Abstract

Realistic Image synthesis, usually, requires long computations and the simulation of the light interacting with a virtual scene. One of the most computationally intensive simulation in this area is the visualization of solid participating media. This media can describe many different types of object with the same physical parameters (e.g. marble, air, fire, skin, wax ...). Simulating the light interacting with it requires the computation of many independent photons interactions inside the medium. However, those interactions can be computed in parallel, using the power of modern Graphic Processor Unit, or GPU, computing. This work present an overview over different methodologies, that can affect the performance of this type of simulations on the GPU. Different existing ideas are analyzed, compared and modified with the scope of speeding up the computation respect to the classic CPU implementation.