UG Exam Performance Feedback
Third Year
2016/2017 Semester 2

COMP37212 Computer Vision

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Comments

Question 1:

A large number of students chose this question. There were many good answers. The main source of error was students who failed to provide enough detail when it came to the standard bookwork parts of the question, and in particular precise mathematical or algorithmic detail. For such detail, students are pointed at the way I present it in lectures, and as I explain in the revision session, a sketch of an equation or a sketch of a diagram can often express precise details in a way that would be much laborious trying to do just in words.

The how to construct an SSM part was mostly well answered, although as usual, many people forgot the align the shapes stage. And again, detail was what was lacking in many cases.

Another interesting common error was that people forgot that the Hough transform needed to be applied to an edge strength image, and very few people gave the precise details of the edge operators as required. For some reason , many people talking about thresholding instead. A range of drawing skills was shown for the last part of the question, but drawing ability was not an issue here as regards marks. Most people spotted the correct issue as regards ACMs.

Question 2:
This was a very popular question, and there were many good answers. Some people got confused over the meaning of the image histogram, and confused it with the adaptive thresholding IMAGE profile picture. Other people gave a suitable threshold value, but without explaining where it came from. The fact that an image histogram was given was a clue that it might be useful in some way.

As before, the main reason for people not gaining more marks was lack of detail, and also failure to follow instructions and indicate the output as requested.

A pleasingly large number of people remembered the Rutovitz crossing number and counting to find the nature of a skeleton point (although there was considerable creativity as to the actual name or spelling but no marks were lost for this!). When it came to measured distances, the main marks lost were for not remembering the difference of diagonals (with chain code or otherwise). There were some inventive suggestions for width measurements, and these were given marks if well-argued.

One notable omission was the noisy nature of the original image, and the problems this might give in terms of the thresholded image AND the skeleton that would be produced. Although some extremely good answers did remember the forks at terminations issue. But how to deal with problems that occur with real images as opposed to idealised demo images was an issue that many people did not address.

Question 3

Overall, studedents did extremely well in this question. Few points that worth noting: (3.b) Some students did NOT justify their choice of algorithm and/or did not explain why it works better.

Question 4

Generally, students did very well with some students gaining full marks. Few points that are worth noting:

(4b.) Few students mentioned that you can use Harris corner detector together with a Laplacian of Gaussian (LoG) to overcome problems detecting the same features at different scales (which is correct). However, they did not explain HOW the Harris detector can be combined with an LoG to give interest points that are scale invariant.

(4c.) Although the majority of students recognised that Harris corner detector IS NOT a linear filter, some students did not explain WHY.

4(d) (i) Few students, although they noted the 'need' to find corresponding points in the two images, they DID NOT give details as to HOW such corresponding points can be found/chosen/matched. They should have named a method and briefly described it.