Brandon Mohan

CMSC 630

4/8/2023

Project Part 2

Github link: https://github.com/BrandonM001/CMSC630Part1

Relevant files: part2.py, inputFilePart2.txt, and BrandonMohan_CMSC630_part2.pdf

Note

Main(): This function parses the information found in the input file and runs each image through each function. It also tracks the time of each run.

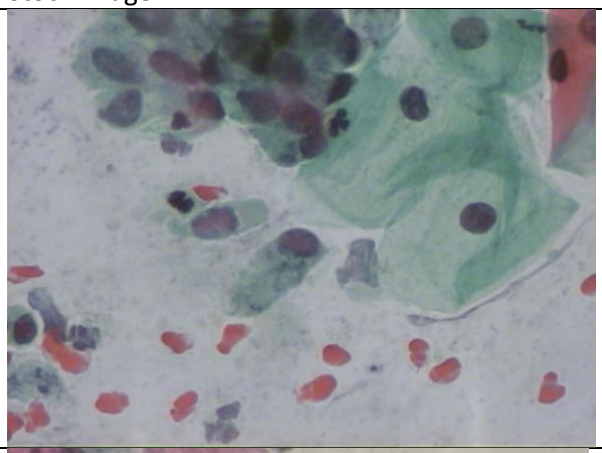
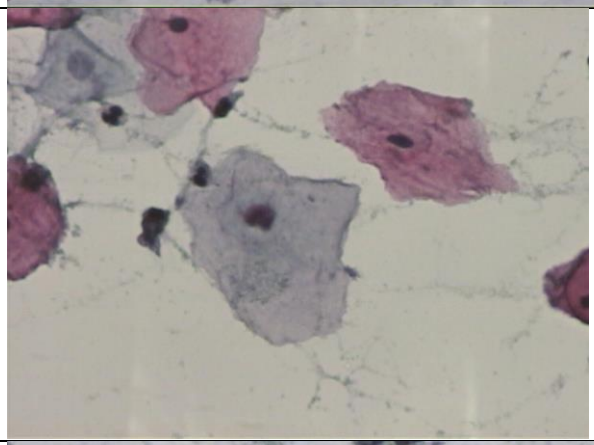
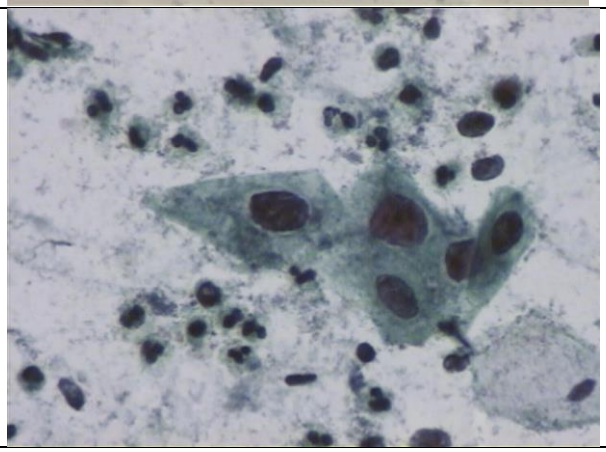
monoColor(img): This function was imported from part 1, as I still use the grayscale images in this project. It takes a color image and RBG option as input and returns a grayscale version of that image.

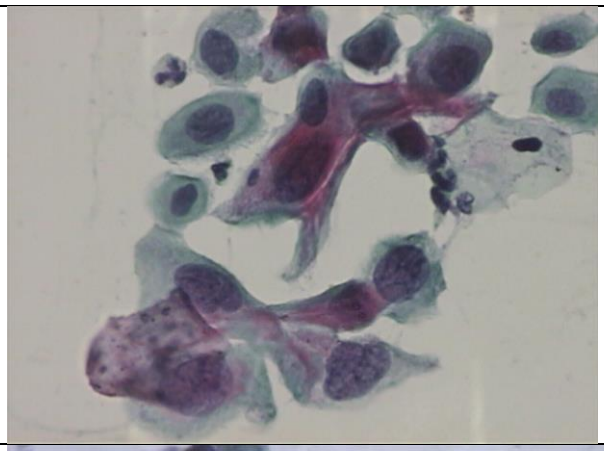
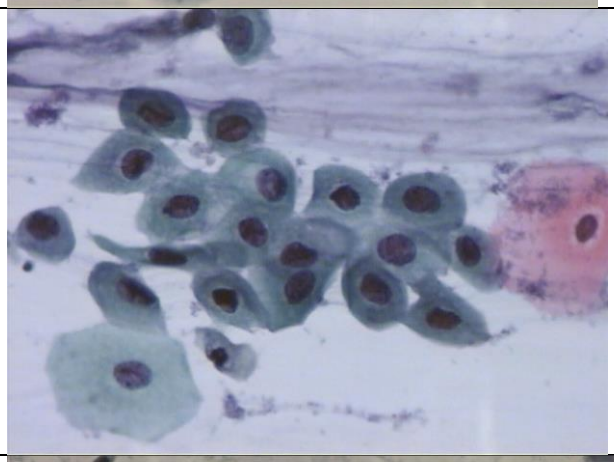
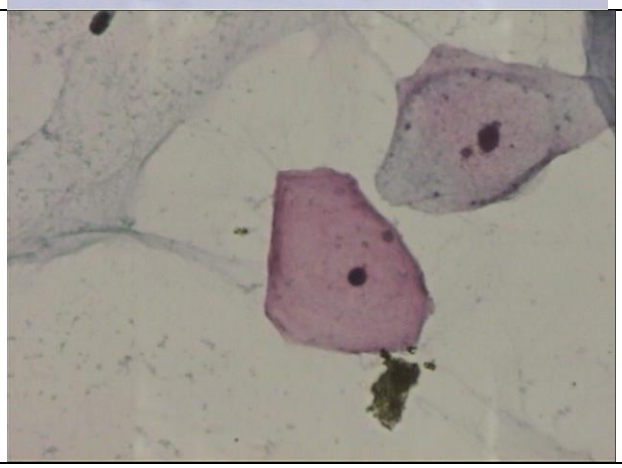
sobelFilter(img): This function follows the sobel algorithm to detect and display edges in the provided image.

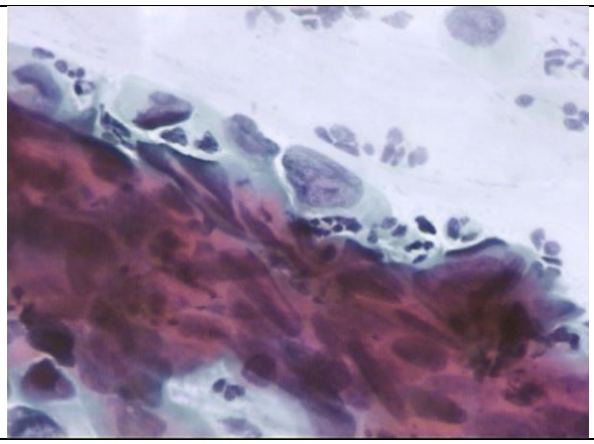
dilationErosion(img, kernel, dilationOrErosion: This function follows the algorithm for dilation to increase the size of edges. Erosion works with a similar algorithm, so instead if rewriting another function I combined them. Set delationOrErosion to True for Dilation, or False of Erosion. Unfortunately the kernel is hardcoded.

clustering(img, clusters, iters): This function uses clustering to divide the image into segments. The cells will be highlighted in the foreground, whereas everything else is removed in the background.

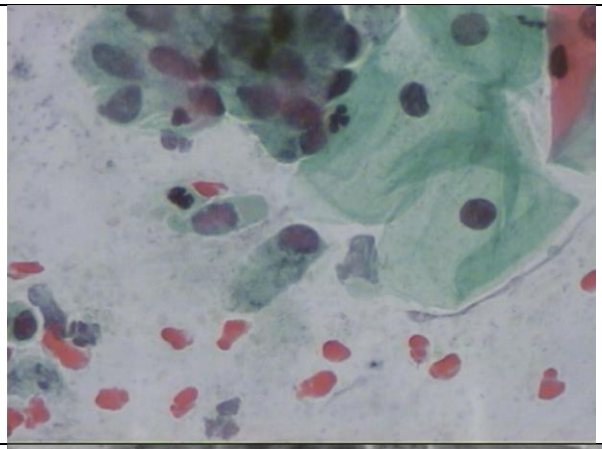
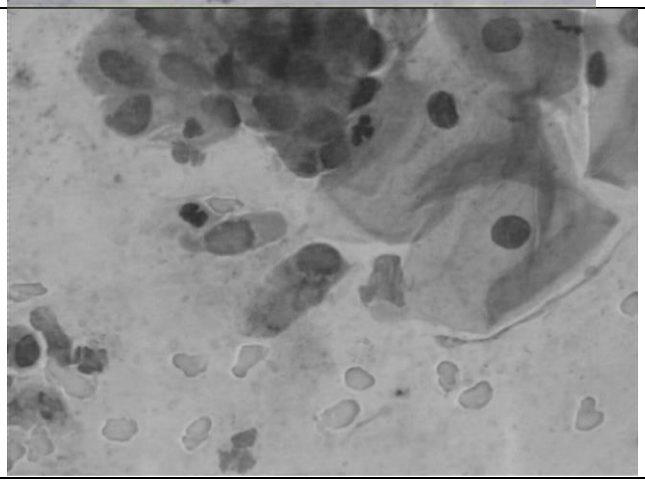
The dataset that we are using contains 7 different classes of cells. I have made a table below showing each class and the example image + directory used in the input file.

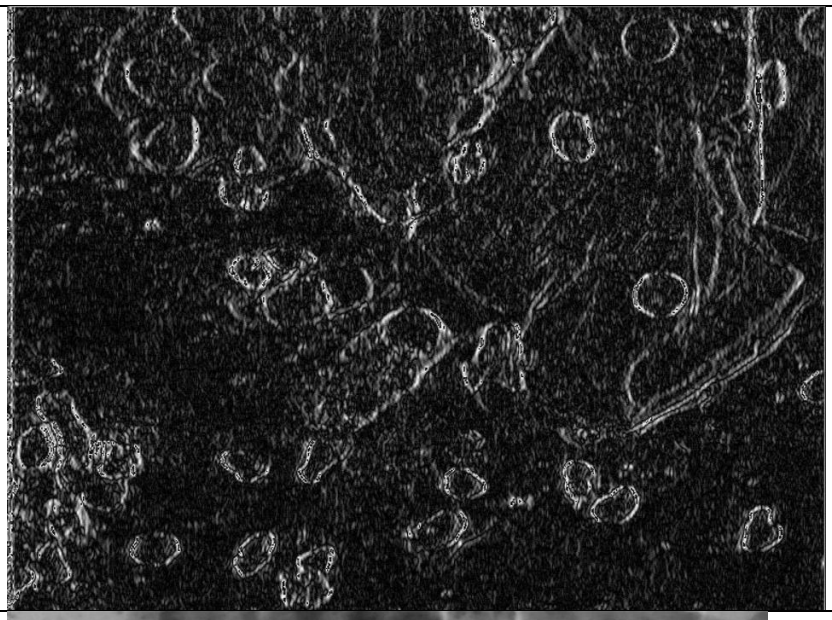
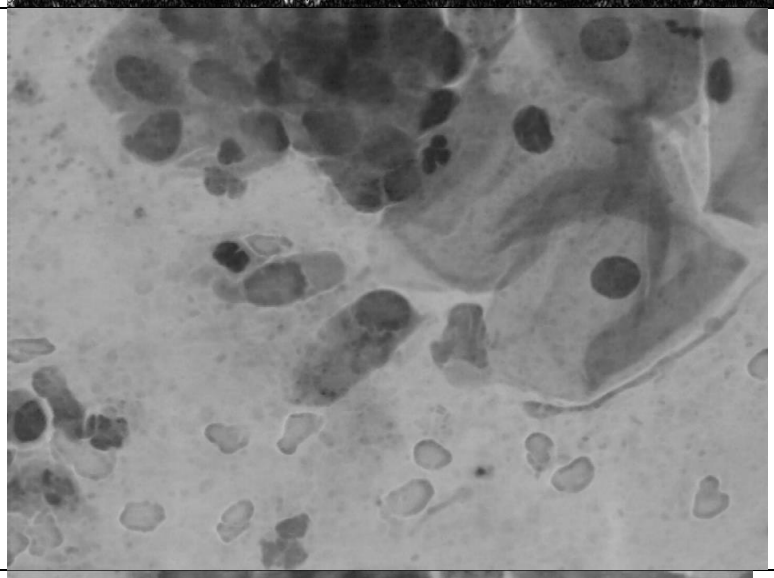
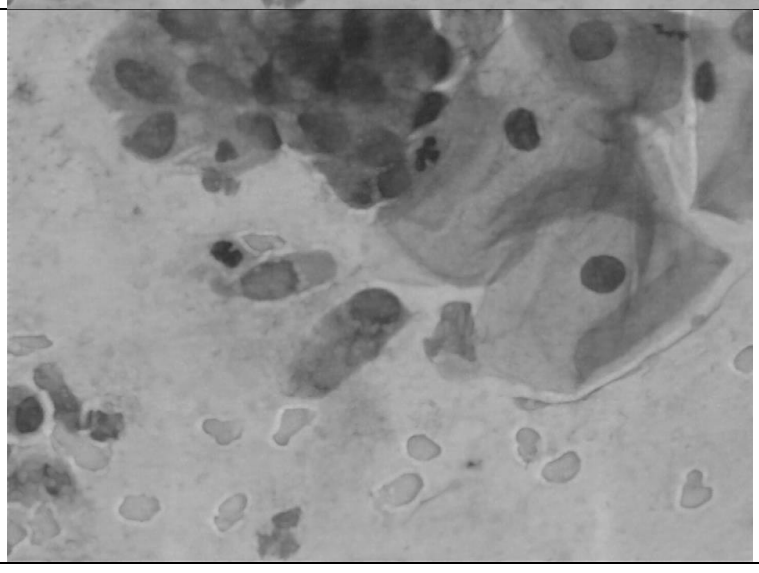
Classification	File	Stock Image
cyl	"Cancerous cell smears 2023\Cancerous cell smears\cyl02.BMP" R	
Inter	"Cancerous cell smears 2023\Cancerous cell smears\inter24.BMP" G	
Let	"Cancerous cell smears 2023\Cancerous cell smears\let73.BMP" B	

Mod	"Cancerous cell smears 2023\Cancerous cell smears\mod19.BMP" R	
Para	"Cancerous cell smears 2023\Cancerous cell smears\para05.BMP" G	
Super	"Cancerous cell smears 2023\Cancerous cell smears\super11.BMP" B	

svar	"Cancerous cell smears 2023\Cancerous cell smears\svar73.BMP" R	

For cyl02.BMP:

Stock	
GrayScale	

Sobel Edge Detection	
Dilation	
Erosion	

Clustering