

T-637-GEDE Game Engine Architecture

Problem Set 3 – Due Sunday April 6th, 2014

Problem 1 – Programmable Shaders (50%)

Shader programs are run on dedicated and optimized graphics hardware. Therefore they can dramatically accelerate custom tasks along the rendering pipeline. Graphics programmers primarily write two types of shader programs: (1) Vertex Shaders and (2) Fragment (pixel) Shaders. Explain the difference between these two types. Make sure to mention their basic inputs and outputs.

Problem 2 – Texture Use (50%)

Both vertex and fragment shaders have methods to look up information from textures. Modern real-time rendering relies heavily on texture lookups for all sorts of information. Name 8 different kinds of information that might make sense to store and look up in a texture and briefly explain what their purpose is.