back Projection methods are implemented and the experimented results are compared using performance parameters for various test cases. Projections for the image reconstruction are calculated analytically by defining two phantoms: Shepp-Logan phantom head model and the standard medical image of abdomen. The original images are grayscale images of size 128×128 , 256×256 , respectively.

Keywords : Computed tomography, X-ray projection, Filter Back Projection, Algebraic Reconstruction Technique