

# RECONSTRUCTION OF CT SCANNER'S 2 DIMENSIONAL IMAGES TO 3 DIMENSIONAL IMAGES WITH DIFFERENCE IN DEPTH

## ABSTRACT

CT Scan is one of equipment to health examination which has been evolving since 1970. CT Scanner, or so called Pemindai Tomografi Terkomputasi in Bahasa, is an image modality to support a diagnosis of an abnormality using x-ray and be able to make slices of internals organ without cut the tissues.

This thesis is conducted to present 3 dimensional images from the 2 dimensional slices of images of the CT Scan output which showing the depth of the organ. The CT Scan output is in the form of 512 x 512 pixels 2 dimensional images, represent of head helical and abdomen. These images are preprocessed using *black white*, *filling*, erosion, and dilation process which are done twice. Then the preprocessed images are plotted to the Cartesian plane x y z to get a 3 Dimensional image.

The output of this thesis is an application which can show made- by- bone organs, can be rotated in 360 degree, have a volume, and differences in depth. This application can help orthopedics necessities, plastic necessities, etc. Based on results of the survey, the best head helical image is image which use 131 133 threshold bw, sobel edge detection, 0,0001 threshold edge, and mip rendering type. In the other hand, the best abdomen image is image which use 132 133 threshold bw, Roberts edge detection, 0,05 threshold edge, and vrc rendering type.

**Keywords :** *CT Scan, 3 Dimention, Threshold, Edge Detection*