UG Exam Performance Feedback
Second Year
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COMP27112 Computer Graphics and Image Processing

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Comments

The MCQs were well-answered, although the higher marks were biased towards the computer graphics rather than image processing questions.

1. "Describe the fundamental difference between fixed and programmable graphics pipelines." A simple question, almost a giveaway, and almost everyone was able to say something sensible.

2. "Give two examples of the undesirable results caused by approximation in computer graphics." A simple question, and almost everyone was able to say something sensible about floating point number precision, discrete pixels, discrete texels, etc.

3. "With reference to Figure 1, explain the steps of first determining the coordinates of the centre P of the cow (all the vertices are stored in a file F), and then deriving a single composite transformation C that scales the cow by a 3D scale S with respect to P. In your answer you are not required to write the coefficients inside transformation matrices." About 1/2 of the class understood how to find P -- by working out the max/min of [x,y,z] to construct a cuboid, then P is its centre. I discussed this several times in the lectures. Many others thought you could find P by taking the average X, average Y, average Z. This isn't the case. About 2/3 of the class were able to explain the sequence of transformations necessary to scale the cow. Some people used rotations instead of scales, which suggests that this material was rote-learned, rather than understood.

4. "For each of the following, give an example of its application in computer graphics: vector cross product/similar triangles/clipping." A straightforward question, and almost everyone was able to say something sensible.

5. "Describe what is meant by tessellation, and when it is necessary." Quite a divided response: 1/2 the class knew what it was about; the other 1/2 just didn't, and made strange guesses.

6. "Describe a hidden surface removal technique that operates in display-space." A simple question, and almost everyone was able to describe the z-buffer.

7. "Explain how the principle of duality is used to create a view of a 3D scene taken by an imaginary camera. In your answer focus on concepts, not detail. You are not required to derive any coordinate systems or write the coefficients inside transformation matrices." This was very well-answered, which was pleasing, since this can be tricky to get your head around.

8. "With reference to the expression shown in Figure 2, explain the function of the part inside the square brackets, defining each term and its range of values." The part in question comprised the diffuse and specular terms. Almost all the class were able to explain this, but a surprising number of people lost marks by not answering the question by giving definitions and ranges of values for the terms. A few people hadn't a clue, which was concerning.

9 “Thresholding can be used …” - The question was correctly answered by most of the class. Most errors were due to not appreciating the illumination and achromaticity can be separated by using HSV, normalised RGB, etc, or by failing to recognise what is an illumination gradient.

10 “Affective computing …” - The question was generally well answered with a range of sensible answers demonstrating an understanding of the material that was taught.

11 “How is a scale space constructed” - The question was, in general, badly answered. Most answered only gave one of the methods for constructing the scale space, instead of the two that were expected.

12 “Define an edge …” - Was generally well answered. Candidates lost marks by failing to mention the noise reduction part, i.e. Gaussian smoothing, which precedes the edge detection.

13 Biscuit detection - The equation was well answered, candidates demonstrated a good understanding of the material.