

# Medical Imaging

## Formats & Algorithms

### Dicom

→ Digital imaging communication in medicine (an image standard)  
Has header & data part. Header → Info about patient & scanner

### Hounsfield Unit

A unit describe the attenuation of x-rays inside the human body.

$$HU = \frac{\mu_x - \mu_{H_2O}}{\mu_{H_2O}} \times 1000$$

attenuation coefficient  
related to radio density  
of material

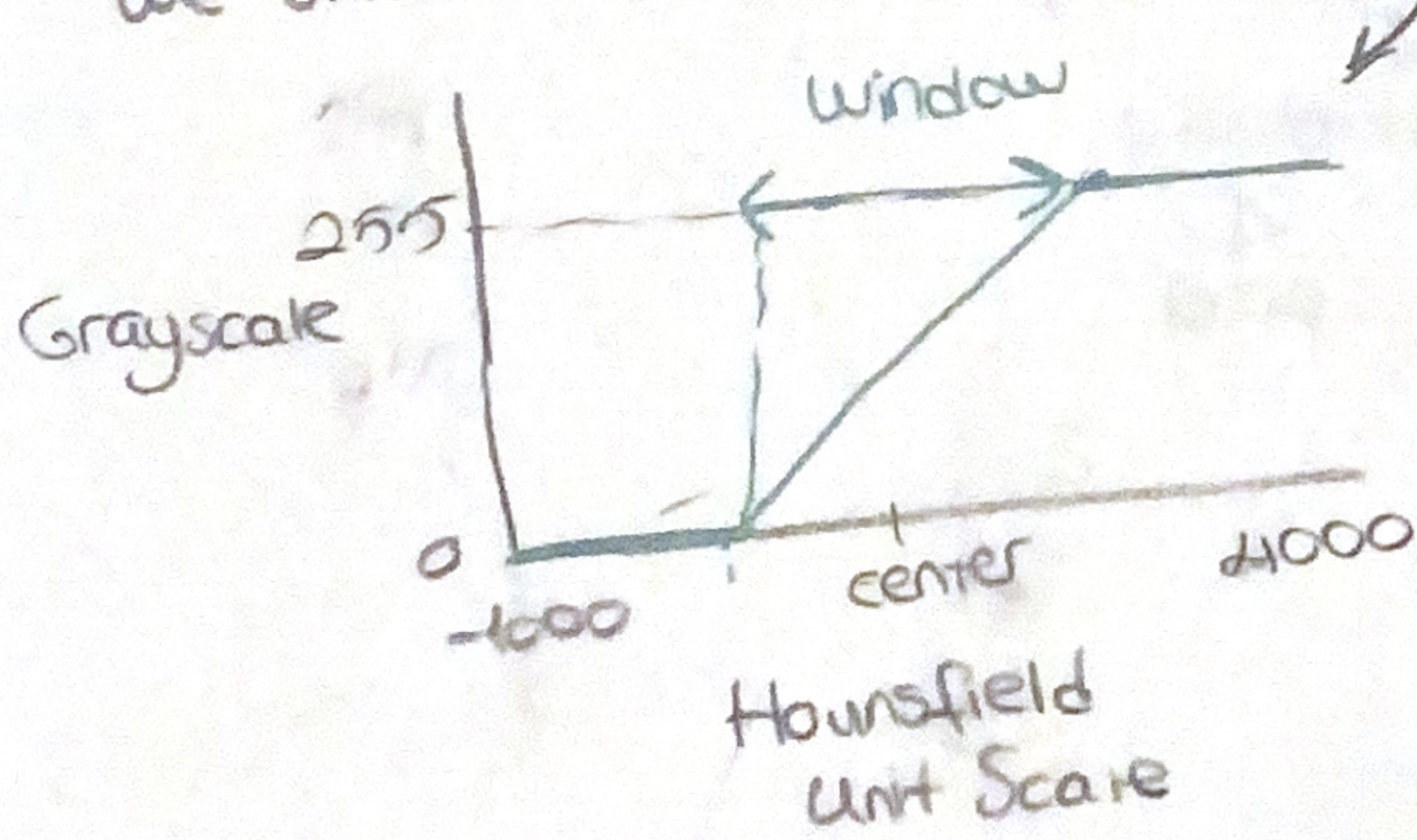
amount of transparency to the  
passage of x-rays through  
material.

$$HU_{H_2O} = 0 \quad \mu_{air} = 0 \rightarrow HU_{air} = -1000$$

HU is used in CT scanners.

In DICOM we store data in a range larger than 0-255 now we can display a wider range of values → Map for region we would like to display

window level function



### Volume Rendering

Technique for 3D visualization

3D vit is hard due to → unclear borders between organs  
→ unclear elements inside organs

Instead of trying to separate structures display all of them based on intensity values as 3D image