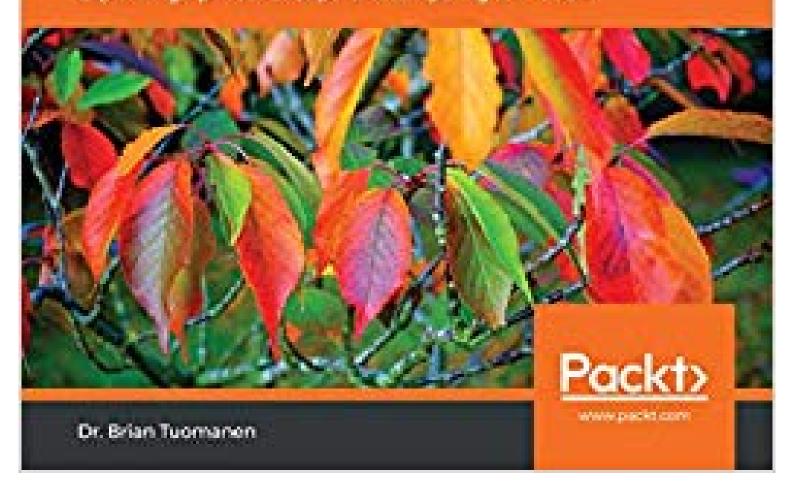
Hands-On GPU Programming with Python and CUDA

Explore high-performance parallel computing with CUBA:



Dr. Brian Tuomanen

Hands-On GPU Programming with Python and CUDA: Explore highperformance parallel computing with CUDA



Build real-world applications by composing effective GPU code, CUDA kernels, and device functions with the most recent top features of Python 3.7, CUDA 9 and CUDA 10Key FeaturesExpand your background in GPU development—Il begin by learning how exactly to apply Amdahl'PyCUDA, scikit-cuda, and NsightEffectively use CUDA libraries such as cuBLAS, cuFFT, and cuSolverApply GPU programming to modern data science applicationsBook DescriptionHands-On GPU Programming with Python and CUDA hits the ground running: you's Rules, use a code profiler to recognize bottlenecks in your Python code, and set up an appropriate GPU programming environment. ESTABLISHING Your GPU Development Environment?ll then observe how to "query"ll explore some of the more well-known NVIDIA libraries, such as for example cuFFT and cuBLAS.s features and duplicate arrays of data to and from the GPU' In the final chapter, you'As you make the right path through the publication, you'll see some topics and applications related to GPU development that you may desire to pursue, including AI, images, and blockchain. With a solid background in place, you will today apply your new-found knowledge to build up your own GPU-based deep neural network from scratch.ll get to grips with profiling GPU code efficiently and fully ensure that you debug your code using Nsight IDE. Next, you' the GPU' You' You'll after that explore advanced topics, such as warp shuffling, dynamic parallelism, and PTX assembly.s own memory.ll start code directly onto the GPU and write full blown GPU kernels and gadget functions in CUDA C.By the finish of this book, you will be able to use GPU programming to complications related to data science and high-performance computing. What you would learnLaunch GPU code directly from PythonWrite effective and efficient GPU kernels and device functionsUse libraries such as for example cuFFT, cuBLAS, and cuSolverDebug and profile your code with Nsight and Visual ProfilerApply GPU programming to datascience problemsBuild a GPU-based deep neuralnetwork from scratchExplore advanced GPU hardware features, such as for example warp shufflingWho this book is forHands-On GPU Development with Python and CUDA is for developers and data scientists who want to learn the basics of effective GPU programming to improve performance using Python code. You should have an understanding of firstyear university or university-level engineering mathematics and physics, and have some experience with Python as well as in any C-based program writing language such as C, C++, Go, or Java. Table of ContentsWhy GPU Development? You'Getting Started with PyCUDA?Streams, Events, Contexts, and ConcurrencyDebugging and Profiling Your CUDA Code? Kernels, Threads, Blocks, and Grids? Using the CUDA Libraries with Scikit-CUDA Draft completeThe CUDA Gadget Function Libraries and ThrustImplementing a Deep Neural Network Working with Compiled GPU Code Efficiency Optimization in CUDA Where you can Go from Here



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