Research Proposal for Term Project

For

Advanced Computer Vision

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Subject- 3D Solder ball Reconstruction using various Reconstruction Techniques

Introduction – Solder Ball of a Printed Circuit Board has many defects. But it's difficult to detect those in naked eyes. That's why the PCB is passed through X-Ray at each angle from (0 to 180). The result generated is a sinogram which is basically accumulation of the X-Ray projection in different angles.

Proposal - There are various reconstruction techniques to reconstruct the sinogram back to the original image. The most common algorithm used are: -

1. FBP (Filtered back Projection)
2. SART (Simultaneous Algebraic Technique)
3. ART (Algebraic Reconstruction Technique)
4. MART (Multiplicative Algebraic Technique)

My research will be based on these few algorithms and if possible find new optimizations.

Result – The reconstructed image should contain less halo noise and more information should be preserved like shapes of the object.

Progress- I have implemented ART and MART under different projections and found ART to be much better in retaining the inside information and MART in retaining the shape of the objects in image. Right now, I am implementing FBP on the sinogram and checking the performance over ART and MART.