

AccelerEyes

SIMPLE
Software
POWERFUL
Visual
Computing



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About us



AccelerEyes was founded in June 2007 to build simple software for powerful visual computing. In order for high performance computing (HPC) companies to adopt GPU technologies, a robust and healthy software tool chain must be created to connect programmers to GPU hardware. While hardware manufacturers are building lower-level software tools, such as CUDA, which support their devices, AccelerEyes delivers high-level interfaces which remove the lower-level complexity.

AccelerEyes' first product, Jacket, is used by customers across all major HPC industries, such as the automotive, financial, medical, and seismic industries. Further, Jacket's Graphics Toolbox enables true Visual Computing, seamlessly merging the compute power of CUDA with OpenGL visualizations. AccelerEyes plans to adapt and expand Jacket for other hardware and software platforms.



Realtime Ultrasound Diagnostics

Spencer Technologies is a medical diagnostic equipment company in Seattle. They are currently building a bedside ultrasound-based monitoring device. The software specialists at Spencer Technologies prefer to write MATLAB code but have had trouble building visualizations for their output diagnostic plots. They needed a solution which could provide real-time computation and display of many waveforms. They did not want to have to migrate their code to CUDA and they knew that even if they did migrate to CUDA, they would still not have access to simple visualization tools. With their initial prototype just completed using Jacket, they are achieving real-time throughput speeds, and Jacket enables them to easily plot the output waveforms. Given time and work constraints, this prototype was not possible without the computation/visualization integration provided by Jacket.



Our Products

Jacket

Jacket makes GPU computing ridiculously easy. Jacket enables scientists and engineers to continue programming in the familiar MATLAB environment while it transparently offloads computation onto the GPU.

Developers simply mark data, via casting operations, which they want to be computed on the GPU. Beyond that, their MATLAB code can remain untouched.

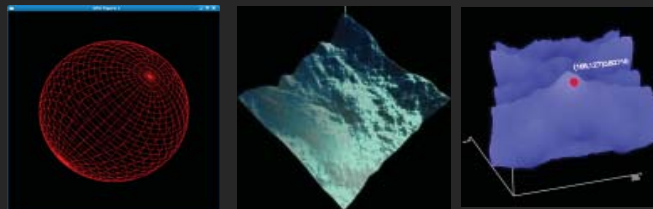
Jacket is built around a runtime system which manages the execution of data parallel tasks. By leveraging the M-Language, Jacket achieves data parallelism efficiently with minimal changes to existing code bases. Jacket optimally configures kernels to run on SIMD hardware and automatically minimizes memory transfers between separate hardware devices. Jacket also takes advantage of hardware-specific memory hierarchies. Finally, Jacket includes a system to manage memory and schedule computation for seamless integration of visualization and computation. Jacket now fully supports NVIDIA's Tesla and CUDA products.



Graphics Toolbox

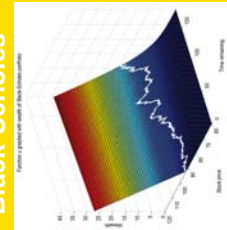
The Graphics Toolbox extends Jacket to seamlessly integrate computation with visualization making difficult to program, multi-threaded, and real time graphical displays effortless to achieve.

For example, by placing a single visualization command at the end of a loop, data may be viewed as it is processed in-place on the GPU. Jacket automatically makes load-balancing decisions to optimally use GPU resources for compute as well as display. Further, the Graphics Toolbox exposes the entire OpenGL API and allows for interactive scene creation and rapid prototyping.

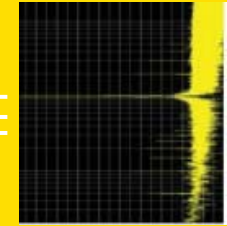


Jacket includes extensive documentation and user examples to help developers in getting started with MATLAB GPU computing. Jacket online documentation and examples are also available by visiting <http://www.accelereyes.com/documentation.php>. Examples include: Matrix Multiply Benchmarks, FFT Benchmarks, Convolution Benchmarks, A Neural Network Example, A Filtering Example, A Financial Example, and several Graphics Toolbox example simulating ocean surfaces and rain drops.

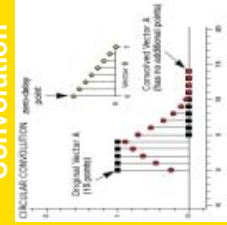
Black-Scholes



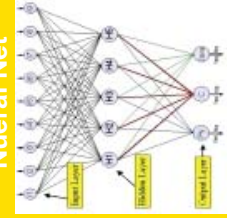
FFT



Convolution



Neural Net



Bioinformatics

