

DPA 8090: Test One Review

Points, vectors
Dot product
Cross product
Uses of the dot product
Basics of ADS with Blinn-Phong
Basics of realtime graphics pipeline (primarily OpenGL)
Application code, vertex shader, fragment shader
VAO, VBO, position, normals, texture coordinates
Uniforms, variables
What does the VS do?
Basics of model, view projection matrix transformations
Data flow for vertices (interpolation of attributes)
What does the FS do?
Shading the fragment
S, T (U, V) coordinates
Shading functions: line, step, smooth-step, others such as parabola, etc.
Sin, cos, tan
Pseudorandom numbers
Value noise
Perlin (gradient) noise
fBm (noise at different scales)
Turbulence
Voronoi cellular pattern
Texture layout basics: projection, cut, unfold, etc.
Qualities desired in texture layout (proportion and scale; avoidance of seams; avoidance of overlap)
Deferred rendering (G-buffers, MRT, two-passes, optimizations such as for localized lighting with many lights and post-processing effects)