

# **Implementation of Fast Hydraulic Erosion Simulation and Visualization on GPU**

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Simulation of physical phenomena is an important part of a wide variety of fields. My current research is real-time water and erosion simulation. I am using a previous research paper in order to get a better understanding of the current state of real-time physical simulation, as well as common programming methods used for implementation. The implementation described in the paper utilizes the parallel calculation capabilities of modern Graphics Processing Units (GPUs) to efficiently calculate terrain deformation, due to flowing water. The effectiveness of implementation is determined in a side by side comparison with previous implementation methods. The methods are compared based on the amount of clock cycles required for the calculation steps and the resultant framerate of the simulations at various levels of detail. Comparison should show that the simulation method I am implementing is efficient enough to simulate flowing water and terrain deformation faster than previous methods at interactive frame rates.