COMPSCI 715 S2C 2003 Practice Exam.

Answer all questions. I will use the quality of your explanations as an indication of the quality of your understanding. High marks will be awarded for well-reasoned answers that display a thorough background knowledge.

All questions refer to the paper: Décoret, X., Durand, F., Sillion, F., Dorsey, J., "Billboard Clouds for Extreme Model Simplification", Transaction on Graphics 22(3):689-697, July 2003. You should have been furnished with a copy of this paper at the start of the exam.

Each question is worth 25% of the marks of the practice exam.

Time allowed: 45 minutes.

Write your answers on a separate sheet of paper.

1. What kinds of artifacts appear in billboard cloud representations of objects? Explain what they look like and what causes them to appear.

2. In the first paragraph of Section 6.1, the authors state that: "This parameterization is not uniform and has singularities at the poles." Describe the non-uniformity and why it arises. Describe the singularities and why they arise. Do you agree that these are not problems for their approach?

3. At the end of the first paragraph in Section 2, the authors state that: "We consider oriented planes, that is, the orientation of the normal matters". Explain why it matters.

4. Explain what you think would happen if, instead of using optimization to find the billboard planes, the authors used the planes of a mesh-decimated representation of the object. (That is, each polygon in the decimated version defines a plane that would be used as a billboard.) Describe the advantages and disadvantages of this approach.