

Height Field Water Simulation

Joseph Wilson, Arnaud Filliat, Jacob Davis

May 9, 2017

1 Abstract

Provide a one paragraph summary of your entire project. Very briefly mention why this technique is important, what makes it challenging, what your solution was, and what your results were. This is essentially condensing each section listed below into one or two sentences. You may want to actually write this section last.

2 Introduction

Give a high level overview of your project. Why is it important? What makes it challenging/difficult? Describe what will follow in the rest of the report. This section should be several paragraphs long (roughly one plus column).

3 Related Work

Discuss what has previously been done in this area. What existing and similar solutions exists? What have other people done? Where did those existing solutions fall short? You should be citing your references the most in this section (though you will probably need to cite in the first three or four sections). The length of this section will vary.

4 Problem Statement

Go into technical detail about the challenges in this area. What specifically makes it difficult? What shortcomings did other techniques have?

5 Problem Solution

Now go into technical detail about how your solution is implemented. Be sure to specifically mention what each shader is doing, what each pass is doing, and what graphical objects are being used.

6 Results

How did your implementation work? Did it accomplish what it set out to do?

7 Conclusion

In a couple paragraphs, summarize all of the above sections. Give any final thoughts on lessons learned, challenges that arose and how they were overcome, and next steps to take to future work.

References

- [1] Daniel Mikeš. “Real-time Water Simulation with Wave Particles on the GPU”. In: (2015). URL: http://old.cescg.org/CESCG-2015/papers/Mikes-Real-time_Water_Simulation_with_Wave_Particles_on_the_GPU.pdf.
- [2] Bálint Miklós. “Real-Time Fluid Simulation Using Height Fields”. In: (2004). URL: http://www.balintmiklos.com/layered_water.pdf.
- [3] Matthias Müller-Fischer. *Fast Water Simulation for Games Using Height Fields*. 2008. URL: <http://matthias-mueller-fischer.ch/talks/GDC2008.pdf>.
- [4] roxlu. *Height Field Simulation on GPU*. 2013. URL: <http://roxlu.com/2013/024/height-field-simulation-on-gpu>.
- [5] Barbara Solenthaler et al. “SPH Based Shallow Water Simulation”. In: (2011). Ed. by J. Bender, K. Erleben, and E. Galin. URL: <http://matthias-mueller-fischer.ch/publications/SPHShallow.pdf>.
- [6] Zejia Zheng. *Height field fluids simulation and shallow water equation*. URL: <http://zejiazheng.com/?p=87>.