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Generally

The exam was taken in the office of Prof Freiling, with an advisor. In general, a very relaxed atmosphere that you can step into. Mr. Riess likes to start with a topic overview and then continue with a random topic. Riess is more likely to let you talk and digs when he wants to know something.

ask

Riess : What kind of topics did we deal with?

Roughly going through the course of the lecture and naming the methods we discussed for each topic

Riess : What are graphical models?

Graphical Models explains → Markov assumption, state only depends on direct predecessor

Riess : Write down the formula for the Markov assumption.

Here I had a bit of a blockage, despite my support (via Bayes etc.) I couldn't get this formula right down ...

Riess : Markov Random Fields: How do they work?

The structure of MRFs explained, hidden variables + observations, transformation in Gibbs Random Field by Hammersley – Clifford theorem → formula written down and explained → briefly on unary and pairwise potentials, but here without formulas

Riess : Let's move on to another area. How does the mean-shift algorithm work?

Goal: Find extremes of the $P.D.F.$ → the derivation of the Parzen-Window formula roughly explained → Update formula written down. (Here he wanted to know why the Epanechnikov kernel is so good)

Riess : The k-means algorithm would be similar. Briefly how does it work?

Briefly explains the steps we take there ...

Riess : (Here he drew me a sketch with two cluster centers) Can it happen with mean-shift or k-means that I cluster a point to the left of the left cluster center in my right center?

Here I thought out loud for a while and discussed with him until I had the solution. With k-means it cannot happen because in principle there would only be a border between the two centers and everything on the left comes to the left center and everything on the right to the right ... But with mean shift we do a gradient-ascent → if now in a curve of our point to the left of the left center around the left center more and more points land in the kernel window, our kernel window moves to the right center

Riess : Finally, what steps are we taking at Spectral Clustering?

The 6 steps from the lecture roughly explained.

preparation

Man musste alle Übungen bestanden haben, um überhaupt die Möglichkeit zu haben, die Prüfung anerkannt zu bekommen. War auch an sich gut, die Übungen gemacht zu haben, vielleicht auch weil man sich viel dafür selbst erarbeiten musste. Ansonsten alle Vorlesungsvideos angeschaut und die Mitschriften noch einmal zusammengefasst. Die Videos waren auch nötig da es leider kein Skript oder Vorlesungsfolien gibt. Es gab auch ein paar Paper die man lesen sollte, die habe ich zu ca 70% gelesen, teilweise hat es sehr geholfen die Methoden besser zu verstehen, da es meist etwas ausführlicher war. Manche Paper waren aber auch nahezu gar nicht hilfreich.

Prüfung Allgemein & Bewertung

A very relaxed and calm atmosphere during the exam. You don't feel pressured at all. Mr Riess tries to help if you are upset, but you definitely have time to think before he helps. In itself a fair test with a fair evaluation. What bothered him the most was my problem with the Markov assumption that I needed some discussion during the sketch in order to come up with the solution, which was not bad.

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