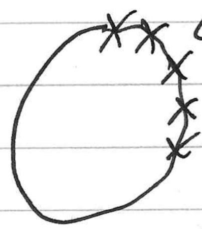
Absolute

Image

$$\max_{(r, x_0, y_0)} \left| G_\sigma(r) * \frac{\partial}{\partial r} \oint_{r, x_0, y_0} \frac{I(x,y)}{2\pi r} ds \right|$$

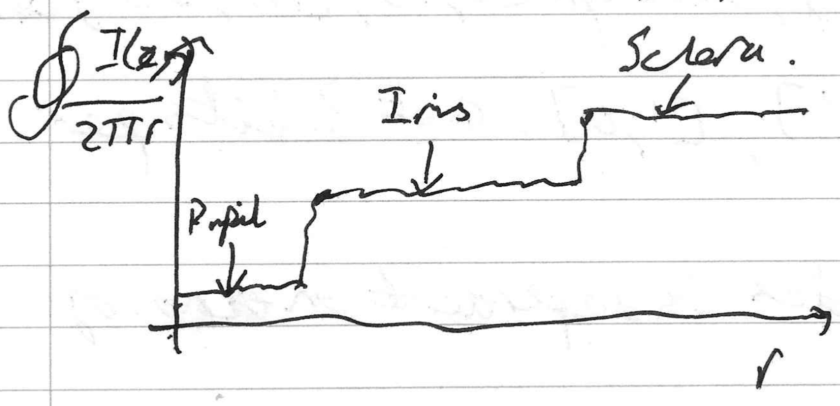
Gaussian Filter

x_0, y_0 moved until find best r_{max} & r_{min} } to r.



Eq^n adds pixel grayscales on circle then divides by perimeter $= \pi d = c$.

This gets average of pixels along the path.



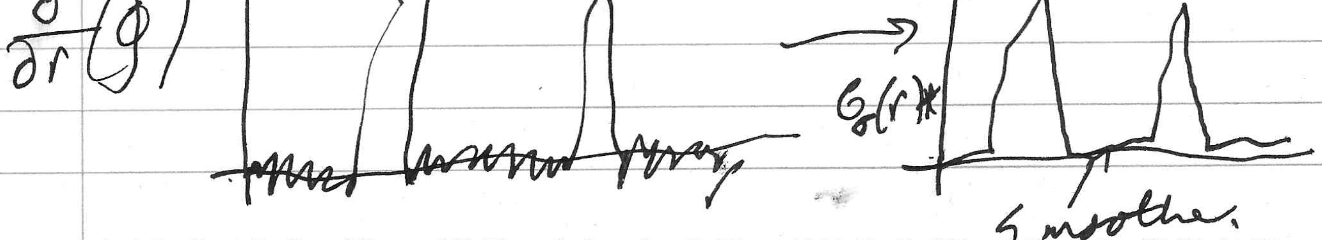
Helps to find unknown r.

We calc for different r until lines bound

Given r_1, r_2, have segmented iris

Derivative of fn has peaks at sharp changes

Finally, filter output c̄ Gaussian to remove the noise. Also smoothly the peaks



$I * G$ $= J$ For $I(x, y)$ giving a greyscale pixel.

J comprises Re & Im parts.

From Re + Im, can get phase as:

$\theta = \text{Arct}$

If phase between [0°, 90°), assign code [1, 1]

for [90°, 180°), assign [0, 1], [180°, 270°] [0,0]

and [270°, 0°], [1, 0]. Get 2 bits per pixel.

No. of codes is dependent on ~~the~~ no. of filters.

$$HD = \frac{\| (\text{code}A \otimes \text{code}B) \cap \text{mask}A \cap \text{mask}B \|}{\| \text{mask}A \cap \text{mask}B \|}$$

Eg., s_1 = ABCD

s_2 = ABED

HD = 1 as diff only 1. For $s_1 = s_2$, HD = 0.

Convert num to percentage to get percentage.