Exam Pattern Recognition February 2015

1.The first question was about the performance evaluation of classifiers.Definition of recognition rate, recall and precision.

2.The Bayesian classifier and I had to write the decision rule using bayes formula. What each of the terms meant and how can we calculate them (estiation of parameters). Also i mentioned optimality with respect to the 0/1 loss function, so he asked what are different loss functions that we can use and when it is appropriate to use it.

What if we have too many parameters to estimate? What can we do? (Use naïve bayes or to use feature transform)

3. Than in connection to the feature transform he asked me to explain PCA.

4. What is a perceptron and how can we get the decision boundary of it?

5. How we can use perceptron in case of AdaBoosting.

6. He then asked me about the Viola Jones algorithm and how boosting is used in it?

7. What are SVMs? I explained both soft and hard decision case.

8. If we have any distribution how can we model it using gaussians? What are the different parameters we have to estimate and how are they estimated? He drew a diagram of a distribution with initial means assigned and asked me what will happen after the first step?

9. The Gaussian mixture model, what happens in the expectation and maximization step and which parameters are estimated in each
case.

10. He then draw down 3 probabilities for the 3 gaussians and asked me how would i perform EM algorith for given measurement points.

More or less that was what he asked me. Usually next question was connected to the previous one.