

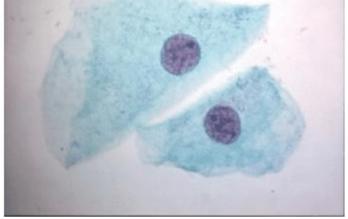
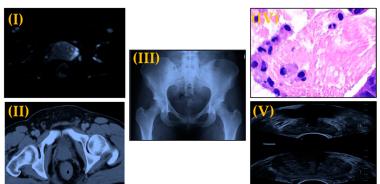
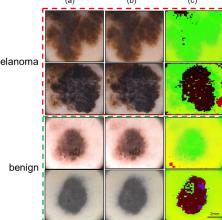
Assignment 1

Medical Image Computing



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Original Images

Image 1	
Image 2	
Image 3	
Image 4	
Image 5	 <p>The image shows a 3x3 grid of nine skin lesion photographs. The first two columns are labeled 'melanoma' and the third column is labeled 'benign'. Each image is overlaid with a colored heatmap and a dashed box. The top-left image has a red dashed box and a red heatmap. The bottom-left image has a green dashed box and a green heatmap. The bottom-right image has a green dashed box and a green heatmap.</p>

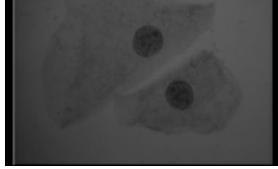
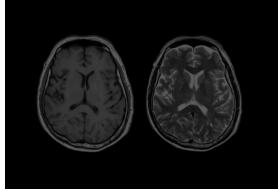
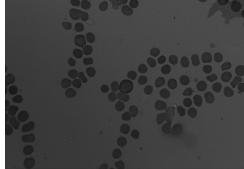
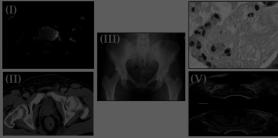
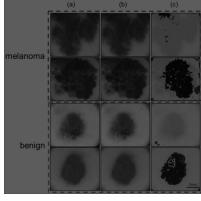
Gaussian Filter

By applying a gaussian filter I came to notice that the images were blurred and noise was removed from the image. Meanwhile tweaking the values of sigma and T it was noticed that the smoothing and noise sometimes leads to the full image removal also. Also I tried to create my own convolution but was not able to implement it on the rgb image and had to convert the images to grayscale.

	Sigma=1.5, T= 0.3	Sigma=1, T = 0.7	Sigma=0.5, T= 0.5
Image 1			
Image 2			
Image 3			
Image 4			
Image 5			

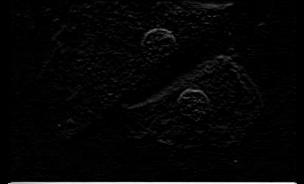
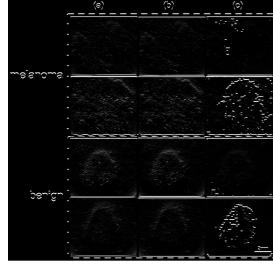
Box Filter

As from the definition box blur is a spatial domain linear filter in which each pixel in the resulting image has a value equal to the average value of its neighboring pixels in the input image. It is a form of low-pass filter so by applying on different types of images it was noticed that results were somehow similar to the last sigma T values of gaussian one. And even had to change a little bit in the argument that was pre-given and so I find it a little bit dull in a way that the color was dark but the purpose for applying was completed on almost all images.

Image 1	
Image 2	
Image 3	
Image 4	
Image 5	

Prewitt edge detection filter

Prewitt edge is **discrete differentiation operator**, computing an approximation of the gradient of the image intensity function so applying on the images the edges were detected base on the types of the images provided but it was dark i was expecting that only the edges will be showed by applying the filter but it considered whole image as it was and darked the image.

Image 1	
Image 2	
Image 3	
Image 4	
Image 5	

SobelX and SobelY

As from the definition Sobel filter, is used in image processing and computer vision, particularly within edge detection algorithms where it creates an image emphasising edges so the sobelX when applied on the images it highlights all the edges on x axis and similarly y on the y axis side. Looking at the results of the filter the difference is clearly seen.

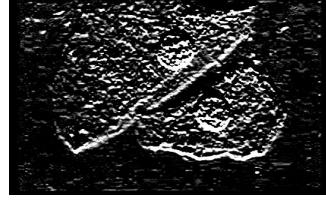
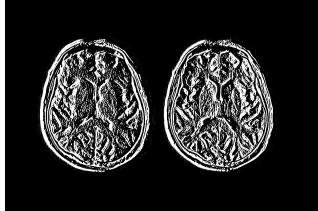
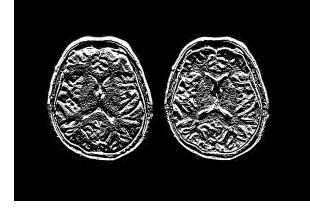
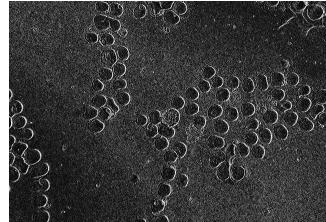
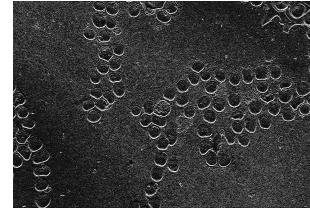
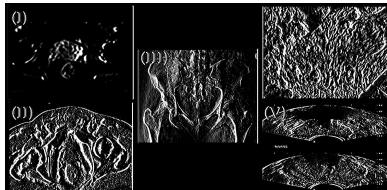
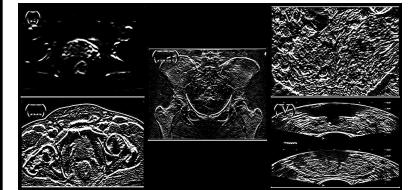
	SobelX	SobelY
Image 1		
Image 2		
Image 3		
Image 4		

Image 5

