CMSC 630 Project part 3

Feature extraction and image classification

Project deadline: 9th May 2019 (Thursday) 11:59pm UTC-05:00

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Feature extraction + image classification:

1. From segmented cell images (choose any segmentation technique you prefer) extract AT LEAST four distinctive features + assign class label according to cell type from documentation (as last column) – there should be seven distinctive classes.

2. Save new dataset as a matrix with columns representing features (and last column for class label) and rows representing individual cells. Use .csv format

3. Implement (not use an existing implementation) a k-NN classifier with Euclidean distance.

4. Implement 10 fold cross-validation.

5. Perform classification of cells using 10 fold cross-validation and k-NN classifier. Report classification accuracy (averaged among all 10 folds of cross validation)

6. Evaluate the performance of parameter k on the classification accuracy – run independent experiments with AT LEAST five different values of k and compare the results.

7. Present details of the features you extracted + implementation specific of k-NN + obtained results in a .pdf report.