Mahri K[redacted]

Dr. Jun Liao

BE 4312

Project 3

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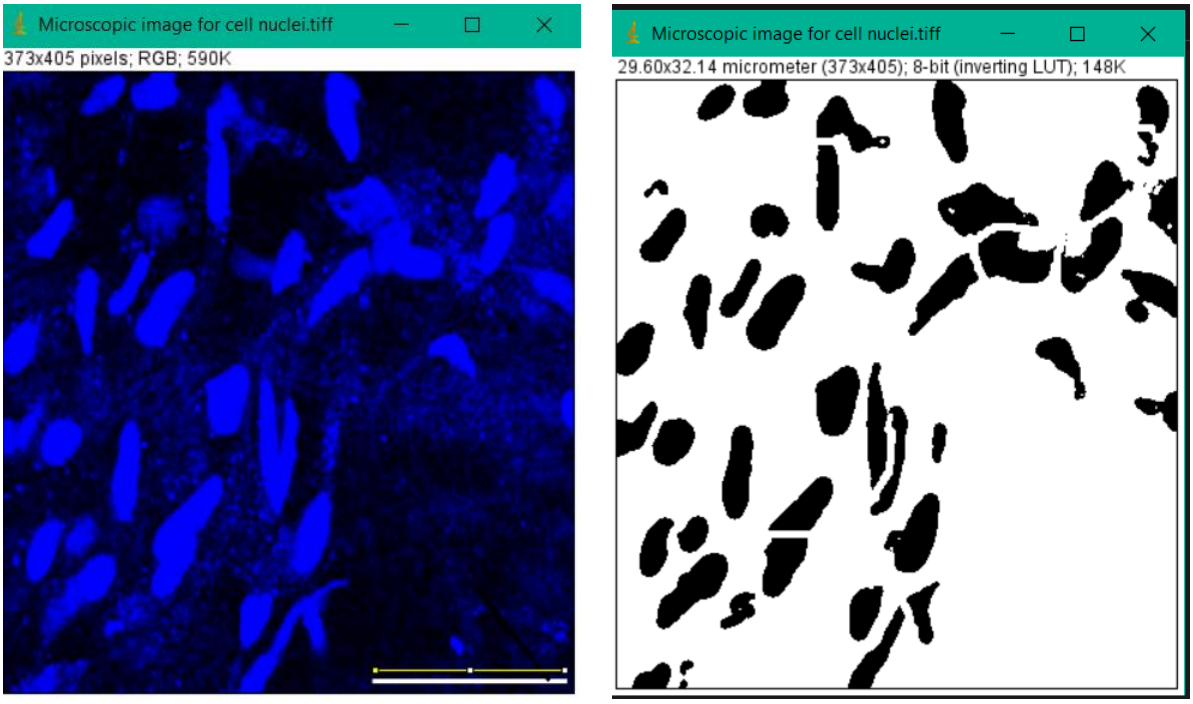
II. Procedure

Performed steps included opening the desired file and removing the scale. Then, to measure the length value of the picture, the line that overlapped the scale bar was drawn. The measurement was obtained as 126 pixels.

To continue with the procedure, the Distance in pixels scale was set to the pixel value that was obtained,126, and the Known Distance parameter was set as 1. After setting the Unit of length to micrometer, the obtained unit was 12.6 pixel/micrometer.

The image type was changed to 8-bit image which changed the image from blue to the gray scale colors. Then , the threshold was adjusted to get rid of as much noise as possible. The Despeckle function of the Noise was used. To further filter the image, Remove outlier function of the Noise button was performed. This was performed about. The image was Inverted and the nucleus was colored as a black color.

Manually separation of the nucleus particles was performed with the paintbrush and the results were obtained.



(a) (b)

Figure 1. (a) shows the original picture with the drawn line along the scale bar to obtain the length value in pixels. (b) shows the post processing of the image where the nucleus particles were separated, and the image was filtered from noise.

III. Results

Obtained results were in the form of tables on ImageJ and excel files were downloaded.

Table 1. The results obtained from ImageJ.

Slice	Count	Total Area	Average Size	%Area	Mean	Major	Minor	Angle
Microscopic Image for cell nuclei.tiff	46	180.253	3.919	18.944	254.643	3.115	1.422	74.535

The following parameters were provided for the questions aspect for the report.

Table 2. Specific parameters for results.

Size of nuclei (%)	Average size of nuclei	Aspect ratio of the nuclei
18.944	3.919	2.191

IV. Analysis

The following graphs were obtained by performing some analysis on obtained data from ImageJ.

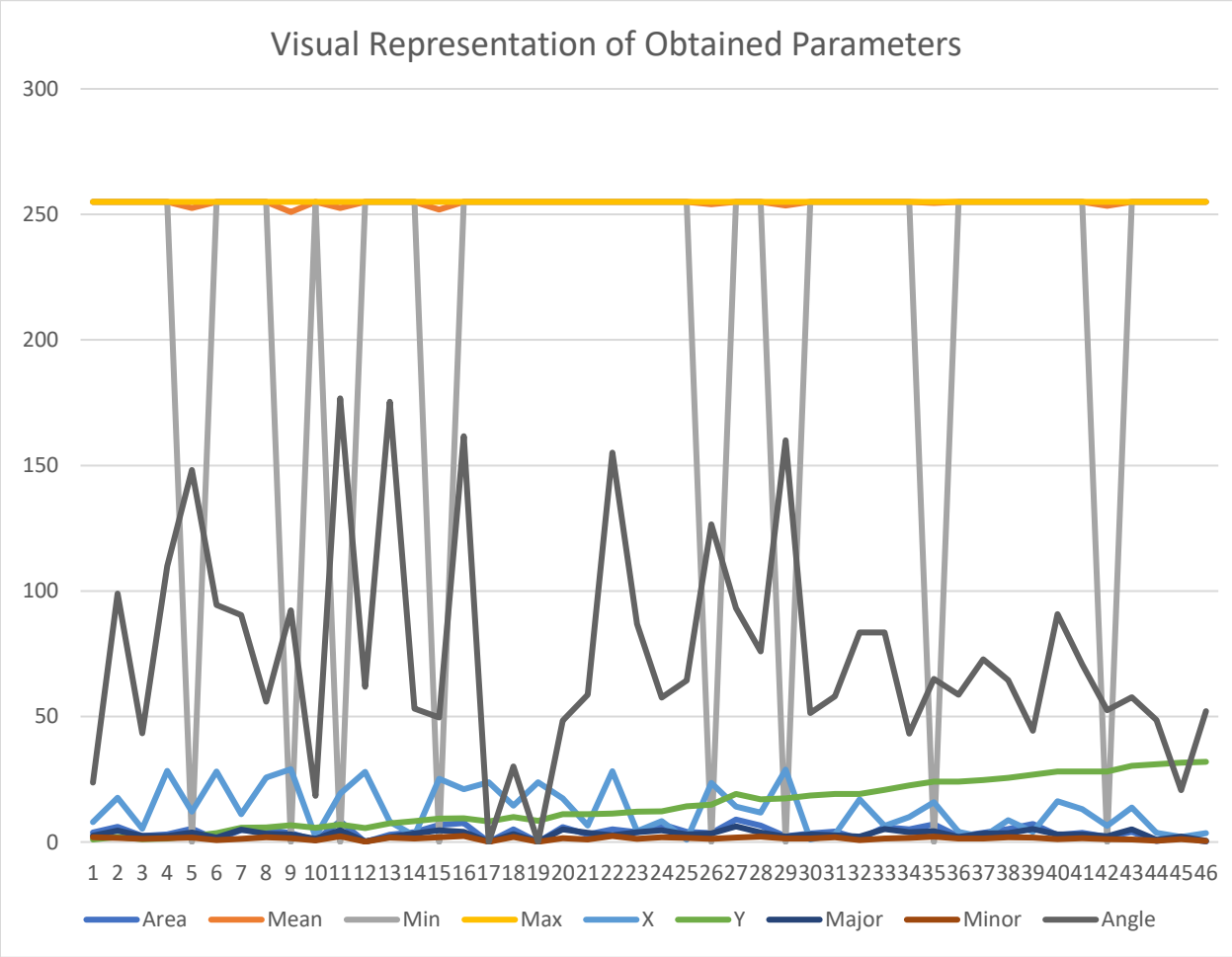


Figure 2. The graph representing the area of the nucleus, the mean threshold, the min and max thresholds, the x and y locations, major and minor axis measurements and angle of nuclei.

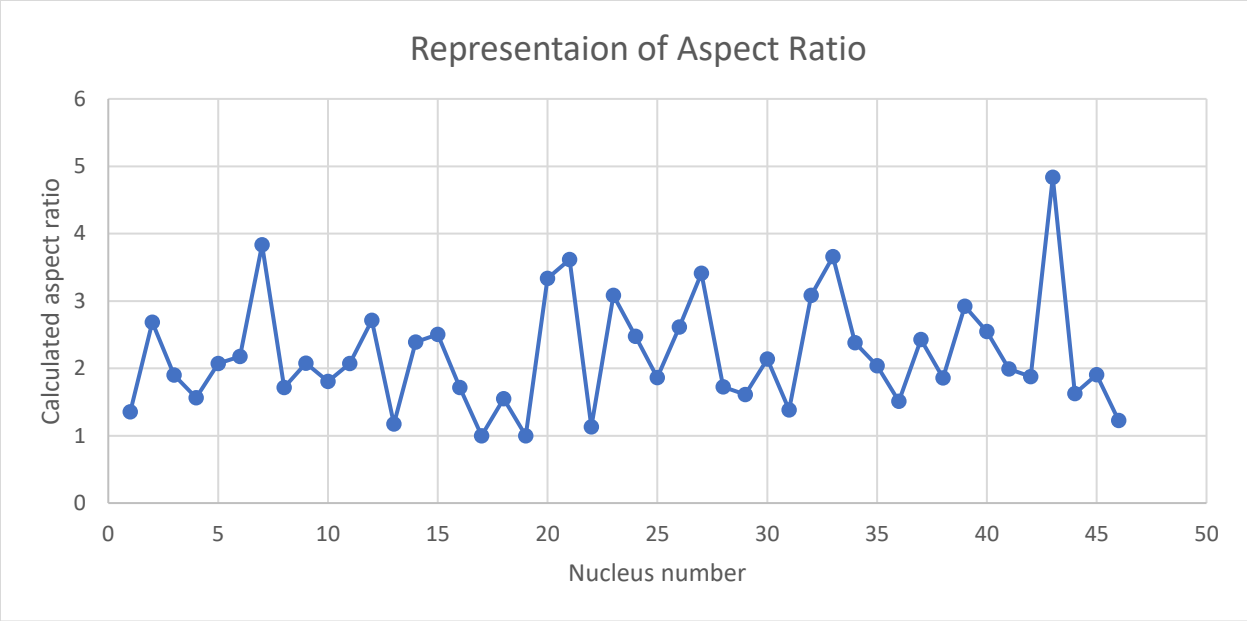


Figure 3. The aspect ratio of the nuclei was calculated by obtaining the ratio of long axis and short axis. This ratio is also the ratio of the major axis value and minor axis value.

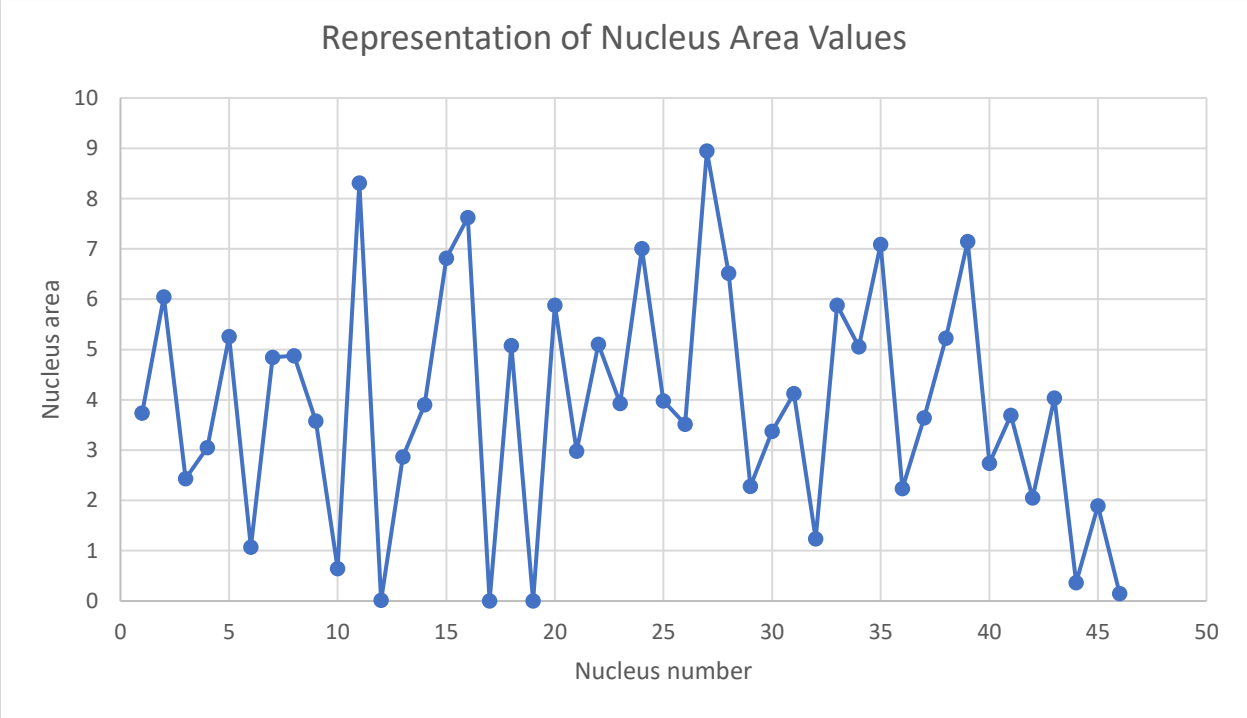


Figure 4. The graph of the nuclei areas was obtained for visual purposes.