



UNIVERSIDAD  
MANUELA BELTRÁN

# DETECTION OF ANEURYSMS BY MAGNETIC RESONANCE IMAGING

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**Subject:** Digital image processing

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**Problem questions** Problem Justification

Image processing Pre-processing Filtering Processing Conclusion

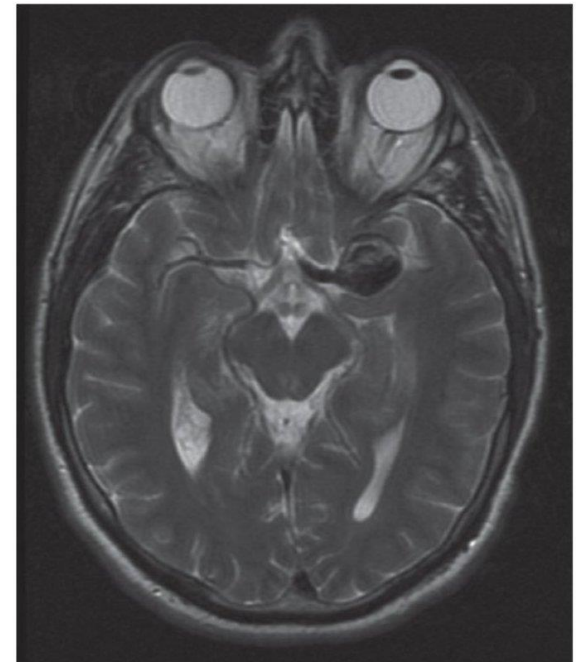
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¿ How to detect aneurysms by digitally processing magnetic resonance imaging ?

## Problem questions Problem Justification

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- Brain aneurysms are blood vessels that have widened considerably respect to the other vessels either because of weakness or obstruction.
- The fatality of aneurysms is based on their rupture; Has an incidence of 10 per 100,000 people affected per year
- The procedure of performing magnetic.
- The procedure of aneurysms depends on the size and state of the same as well as the medical control and care of the patient.



[1]Taken from: Radiation-induced temporary hair loss after endovascular embolization of the cerebral arteries: six cases

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At present, there are several diagnostic methods such as:

- Angiograms
- Computed tomography (CT)
- Magnetic Resonance Imaging (MRI)
- Magnetic resonance angiography (MRA)
- Images of cerebrospinal fluid

With the help of the system that is developed, we want to have an emphasis on being able to characterize and detect aneurysms more quickly, as external support to the aforementioned diagnostic methods; In order to lower the incidence rates of cerebral aneurysms are estimated between 0.4% and 3.6%.



[2] Taken from: Gait impairment and dysphagia due to a giant basilar aneurysm in a nonagenarian



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Problem questions Problem Justification  
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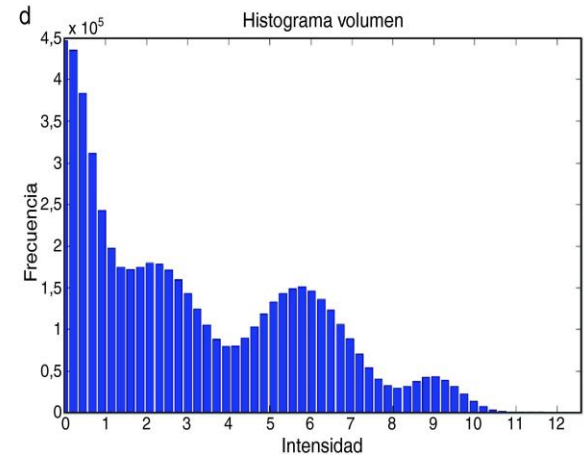
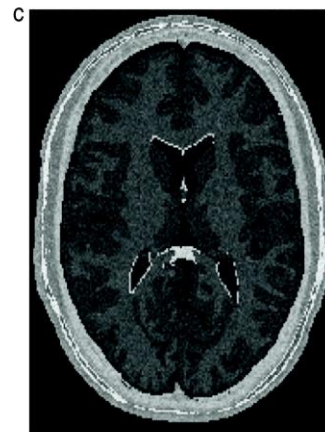
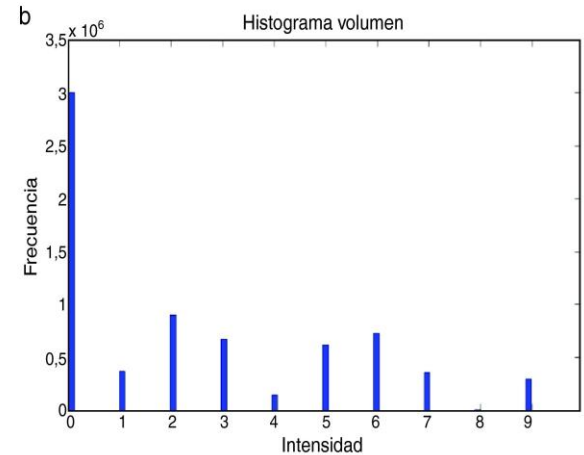
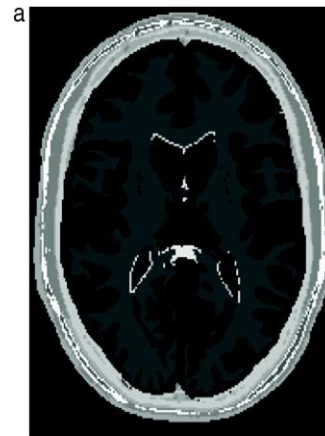
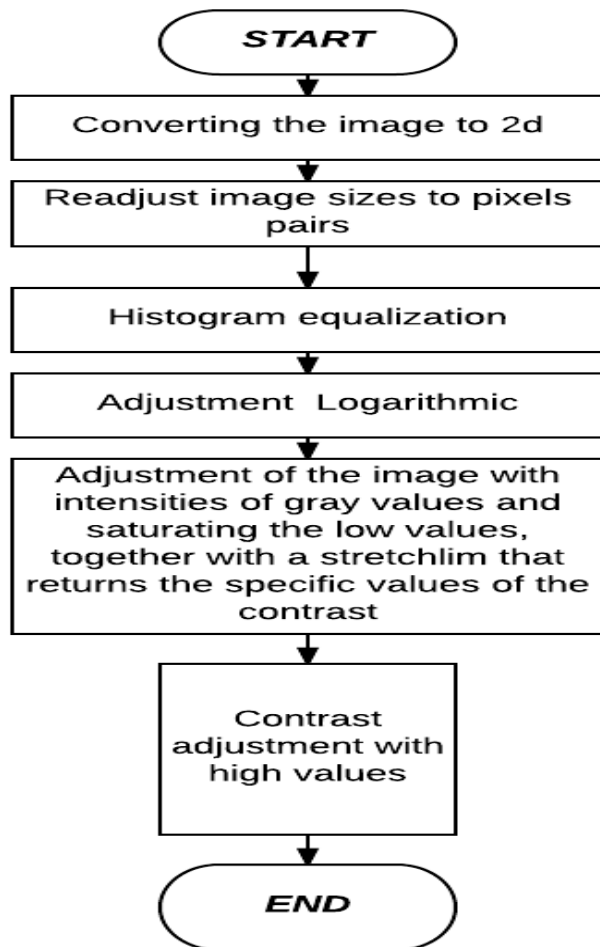
Pre-processing of the images,  
Adapt and highlight features

Determine image characteristics

Processing and classification of  
images

Results, viable in implementation  
with other diagnostics

Problem questions Problem Justification  
Image processing **Pre-processing** Filtering Processing Conclusion







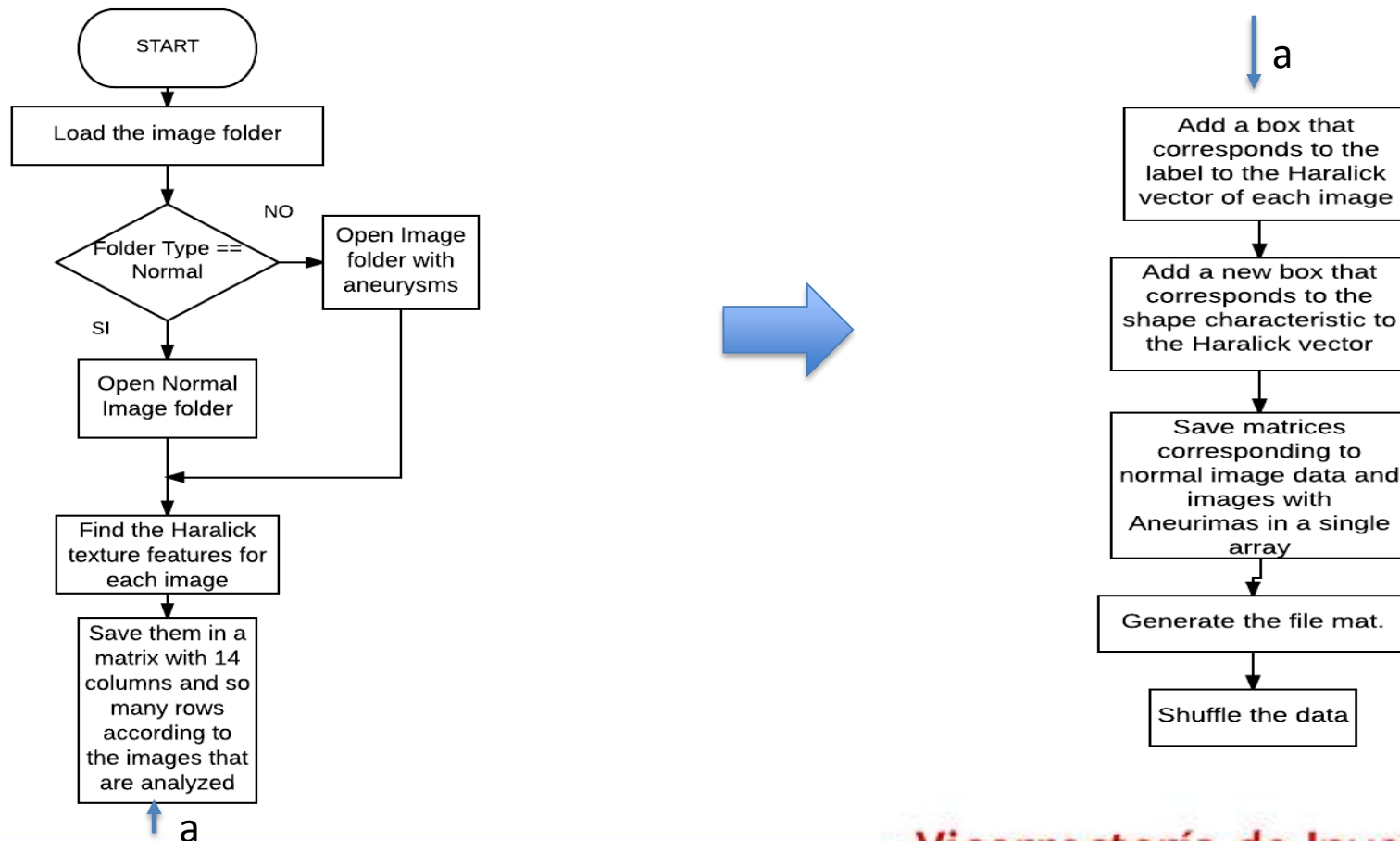
# Image filtering

Gaussian  
filter with  
boundary  
3x3 and STD  
0.5

Median  
filter with  
boundary  
3x3

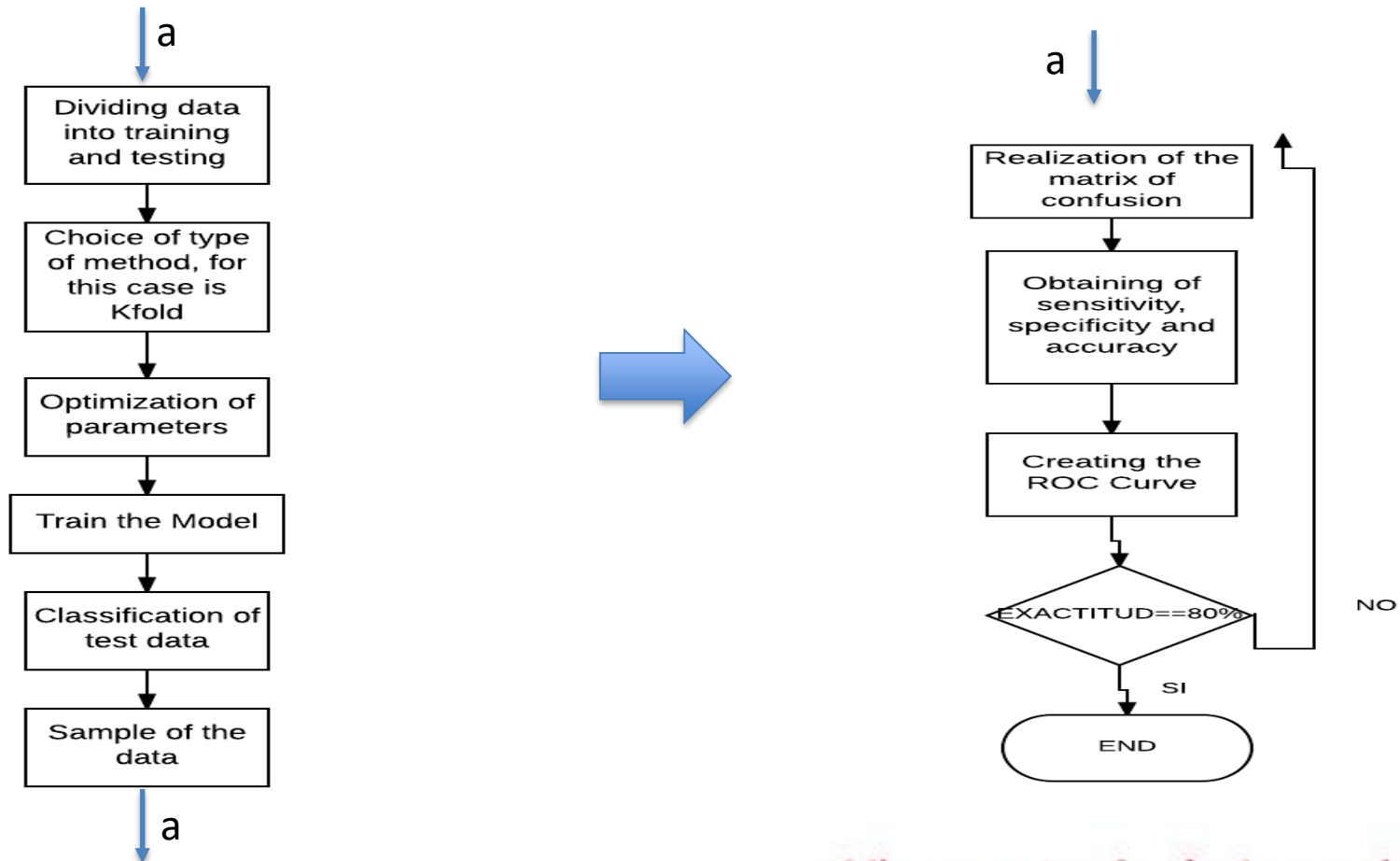
Butterworth  
high pass

Problem questions Problem Justification  
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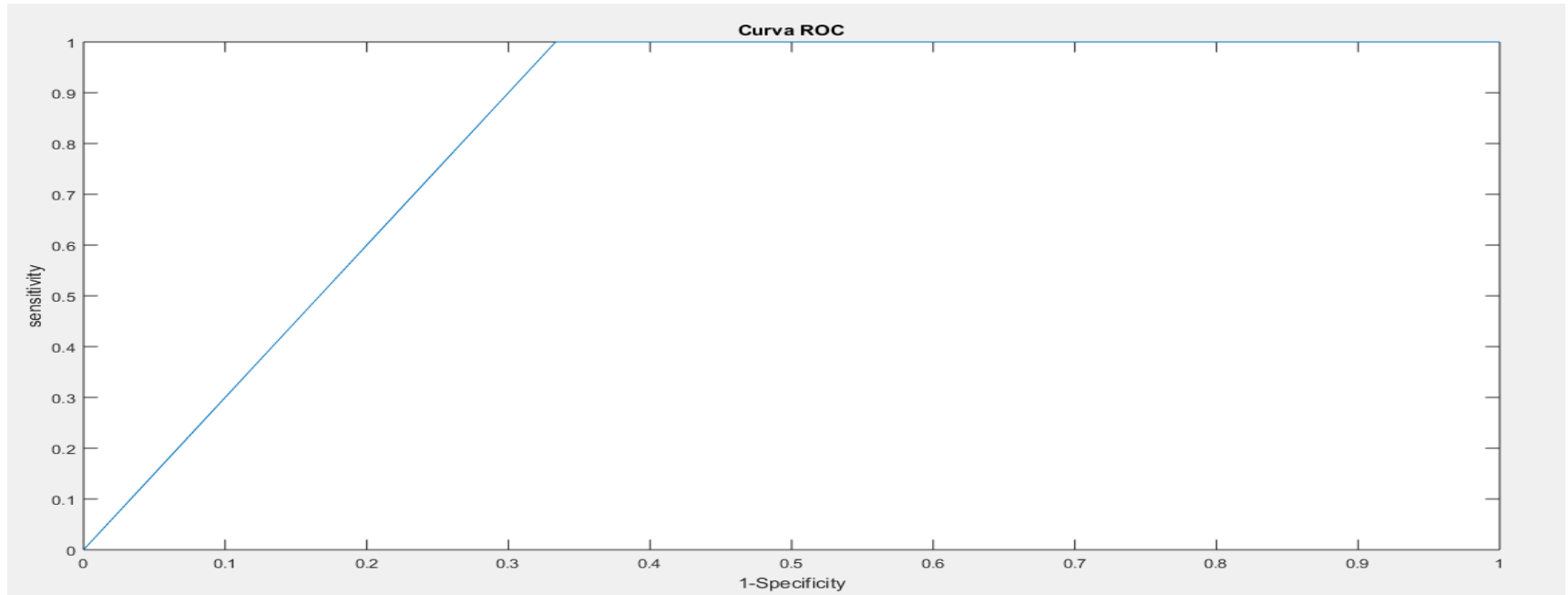


Problem questions Problem Justification  
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3x1 double	
	1
1	80
2	0.2000
3	0.4444
4	
5	

80% Final Accuracy

## REFERENCIAS:

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*Thank  
you*

