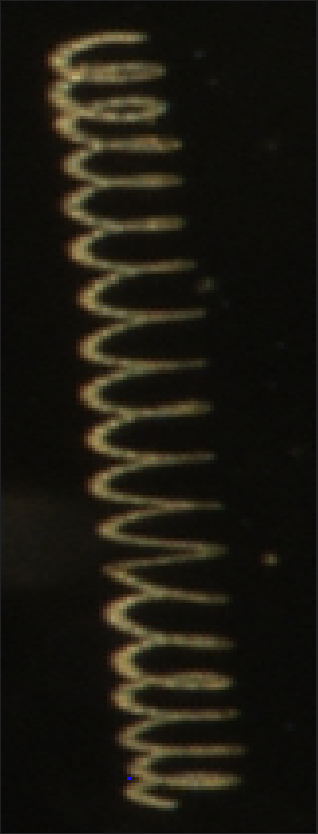


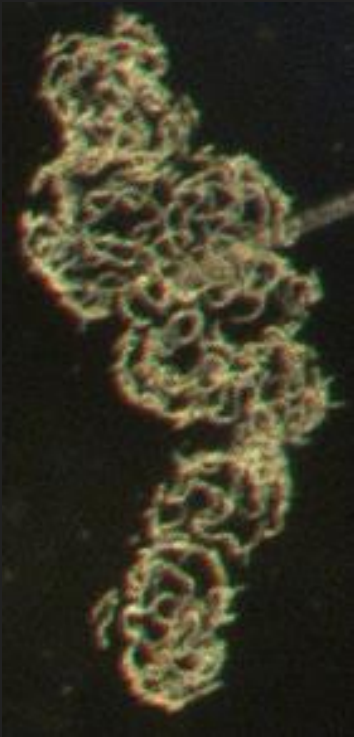
SPC Machine Learning, Human-in-the-Loop Framework



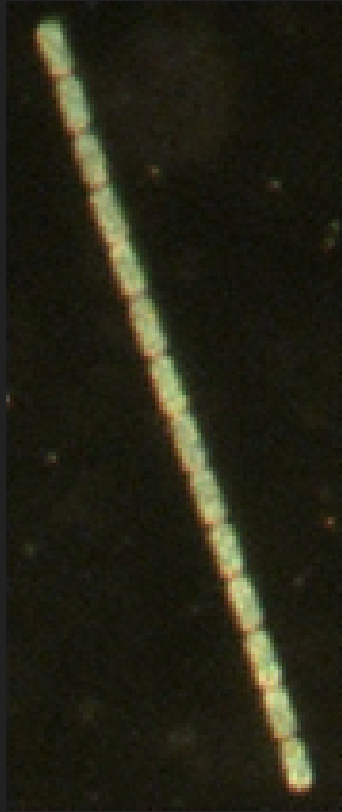
Classes



Helix



Chaetoceros



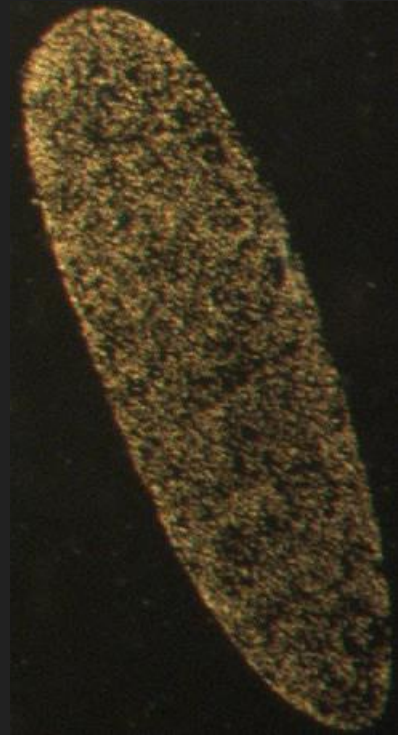
Diatom-Chain



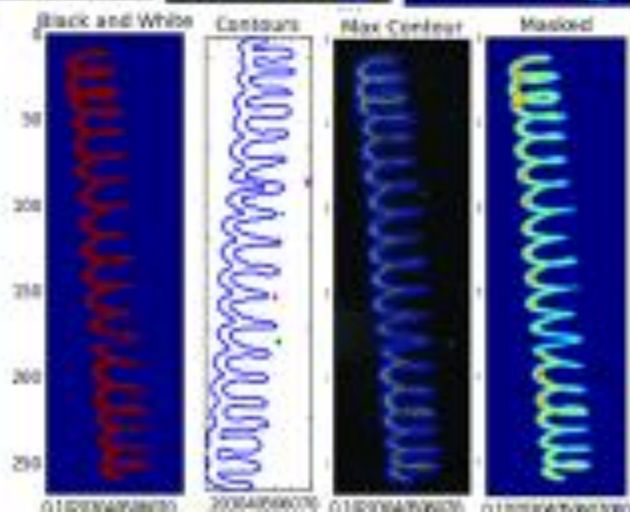
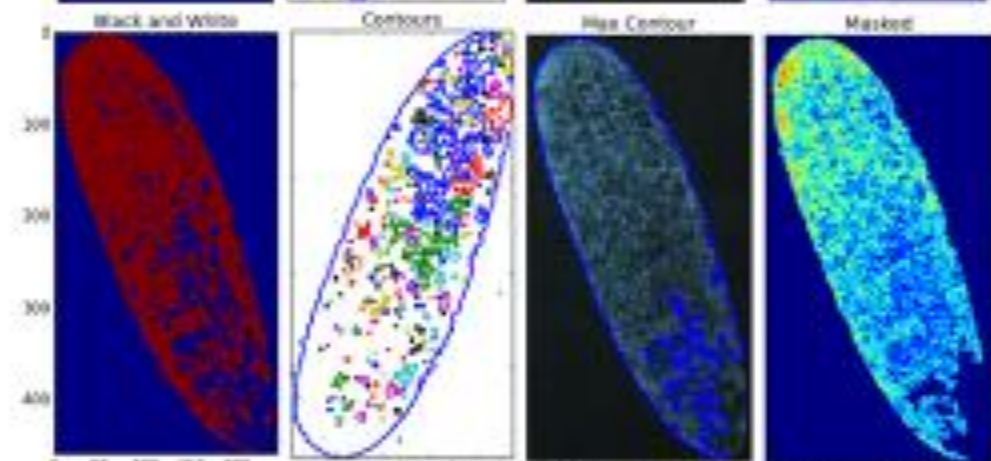
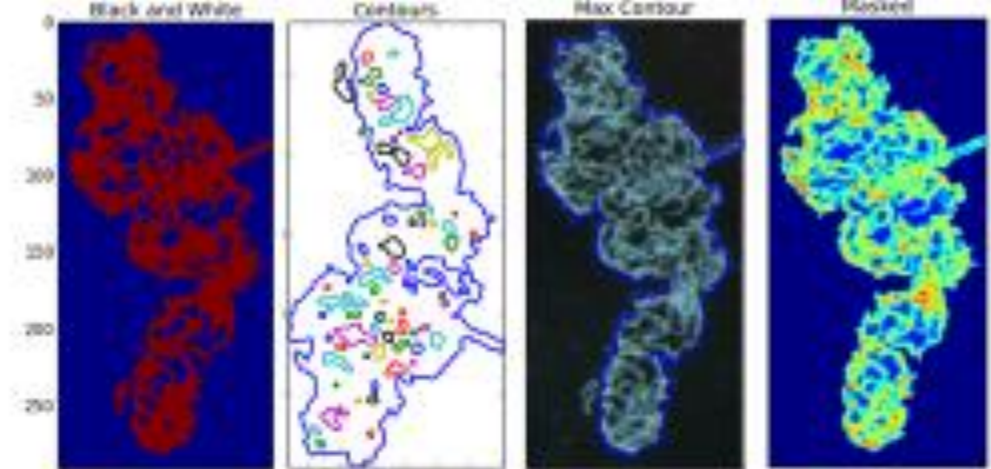
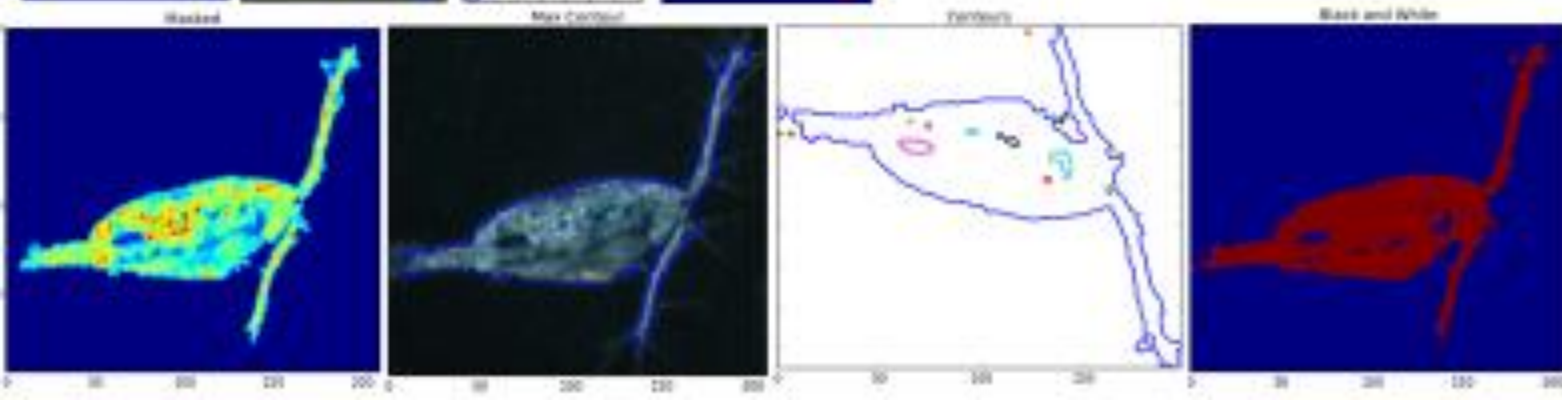
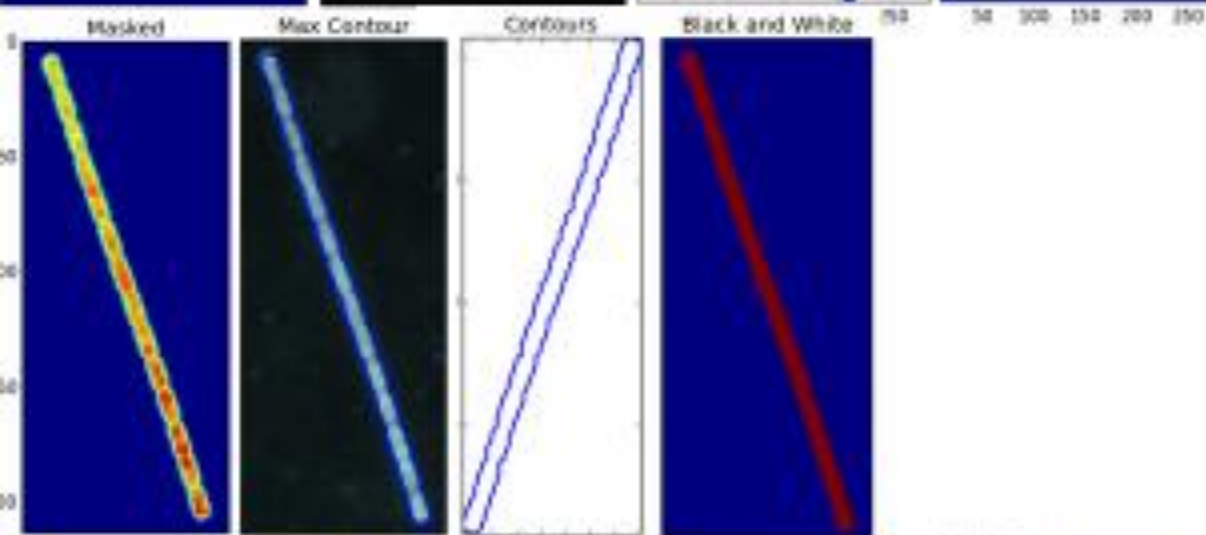
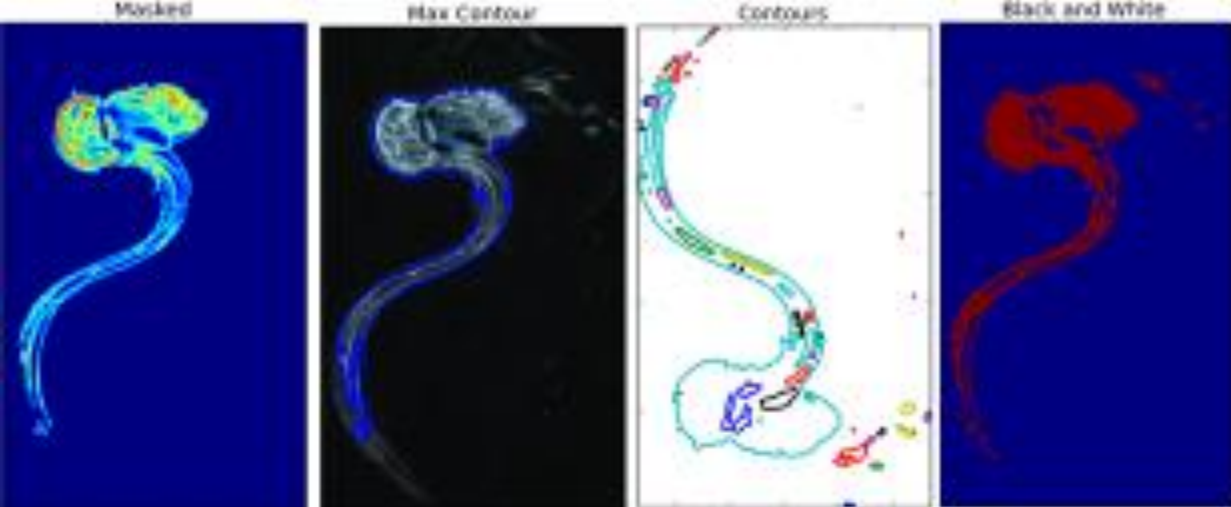
Appendicularian



Copepod



Pheocystis

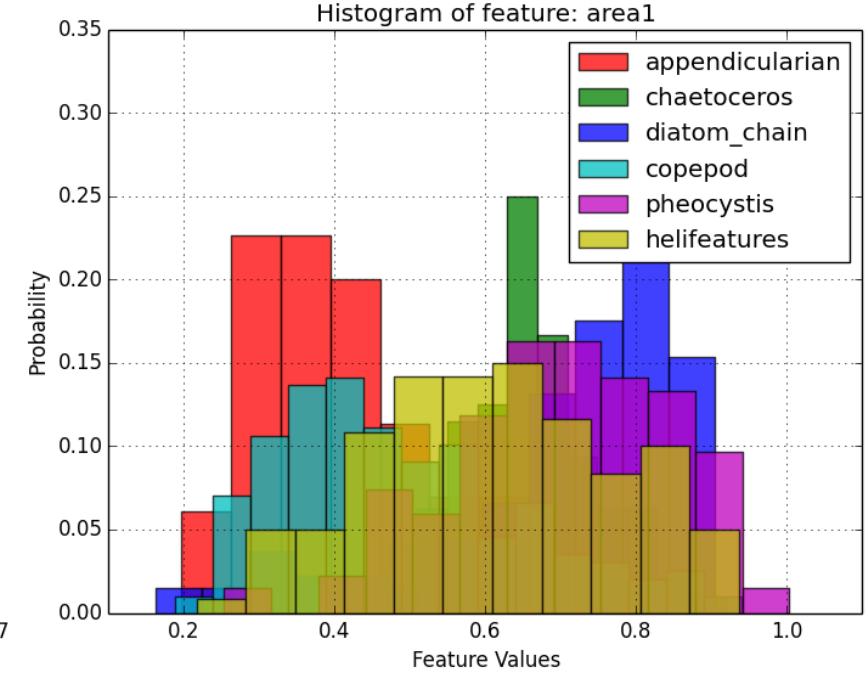
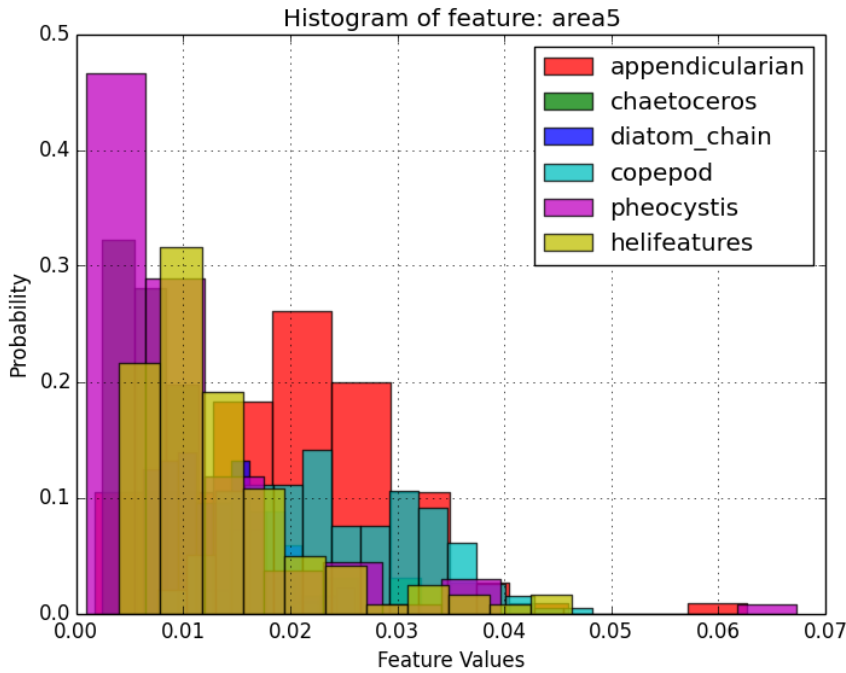
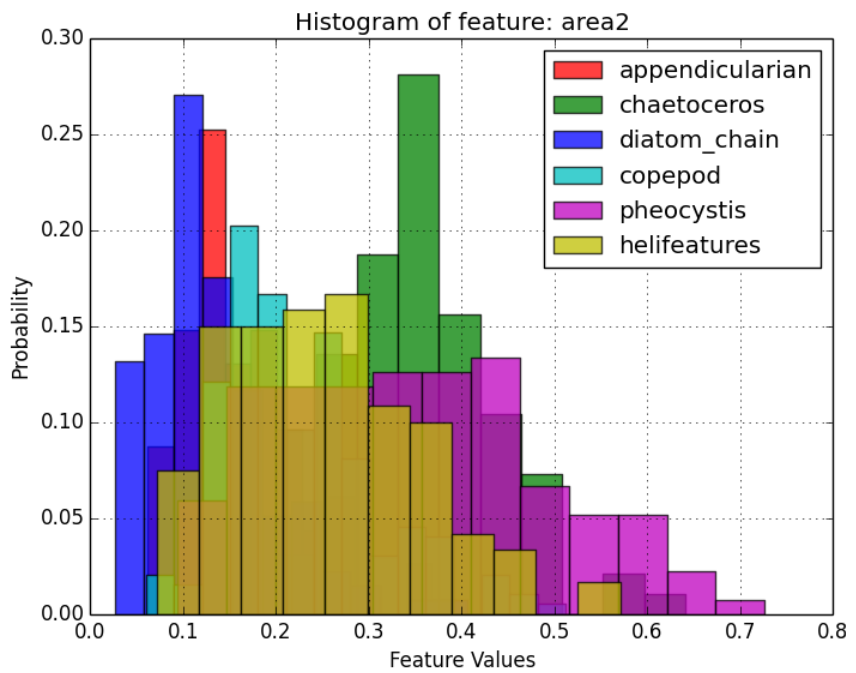
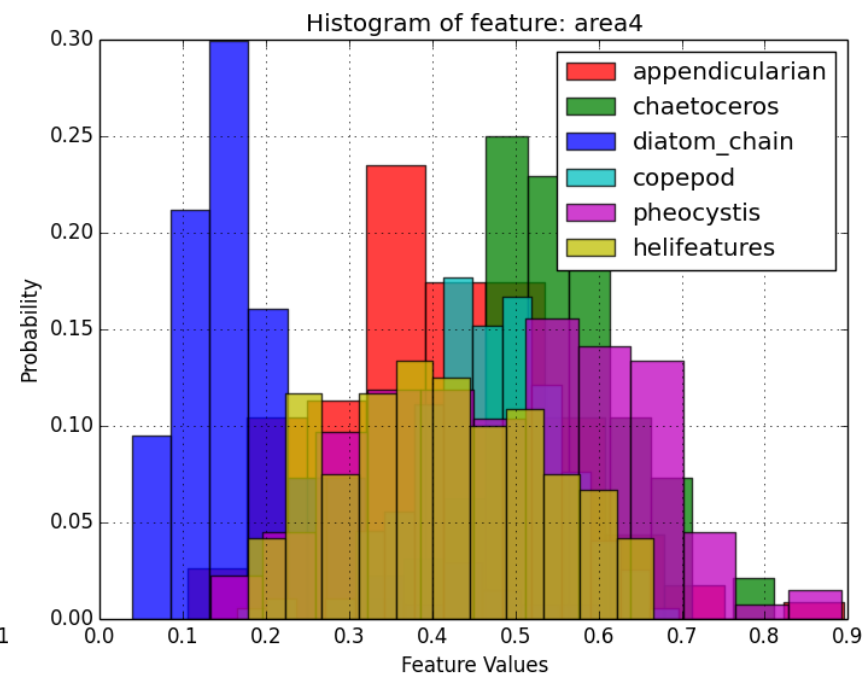
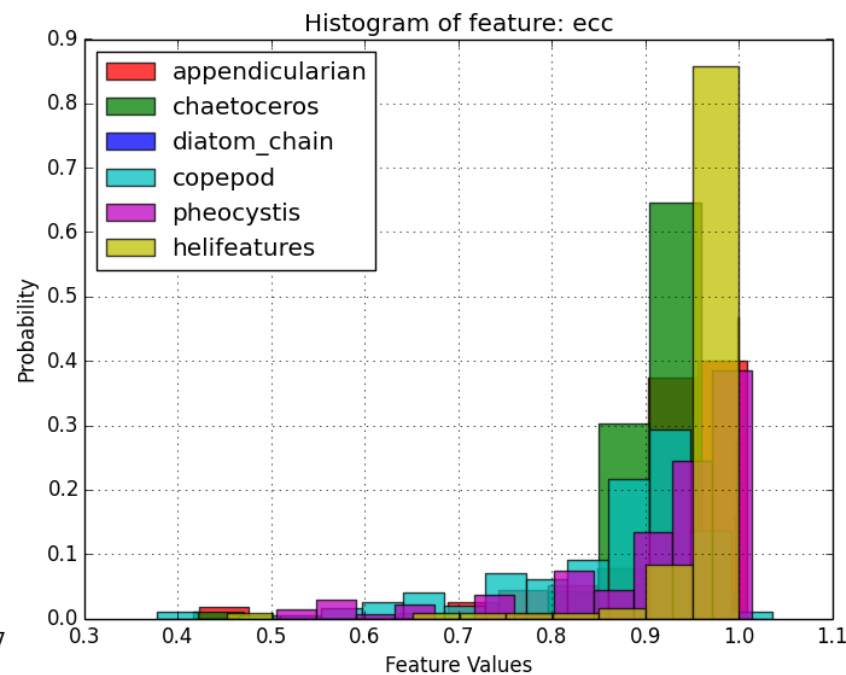
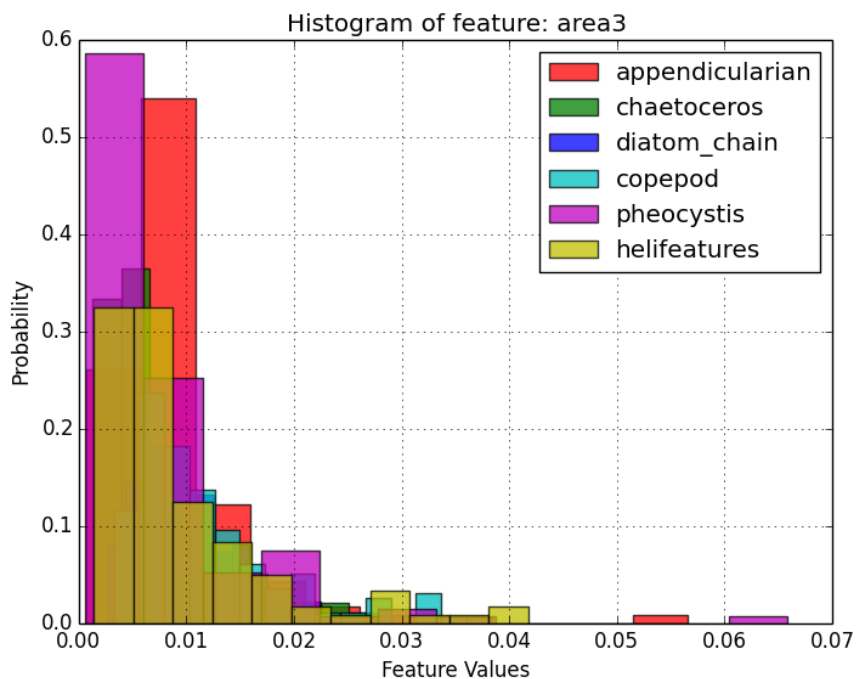


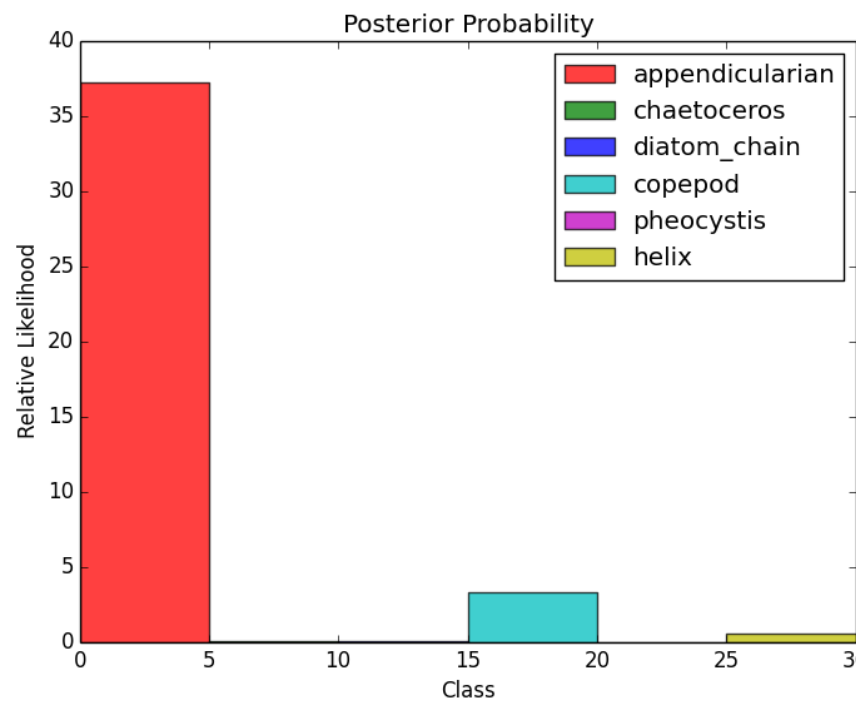
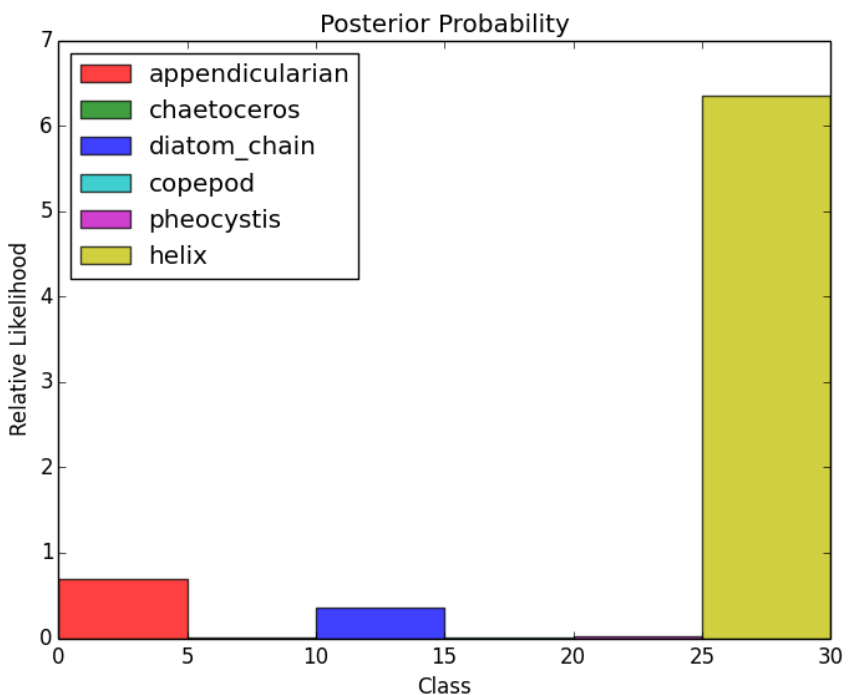
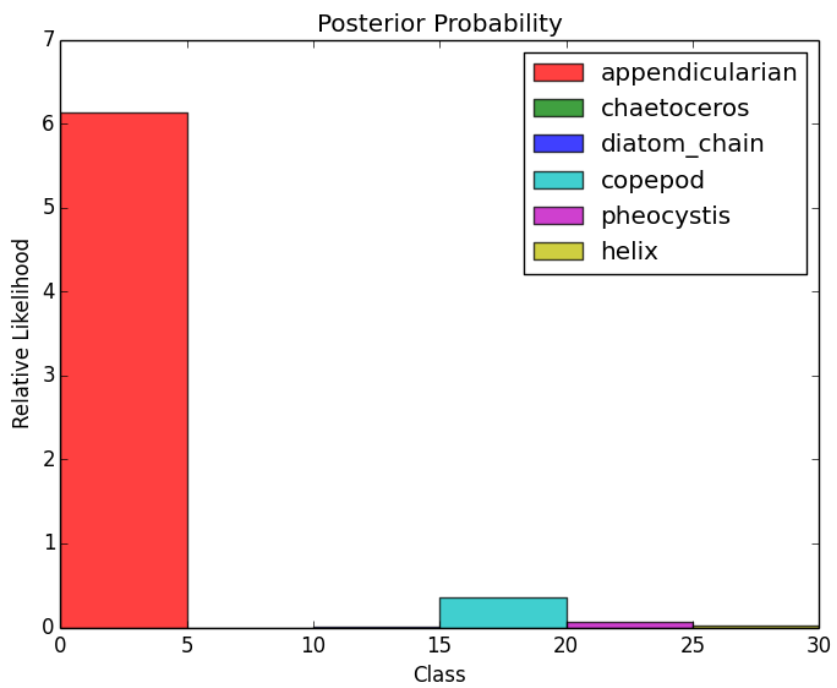
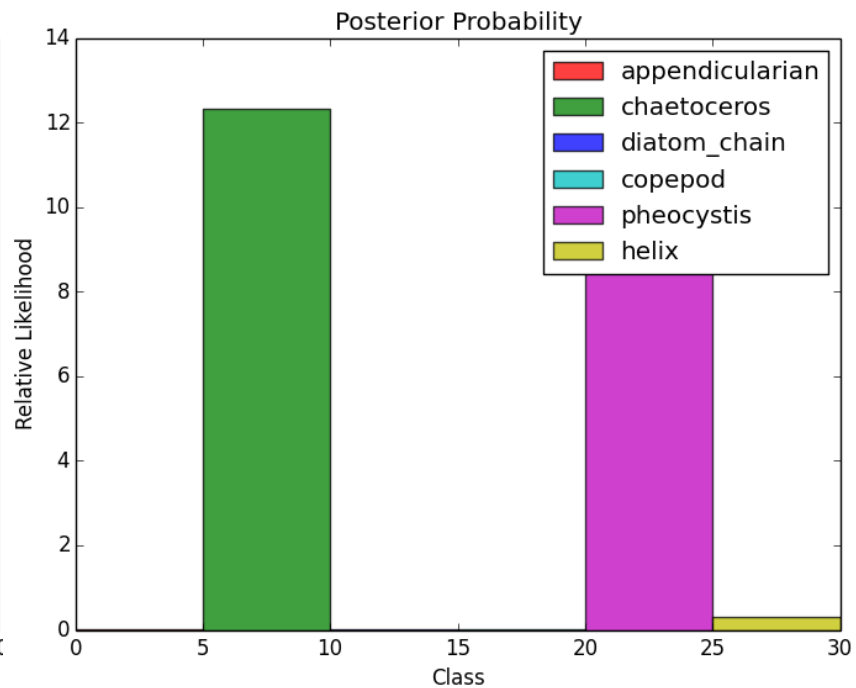
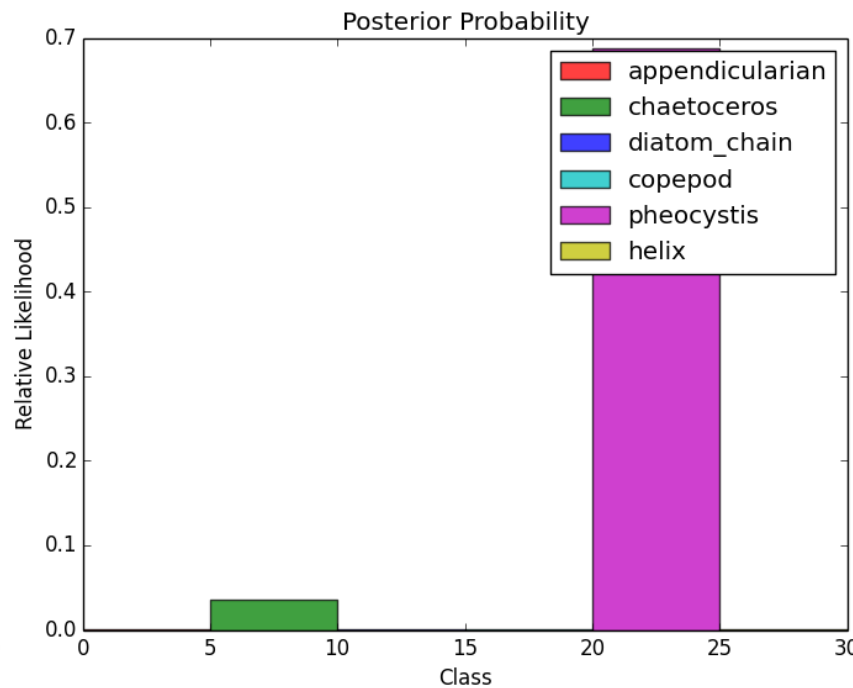
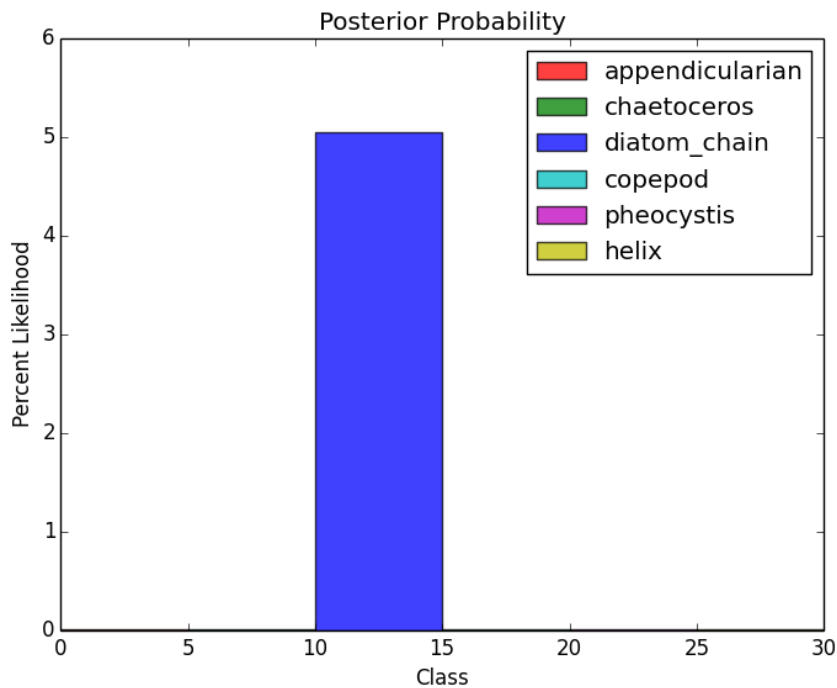
Naïve Bayes: Posterior

$$p(C|F_1, \dots, F_n) = \frac{p(C) p(F_1|C) p(F_2|C) \dots p(F_n|C)}{p(F_1) p(F_2) \dots p(F_n)}$$

$$p(C|F_1, \dots, F_n) = p(C) \prod_{i=1}^n \frac{p(F_i|C)}{p(F_i)}$$

Posterior = Prior x Conditionals





Summary of Naive Bayes Results:
 Percent Correct (1st) = 0.816666666667
 Percent Correct (1st and 2nd) = 0.925

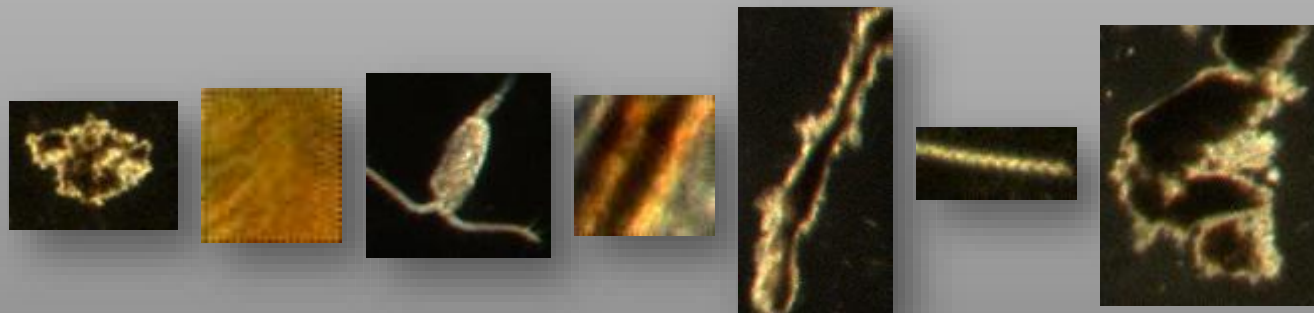
	appendicularian	chaetoceros	diatom chain	copepod	pheocystis	helix
appendicularian	10	0	0	2	1	1
chaetoceros	0	15	0	0	5	1
diatom chain	0	0	20	0	0	0
copepod	2	0	0	17	1	3
pheocystis	0	0	0	0	19	2
helix	2	1	0	0	1	17

Summary of Support Vector Machine Results:
 Percent Correct (1st) = 0.85

	appendicularian	chaetoceros	diatom chain	copepod	pheocystis	helix
appendicularian	17	0	0	3	1	0
chaetoceros	0	15	0	1	0	0
diatom chain	0	0	19	0	0	0
copepod	1	0	0	27	1	1
pheocystis	1	2	0	4	17	0
helix	0	0	1	1	1	7

.15 training fraction and identical feature selection

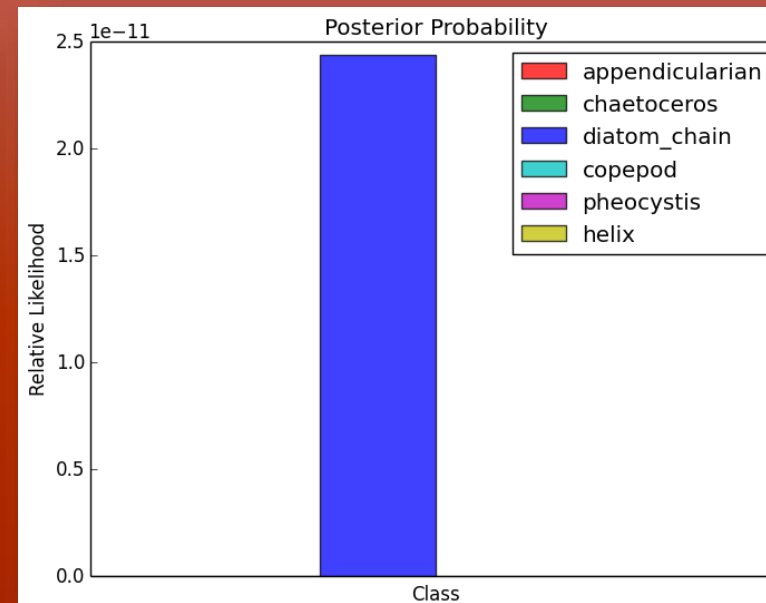
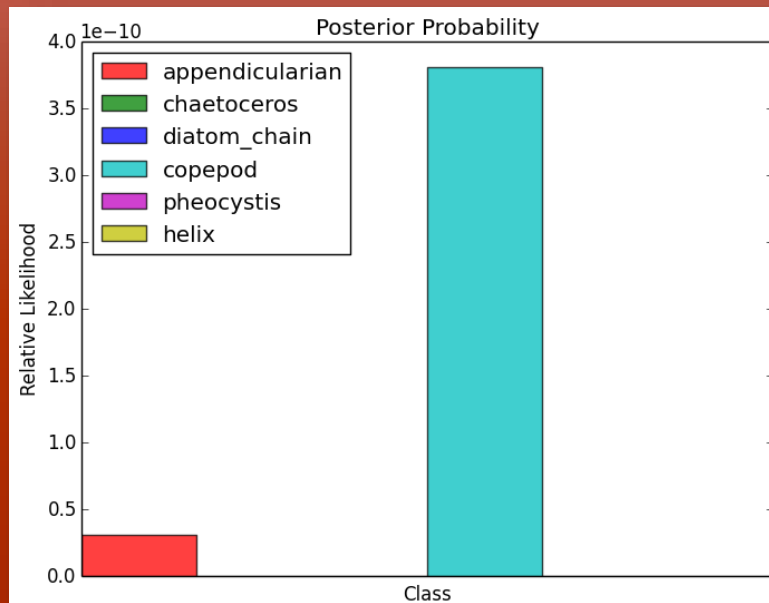
Raw

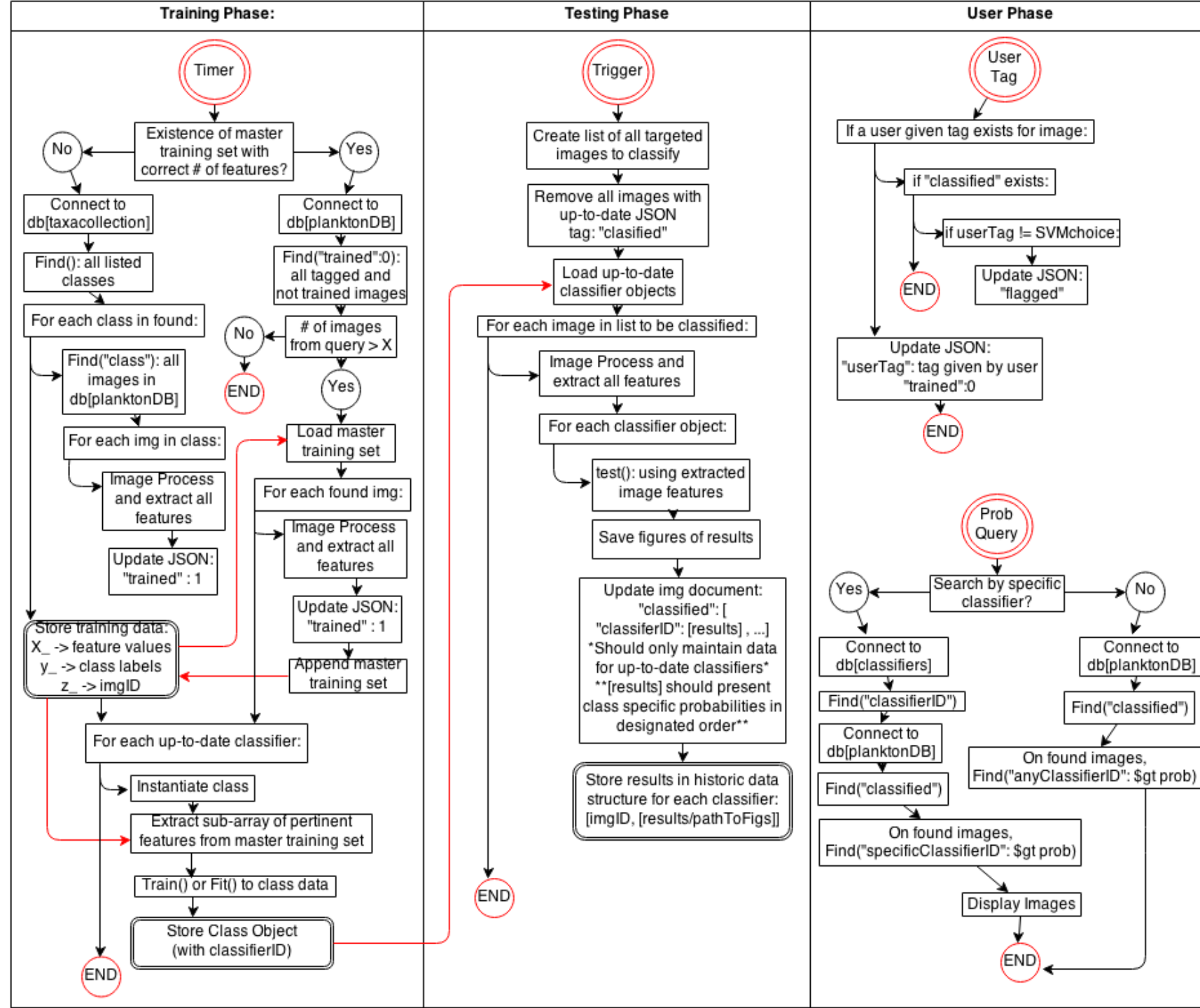


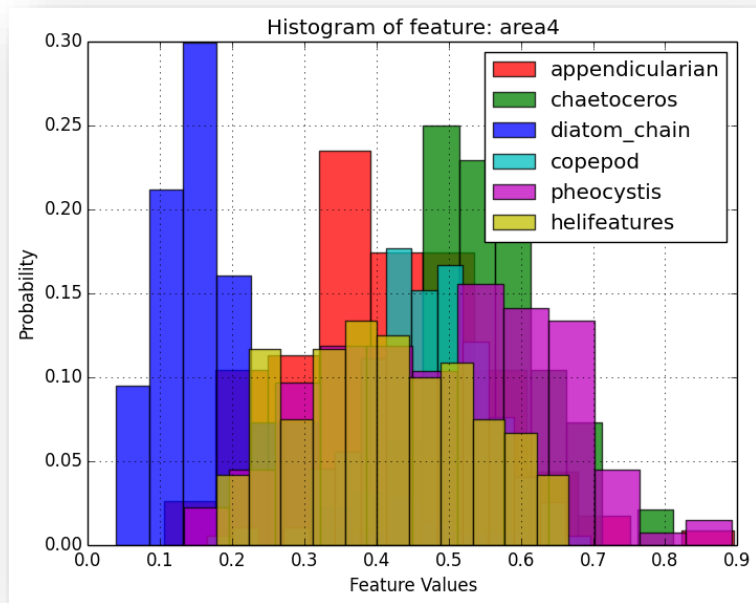
Naïve Bayes



SVM

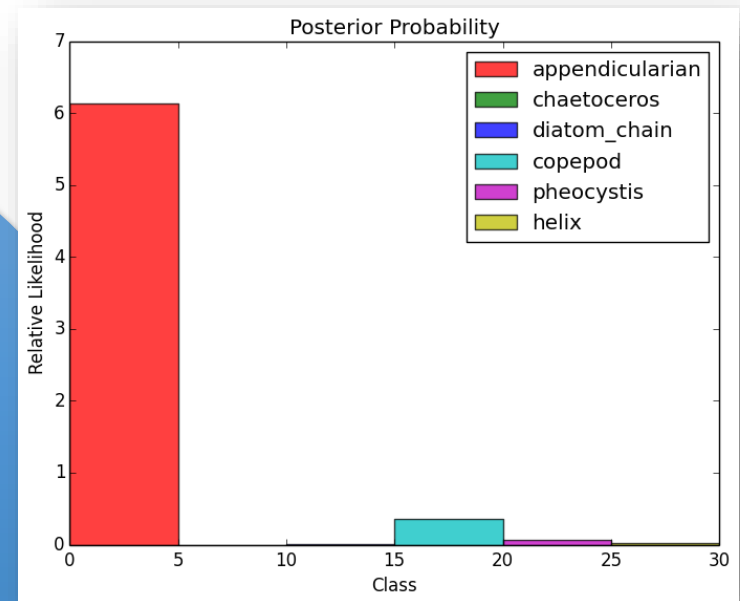






Training
Data

Algorithm



Human
Results

Website

