Meeting minutes

Note: not all meetings are present in these minutes.

10/09/2014

Supervisor meeting

1. Discussed brief feedback about our background chapters. Patrick noted that we need to remember to properly introduce all concepts mentioned in our paper. I need to add a bit about the research question (is this a research paper though?) and add some background information on octrees and KD-trees.
2. Ben and Dan considered how to stitch the simplified meshes in a bottom-up approach. Simplifying from the original model to the leaf nodes is requires more RAM than is available, so they need to simplify smaller chunks and merge them together for form the next level in the hierarchy.
3. I demonstrated the current state of the viewer. Specifically it can already render a 600MB model with 17 million faces at 6.8 FPS on my laptop using the naïve "all-in-one VBO" method. Noted the bugs in camera movement and decided to find an approach based on quaternions instead.

Client meeting

Our second meeting thus far just to touch base and ensure that the final artefact we are working towards will still be useful to them. We gave them a brief overview of our approach to dealing with large models using HLODs and demonstrated the current viewing client.

The clients were happy with our progress and also expressed their interest in additional tools for the viewer. They hope to see a basic measuring tool in the viewer and asked how easy it would be to reuse some of the code to make a web-based viewer in WebGL as a future project.

18/09/2014

Supervisor meeting

1. Current project todo's:
    a. Dan: to further investigate C++ templates and CGL.
    b. Ben: needs Dan's simplifier to run on Windows. Currently only compiles on Ubuntu. To investigate ideal node size and tree depth and how it affects the overall look of the model when stitched together and frame rate.
    c. Justin: active and visible node calculations working. To move loading node data in background thread to stop interaction jitter.
2. Ben swapped stitching and simplification orders around in his code to reduce the appearance of seams in higher levels of the hierarchy.
3. Consider using point based rendering for further away nodes when many high-detailed nodes are visible in the view frustum.

25/09/2014

Supervisor meeting

1. Will submit design papers week after next. Design draft not ready as we've been focusing on getting actual code working to have something to write.
2. Dan finally gotten the simplifier to compile on Windows and on 64 bit. Can now simplify the Jago model on 64 bit. Yay! Uses a lot of swap space though, so it's effectively an out of core simplifier. Jago model takes roughly an hour to simplify.
3. Justin has background loading thread and normal processing threads working. Discovered the issue of cold start from a HDD and caching on the SSD from some random OS optimization.
4. Justin asked about performance metrics for the renderer. Suggested metrics were FPS, bus bandwidth being used, number of triangles / draw calls. Check that metrics are consistent in different scenes. Compare high-end to low-end systems (SSD, GPU etc.).
5. Patrick suggested showing the bounding volume of a segment that is not loaded yet to indicate to the user that it is still being loaded. Basic feedback mechanism.

02/10/2014

Supervisor meeting

1. Ben: spent the week working adding a GUI, fixing seam issues and adding algorithm for determining split level. Split level found ideal by trial-and-error but works well ~35000 faces per leaf node.
2. A bit behind on design chapter draft. Main focus has been on coding for now. Largely agreed that we're all mostly done with the coding. Just a bit of instrumentation code left to gather performance stats. Chapters remaining: design, implementation, results and proper analysis of results. Add in conclusion.
3. Dan: got preserving triangles within a region working. Not going to add additional simplification methods.
4. Dan should test various effects of preserving boundaries vs. not. Trade-off between no seams and better looking geometry at zoomed out levels.
5. Justin: added support for vertex colour, a GUI, coloured BVH.
6. Justin to add fixed camera position for Dan to test performance of standard views.

28/10/2014

Supervisor meeting

1. Report back on the current status of our reports, some last minute comments and editing.
2. Dan has lots of screenshots for tests, not to place too many of them into the final report. Put images into report only if they show a surprising case etc.