

GPU Computing

Parallel implementation of Dijkstra's Algorithm

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Abstract

The purpose of this paper is to describe the implementation and benchmarking of various parallel implementations of Dijkstra's Algorithm to solve the shortest path problem.

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1 Definitions

Dataset The sample of data used to train the Model

Label The expected outcome of the prediction

Model The group of algorithms that tries to solve the problem

Overfitting When the model is too sensible to changes compared to the dataset

Vanishing Gradient When the gradient values becomes progressively smaller until they are insignificant for the process

2 Introduction

The following text details an analysis on the performances of various parallel versions of Dijkstra's algorithm, implemented through the CUDA Toolkit for parallel computation.