CSci 490, Spring 2005, Quiz 3

Name: _____

1. [7 pts] Explain the goal motivating Gouraud shading (i.e., the reason for it), and describe the technique that it involves.

2. [7 pts] Outline the compression algorithm used for the PNG image format.

3. [8 pts] Give an example of a feature that can rendered fairly accurately using *Monte Carlo path tracing* but not with regular *ray tracing*.
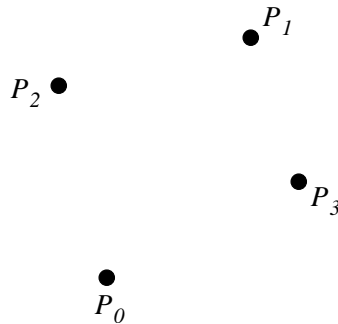
4. [7 pts] Estimate a *natural cubic spline* between the below points. (Recall that a *natural cubic spline* is not the same as a *cubic B-spline*.)

P_1 •

P_2 •

• P_3

• P_0

5. [7 pts] How is an octtree useful for detecting collisions?

6. [7 pts] Derek Henderson described three user studies related to GUI layout, including one addressing the standard Save dialog box, one analyzing techniques for reporting instrument measurements at BellSouth, and one for reporting patient blood data to nurses. For **one** of these studies, describe the test performed and summarize the general layout principle that one might draw from the test.

7. [7 pts] Describe at least three criteria for camera placement used in the Halper-Helbing-Strothotte system described by Zach Collins.