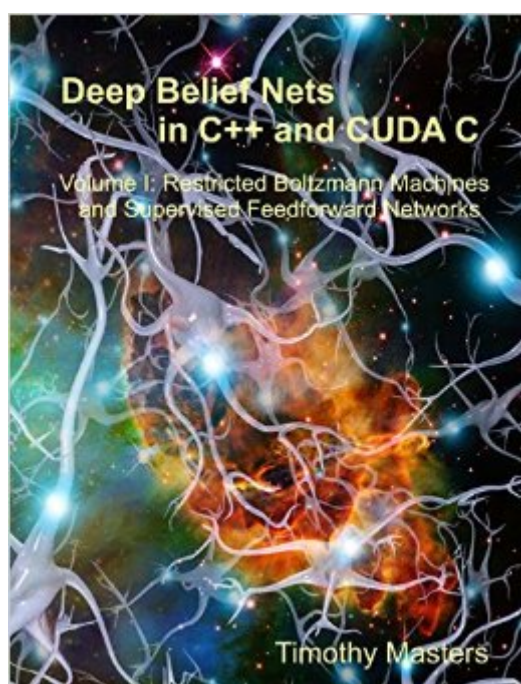# Deep Belief Nets In C++ And CUDA C: Volume 1: Restricted Boltzmann Machines And Supervised Feedforward Networks

Synopsis

News flash... If anyone would prefer reading these books in Korean, Volume 1 is now available from a South Korean publisher, with Volumes 2 and 3 available soon: http://www.acornpub.co.kr/book/dbn-cuda-vol1 Deep belief nets are one of the most exciting recent developments in artificial intelligence. The structure of these elegant models is much closer to that of human brains than traditional neural networks; they have a â ˆthought processâ ™ that is capable of learning abstract concepts built from simpler primitives. A typical deep belief net can learn to recognize complex patterns by optimizing millions of parameters, yet this model can still be resistant to overfitting. This book presents the essential building blocks of the most common forms of deep belief nets. At each step the text provides intuitive motivation, a summary of the most important equations relevant to the topic, and concludes with highly commented code for threaded computation on modern CPUs as well as massive parallel processing on computers with CUDA-capable video display cards. Source code for all routines presented in the book, and the DEEP program which implements these algorithms, are available for free download from the authorâ ™s website. NOTE... The source code available for free download includes all of the code listed in the book, along with some libraries of related routines. Complete code for the DEEP program is not included; this code is enormous, as it includes many Windows-only interface routines, screen display code, and so forth. Users who wish to write their own DBN programs are responsible for implementing their own hardware/OS interface, while using my supplied code for the mathematical calculations.

Book Information

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Customer Reviews

First, I must disclose that I have known Dr. Masters for 20 years and have collaborated with him on various projects including a book we co-authored.(Statistically Sound Machine Learning for Algorithmic Trading of Financial Instruments). In addition he was a crucial adviser on my book Evidence Based Technical Analysis. He is also a friend.With that said, Dr. Masters is a person of integrity, humility, intellectual honesty and competence. When he became interested in Deep Belief Networks, also known as Deep Learning Nets, I took that as a signal that this was a truly important development in the field of machine learning and Iâ ™d better get my admittedly slow human intellect exposed to DBNs. allows you to look inside the book so I won't reiterate the table of contents or outline what the book contains. Interested readers can do that themselves.The key point for interested readers is this: deep belief networks represent an important advance in machine learning due to their ability to autonomously synthesize features. Feature engineering, the creating of candidate variables from raw data, is the key bottleneck in the application of machine learning to any field. If feature engineering is done well, even a relatively weak model, such a multiple linear regression can produce a useful predictive model. If done poorly, even the most powerful machine learning methods will fail. Thus feature engineering is the "without-which-not" of success. Of particular importance is that the feature engineering conducted by a DBN is performed in an unsupervised fashion (no reference to the target variable).

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