CUDA Application Design and Development

Von Rob Farber
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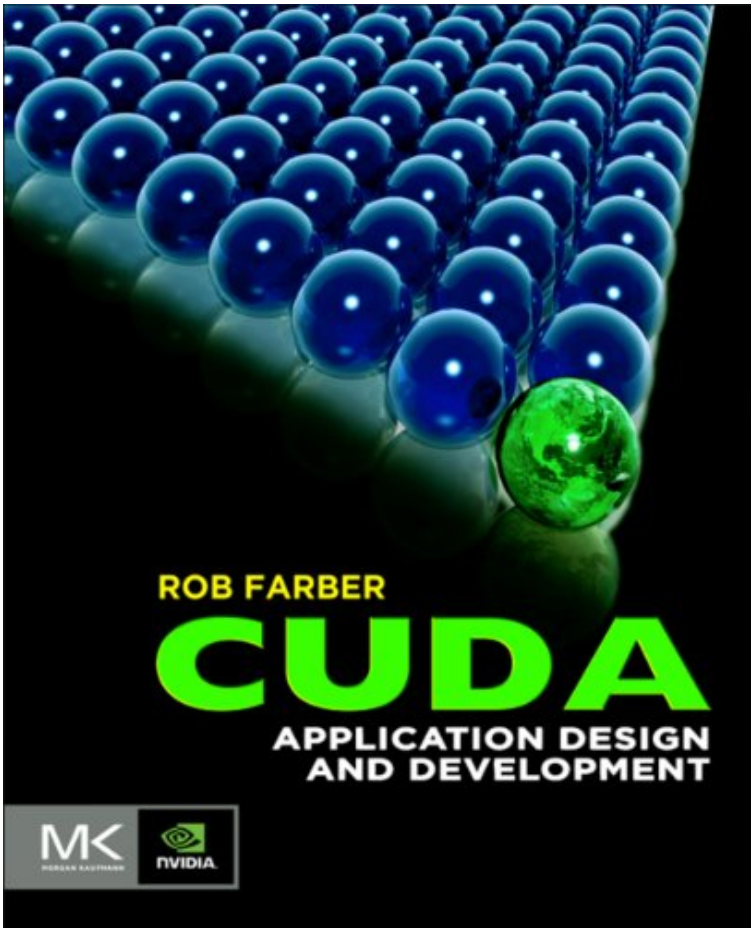

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Von Rob Farber : CUDA Application Design and Development before purchasing it in order to gage whether or not it would be worth my time, and all praised CUDA Application Design and Development:

KundenrezensionenHilfreichste Kundenrezensionen0 von 0 Kunden fanden die folgende Rezension hilfreich. Nur ganz harten CUDA-Fans zu empfehlenVon Jrn DinklaIch hatte viele Artikel der Reihe CUDA, Supercomputing for the Masses von Rob Farber auf der Dr. Dobbs Webseite gelesen und war recht angetan. Das war damals 2009 eine der wenigen Mglichkeiten, etwas anspruchsvolleres ber CUDA zu lesen.Der Titel des Buches erweckte in mir die Vorstellung, dass dieses Buch allgemeine Richtlinien und Prinzipen fr die Erstellung von CUDA-Applikationen zum Thema htte.Leider ist das Buch aber eher nur eine Ansammlung von Artikeln mit Themen, die den Autoren anscheinend interessiert haben, die aber in einem Lehrbuch ber CUDA nichts verloren haben. Machine Learning mag ja ein ganz interessantes Thema sein, aber dann sollte man das Buch auch Machine Learning with CUDA nennen. Der Autor wird sich hier selbst nicht gerecht.Es gibt dennoch ein paar interessante Teile im Buch. Allerdings muss man sich fr diese das Buch nicht extra kaufen, denn sie werden in neueren Bchern besser erklrt. Wenn man aber

begeisterter CUDA-Fan ist, kann man das Buch schon lesen und evtl. auch ein paar Anregungen erhalten.Hier meine Kritikpunkte im einzelnen. Kap. 2 ist viel zu sehr mit der Theorie des Machine Learnings beschftigt. Funktoren kann man auch bei einfacheren Algorithmen verwenden. Makros sollte man nicht in C++ verwenden (S.47) Ein #include mitten im Code ist auch bel (S.47) Kap. 8 ber die Ausfhrung von CUDA-Code auf x86-Prozessoren bezieht sich auf ein kommerzielles Produkt der Firma PGI. Das ist eigentlich ein Kapitel Werbung und nicht als solche gekennzeichnet. Die 4,5 Seiten Beispielcode enthalten sehr viel Mathematik, aber wenig CUDA (S. 57ff). In Kapitel 9 wird sehr viel OpenGL-Code abgedruckt. Das interessiert in einem CUDA-Buch nicht. Das Framework GPU Ocelot beschreibt der Autor als popular, actively maintained (S.187). Das ist stark bertrieben, es gab pro Jahr einen Vortrag zu diesem Thema und auch nur jhrlich ein Release. SWAN und MCUDA waren mal Forschungsprojekte und sind laut ihrer Webseiten seit 2010 nicht mehr aktiv.

KurzbeschreibungAs the computer industry retools to leverage massively parallel graphics processing units (GPUs), this book is designed to meet the needs of working software developers who need to understand GPU programming with CUDA and increase efficiency in their projects. CUDA Application Design and Development starts with an introduction to parallel computing concepts for readers with no previous parallel experience, and focuses on issues of immediate importance to working software developers: achieving high performance, maintaining competitiveness, analyzing CUDA benefits versus costs, and determining application lifespan. The book then details the thought behind CUDA and teaches how to create, analyze, and debug CUDA applications. Throughout, the focus is on software engineering issues: how to use CUDA in the context of existing application code, with existing compilers, languages, software tools, and industry-standard API libraries. Using an approach refined in a series of well-received articles at Dr Dobb's Journal, author Rob Farber takes the reader step-by-step from fundamentals to implementation, moving from language theory to practical coding.Includes multiple examples building from simple to more complex applications in four key areas: machine learning, visualization, vision recognition, and mobile computingAddresses the foundational issues for CUDA development: multi-threaded programming and the different memory hierarchyIncludes teaching chapters designed to give a full understanding of CUDA tools, techniques and structure.Presents CUDA techniques in the context of the hardware they are implemented on as well as other styles of programming that will help readers bridge into the new materialPressestimmen"The most important thing that this book will offer is the application specific examples and the additional detail of how to optimize CUDA for different application areas. This book will also be valuable as an alternative to the existing textbooks, since it is written by a user with an application perspective. - David Kirk, author of "Programming Massively Parallel Processors" and former NVIDIA Chief Scientist"The book by Rob Faber on CUDA Application Design and Development is required reading for anyone who wants to understand and efficiently program CUDA for scientific and visual programming. It provides a hands-on exposure to the details in a readable and easy to understand form. "Jack Dongarra, Innovative ComputingLaboratory, EECS Department, University of Tennessee "GPUs have the potential to take computational simulations to new levels of scale and detail. Many scientists are already realising these benefits, tackling larger and more complex problems that are not feasible on conventional CPU-based systems. This book provides the tools and techniques for anyone wishing to join these pioneers, in an accessible though thorough text that a budding CUDA programmer would do well to keep close to hand." Dr. George Beckett, EPCC, University of Edinburgh "With his book, Farber takes us on a journey to the exciting world of programming multi-core processor machines with CUDA. Farber's pragmatic approach is effective in guiding the reader across challenges and their solutions. Farber's broader presentation of parallel programming with CUDA ranging from CUDA in Cloud and Cluster environments to CUDA for real problems and applicationshelps the reader learning about the unique opportunities this parallel programming language can offer to the scientific community. This book is definitely a must for students, teachers, and developers!" Michela Taufer, Assistant Professor, Department of Computer and Information Sciences, University of Delaware "Rob Farber has written an enlightening and accessible book on the application to CUDA for real research tasks, with an eye to developing scalable and distributed GPU applications. He supplies clear and usable code examples combined with insight about _why_ one should use a particular approach. This is an excellent book filled with practical advice for experienced CUDA programmers and ground-up guidance for beginners wondering if CUDA can accelerate their time to solution." Paul A. Navratil, Manager, Visualization Software, Texas Advanced Computing Center "The book provides a solid introduction to the CUDA programming language starting with the basics and progressively exposing the reader to advanced concepts through the well annotated implementation of real-world applications. It makes a first-rate presentation of CUDA, its use in the implementation of portable and efficient applications and the underlying architecture of GPGPU/CPU systems with particular emphasis on memory hierarchies. This is complemented by a thorough presentation both of the CUDA Tool Suite and of techniques for the parallelisation of applications. Farber's book is a valuable addition to the bookshelves of both the advanced and novice CUDA programmer." Francis Wray, Independent Consultant and Visiting Professor at the Faculty of Computing, Information Systems and Mathematics at

the University of Kingston "At a brisk pace, "CUDA Application Design and Development" will take one from the basics of CUDA programming to the level where real-time video processing becomes a stroll in the park. Along the way, the reader can get a clear understanding of how the hybrid CPU-GPU computing idea can be capitalized on, and how a 500-GPU configuration can be used in large scale machine learning problems. Wasting no time on obscure issues of little relevance, the book provides an excellent account of the CUDA execution model, memory access issues, opportunities to increase parallelism in a program, and how advanced profiling can squeeze performance out of a code. Rob provides a snapshot of everything that is relevant in CUDA based GPU computing in a style honed through a long series of Dr. Dobb s articles that have delighted scores of CUDA programmers. His followers will be delighted once again." 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