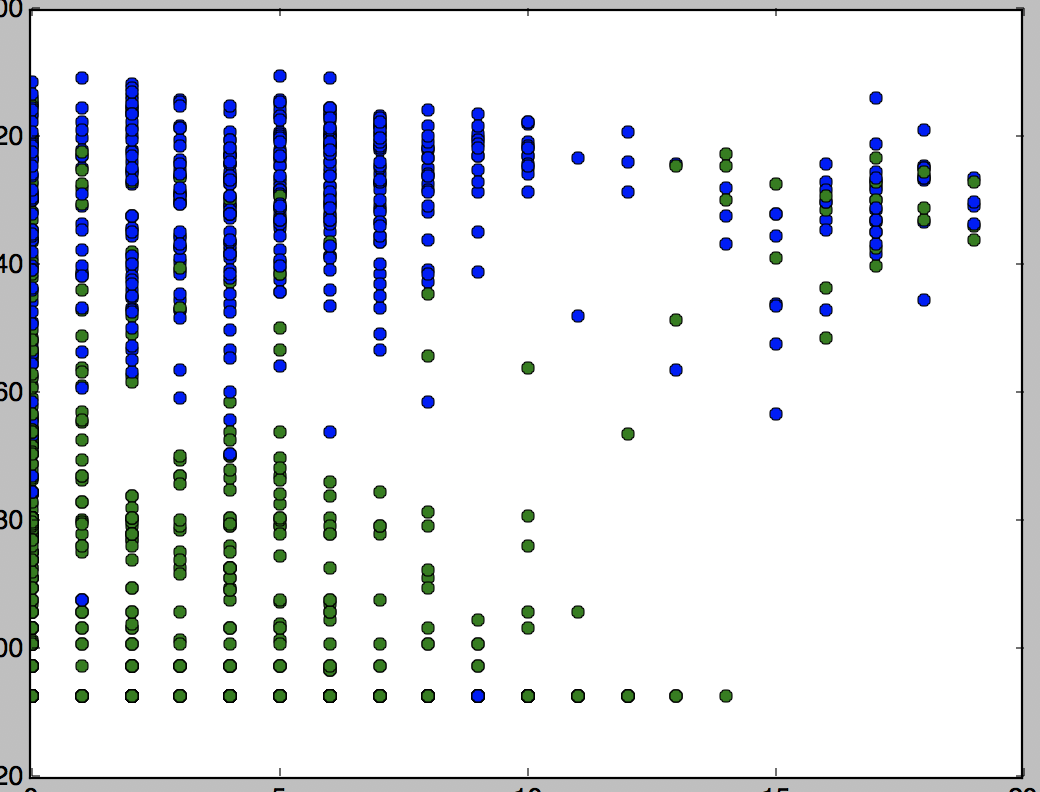
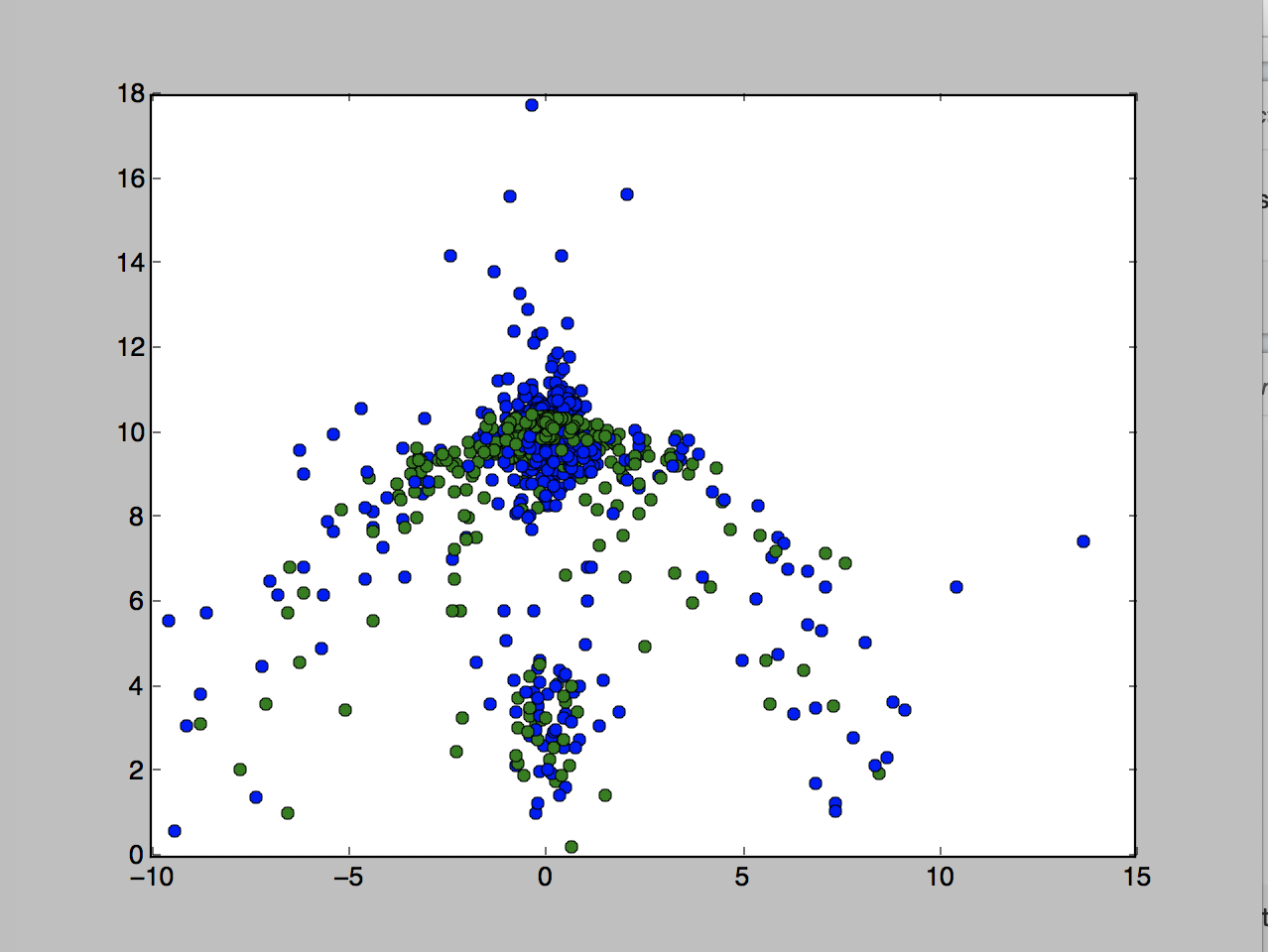
Team 6

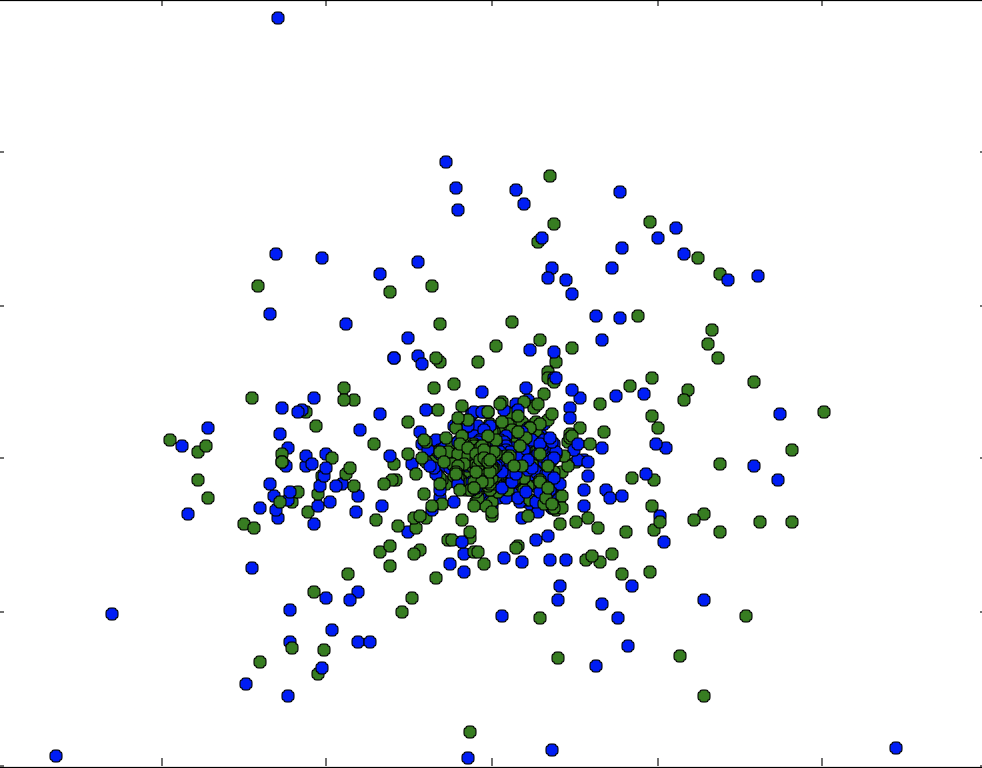
Part2 Write-up



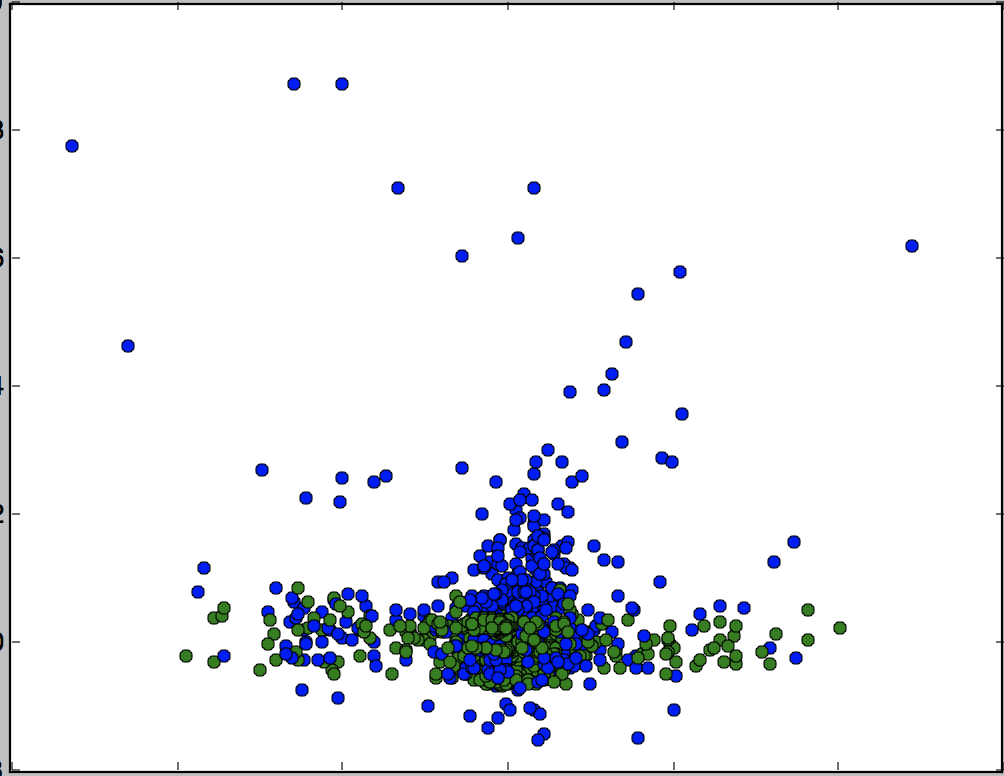
Zero Crossing X vs. entropy



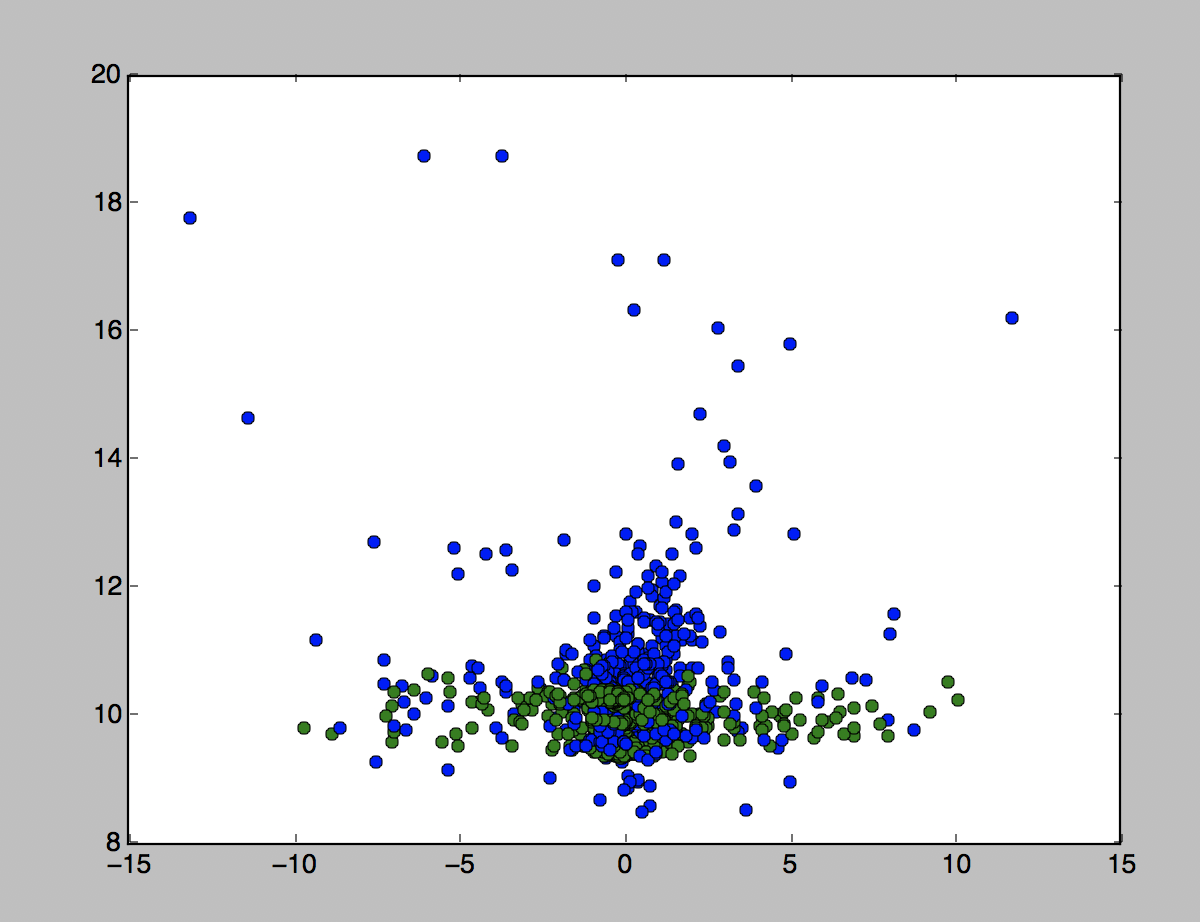
meanY vs. meanZ



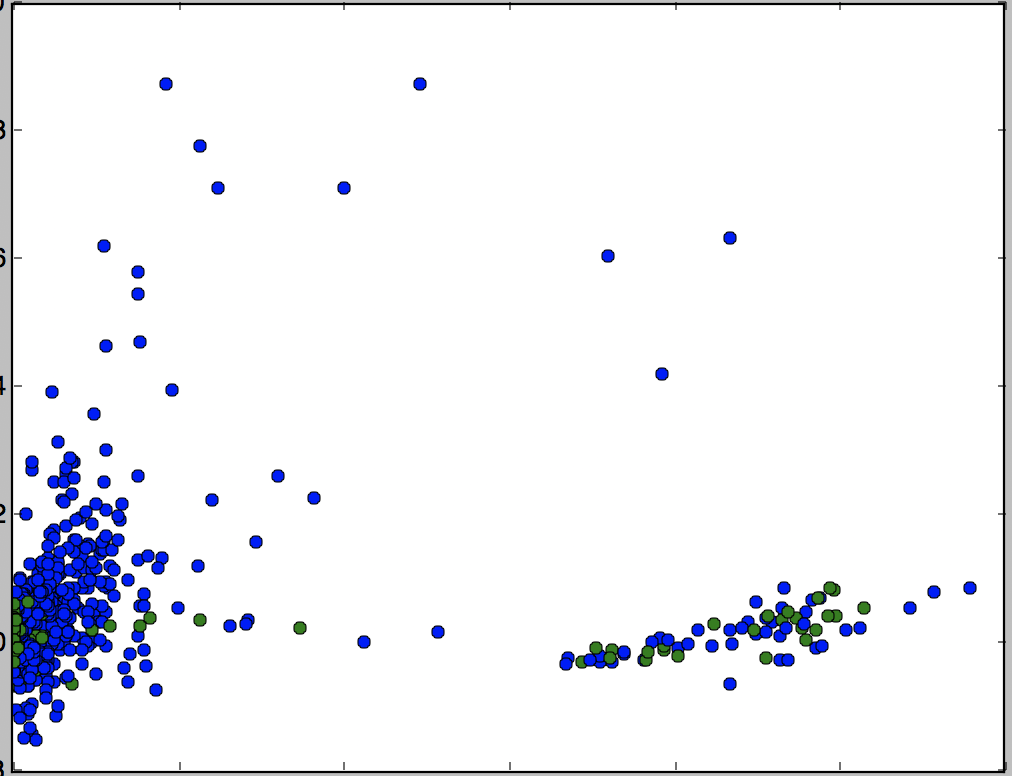
median X vs. median Y



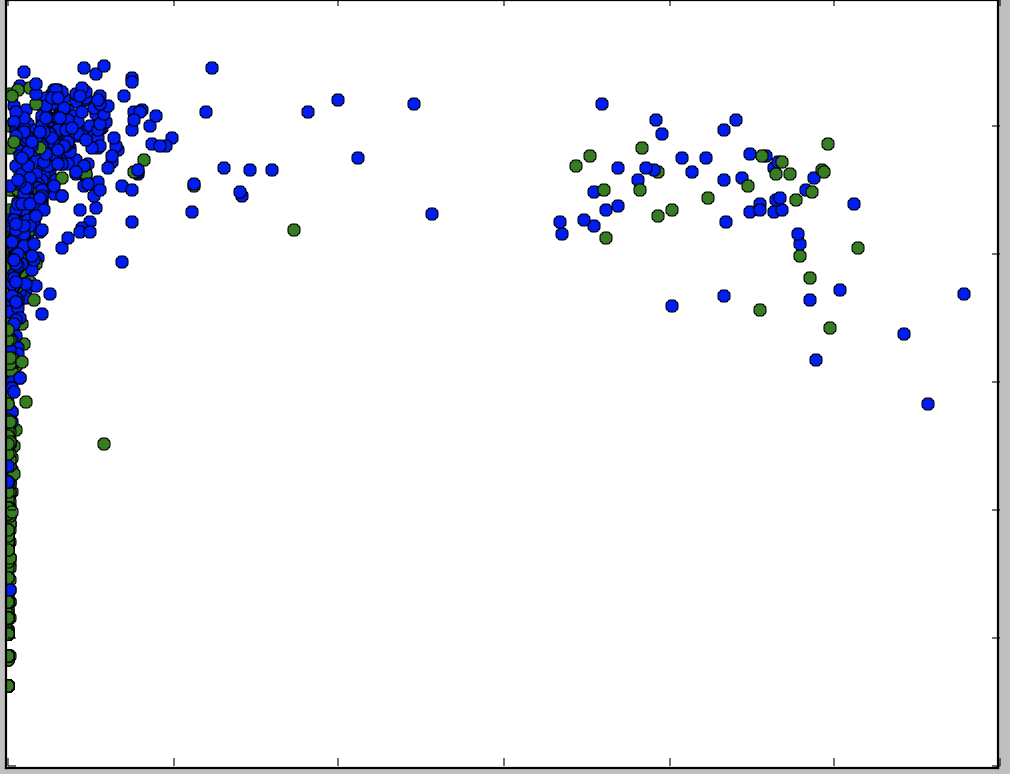
medianX vs. mean-magnitude



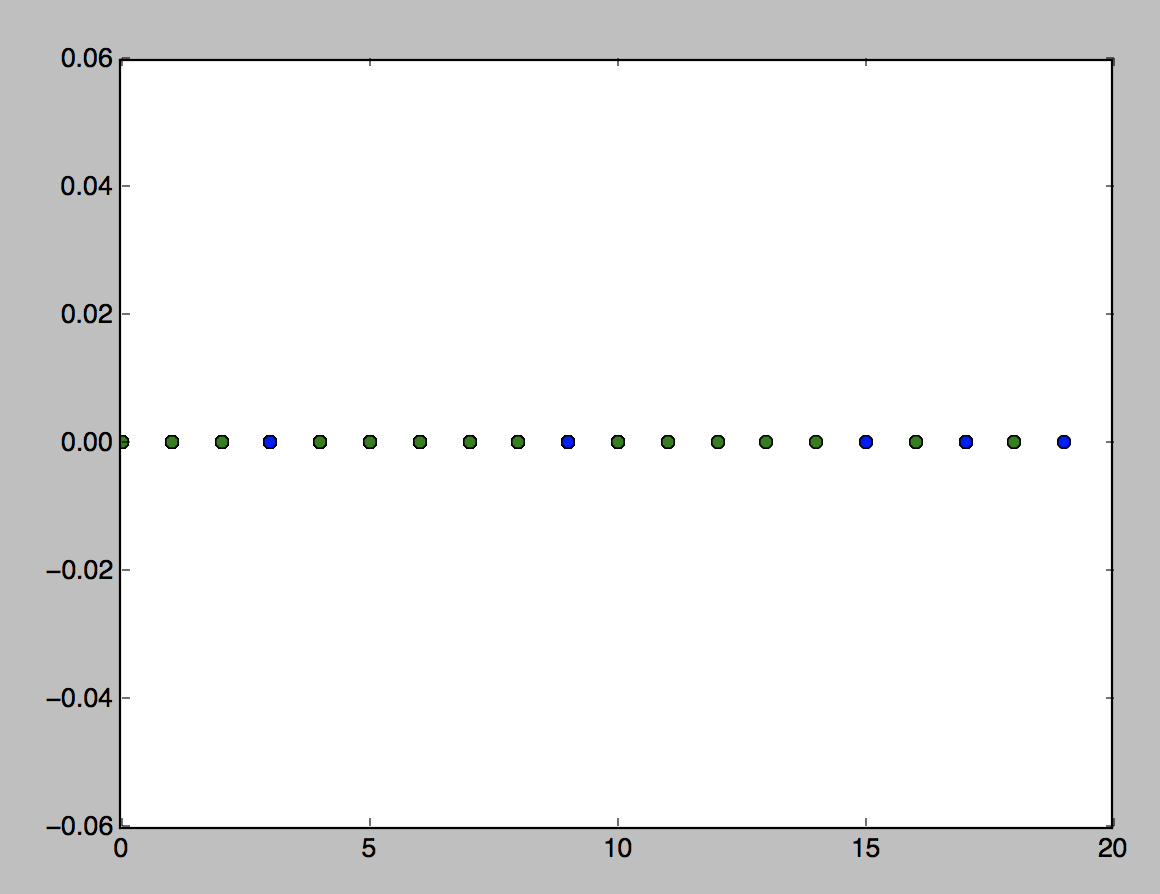
meanX vs. mean-magnitude



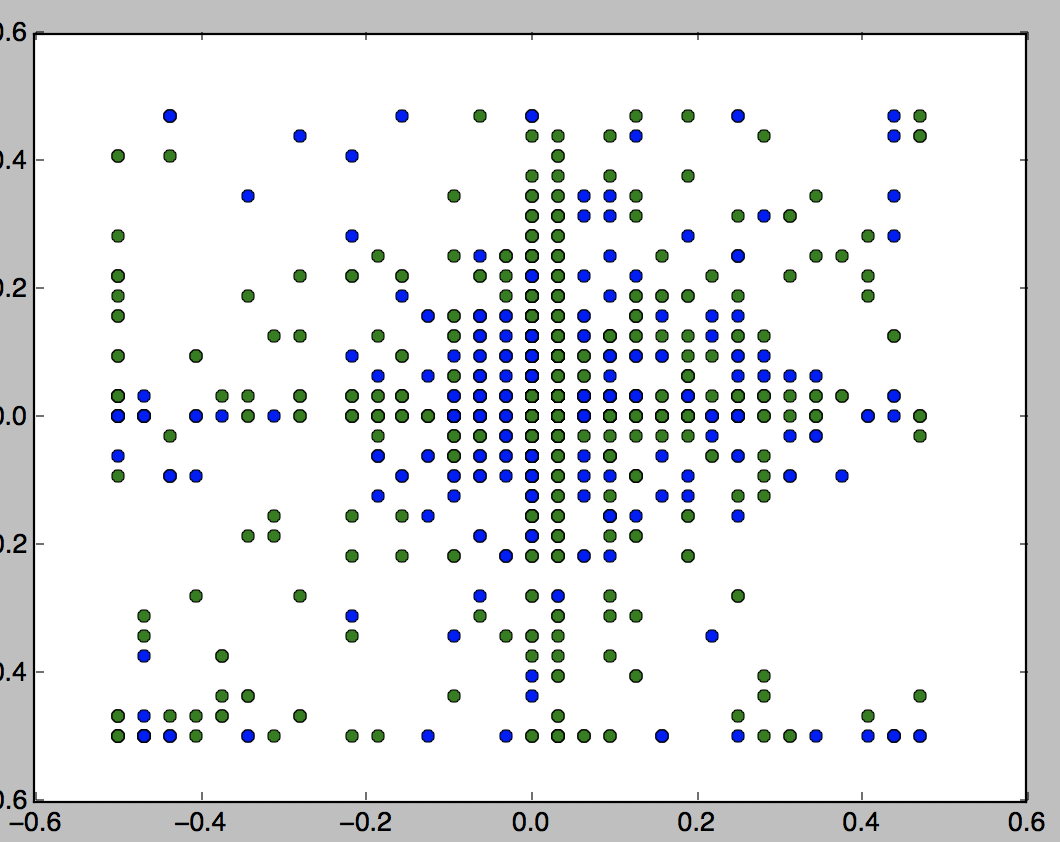
variancX vs. mean-magnitude



variance vs. entropy



zero Crossing X vs. peakx



FFTX vs. FFTY

Base on the visualization, the variance vs. entropy work best, since I can differentiate most of the point on plot by putting a line at the middle between 0.0 and 0.2. The one that works poorly is FFTX vs FFTY, because all the point on the plot just scatting around the graph, no way to separate those point by using one line.

**Part 3**

1. Train at least **four** decision tree classifiers varying the m ax\_depth and max\_features parameters. Evaluate each decision tree classifier and report the accuracy, precision and recall metrics averaged over 10-fold CV.

* MAX Depth = 3 & max\_feature = entropy

the average of accuracy is 0.964240903388

the average of precision is 0.5

the average of recall is 0.482120451694

* Max Depth = 5 & max\_feature = entropy

the average of accuracy is 0.955457967378

the average of precision is 0.5

the average of recall is 0.477728983689

* Max depth =3 & max\_feature = magnitude

1. Include the Graphviz image displaying at least two of these trees. Speak briefly to the visualization, comparing the trees.
2. Describe what effect each parameter has on your results. Why do you think that is?
3. Is the decision tree classifier a linear or nonlinear classifier? Explain.
4. Train at least one other model and report the cross-validated accuracy, precision and recall metrics on the test data. Does it do better than the decision tree classifier?

I used SVM to calculate the accuracy, precision and recall. Accuracy and recall both increased. It is better than the decision tree