

Today's GPUs, thanks to their performance and programmability (this property wasn't available until recently), are a promising tool for performing geometric computations in computer graphics. But differences between GPUs and CPUs cause a number of complications when adapting particular algorithms. Some of them are even easier to implement on GPU than on CPU, for others it is more difficult and some of them are totally unsuitable for GPU. This thesis studies ways how to employ GPU in computations regarding some well known types of curves and surfaces. Main focus is on area of subdivision surfaces, which are often used in today's computer graphics modeling, because they are very powerful tool. Part of this thesis is an implementation of algorithm for GPU that constructs subdivision surfaces using Catmull-Clark scheme. Results show us that GPU can perform these computations much faster than CPU, proving GPU to be handful tool when performing computer graphics geometric computations.