

Artificial Neural Network Simulation on CUDA

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The advent of low cost GPU hardware and user friendly parallel programming APIs, such as NVIDIA CUDA means that affordable, programmable, high-performance computing environments for simulation are now attainable for development of scientific simulations. In this paper the authors present the MineHunter program, a parallel simulation of neural networks on NVIDIA CUDA. The simulation consists of 128 mine hunters in a mine field of 8192 mines, running on an Intel QuadCore i5-2500 3.3GHz 2 x Nvidia GeForce GTX 480. The results presented demonstrate that CUDA improves performance by up to 80% compared with the equivalent CPU implementation.

Index Terms

GPU;CUDA;Simulation;Neural-Networks;