

High Dynamic Range Rendering

Post mortem

Kennet Johansson

2008 - 2009

What went right

Ultimately I did get the algorithm to work, setting up the different shaders so that it was easy to make changes that could be easily tested. This allowed me to work out better ways to use the whole technique.

Although I had some trouble getting them to work, I was eventually able to make use of libraries to do tasks like loading data. Furthermore I was able to find existing code to solve some of the limitations of the engine allowing me to focus more on the more important work.

There weren't really that many parts of the total work that went particularly 'well', most of it worked out about as expected.

What went wrong

Firstly I got some extra work from the fact that I didn't have a proper interface for post processing, doing everything manually. This was entirely an oversight on my part. The raw pipeline resulted in my having to go through the shaders and materials various times and change values by hand, often resulting in errors, wasting time.

The various libraries that I've used in the project caused me some headaches as well. As of now Irrlicht really has no native support for things like floating point textures and so there has been a lot of going through and changing parts of its source.

Additionally, getting the various libraries to actually work wasted quite a bit of time. I blame the fact that programming courses only teach you how to program, with only ever brief mentions of the parts surrounding it, leaving you to figure out things like compiling and linking by yourself.

Furthermore the algorithm itself gave me some trouble. Nothing serious but the thing is that HDR rendering is done in many steps, all which can be performed differently using different techniques and data. Thus it's been a long journey of trying to find a path that works well.

Finally I didn't manage to do all that I'd set out to do, having to cut a lot of the environment stuff. Also I didn't get time over to make any further effects. This later part may sound vain but I think that it'd have made quite a difference.

What I'd have done differently if I'd known better

Firstly I'd probably had started by writing some kind of post-processor class. This would have allowed me to better structure my code (though I was still able to keep most parts of it structured enough, the problem was the low level parts of managing render targets, loading of shaders and materials and so on).