Biomedical Image Investigation: Fall 2020

Homework 9

Due: **12/09 AM 9:10**

Taking the provided spreadsheet as materials, please summarize the data by producing diagrams using MATLAB. Comment on what you observe.

(1) Table: summarize all the parameters in a table as shown in class.
(2) Pie chart: show the percentage of subjects with each disease.
(3) Histogram: display the weight of subjects. The width is a rage of 10 kg and the height corresponds to how many samples (i.e., subjects) are in a bin.
(4) Box plot: display the data of blood flow rate (CBF rate) and plot both "boxes" of group1 and group2 in the same plot. Also overlay the scattered sample points on their corresponding "boxes". What are the values of median, interquartile range, 95% central range, the maximum and minimum in each group? Are there any outliers?
(5) Bar chart: use mean and standard deviation to produce the bar chart. The bars are separated by small gaps to indicate that the data are categorical (i.e., group1 and group2). The larger gap is used to separate data of different parameters (i.e., blood flow rate and velocity rate). Different colors also have to be assigned to these two groups. In addition, you may want to assign two distinct vertical axes on each side to better demonstrate the bars (as the units of these two parameters are not in the same scale).

(Hint: The MATLAB codes you might use include: *xlsread, contains, plotyy, errorbar, boxplot, scatter, set*…)