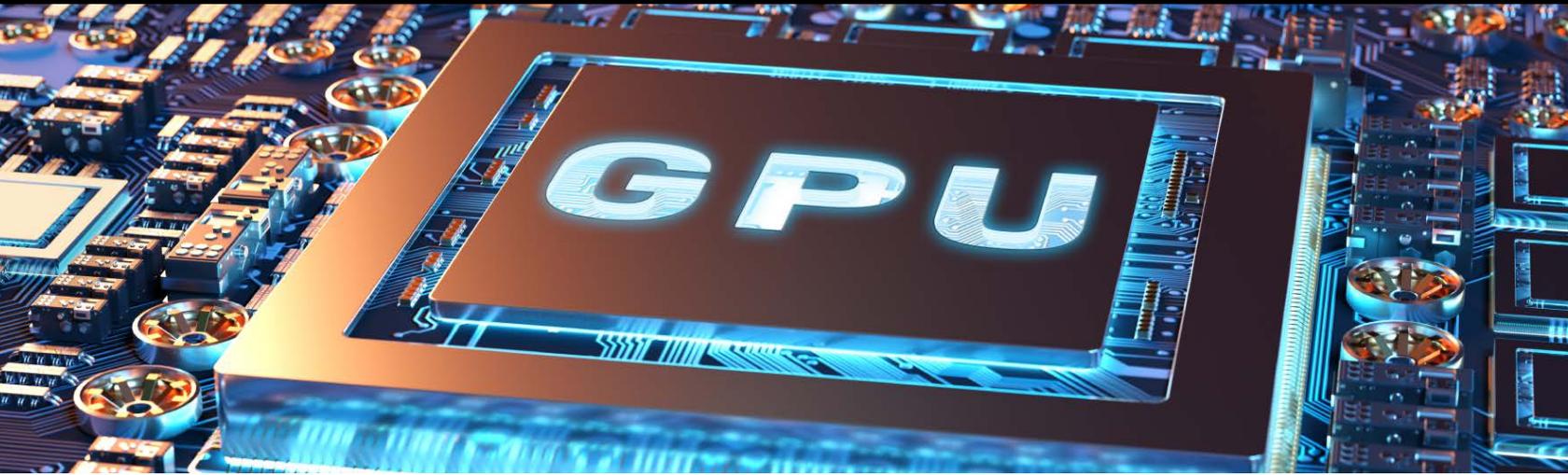




# GEISEL SOFTWARE ACCELERATED COMPUTING



## Geisel Software Accelerated Computing Expertise

Accelerated computing uses parallel processing to separate the data-intensive parts of an application and process them on a separate acceleration device, while leaving the control functionality to be processed on the CPU. This allows demanding applications to run more quickly and efficiently. Acceleration bridges the growing gap between data-processing needs and traditional CPU capability and requires specialized expertise. Geisel Software engineers have implemented a number of successful accelerations for clients, including:

- Transitioned live image filter application process from the CPU to the GPU for an iOS mobile-to-print app. Processing time was reduced from 30 seconds to .33 seconds – **a 100x improvement**.
- Executed a set of SIMD accelerations for printer operations, including generation of color gradients and transparency blending. These accelerations provided a **2x - 3x improvement** over conventional algorithms. The source code was released as sample code by the client as part of a new product version release.
- Implemented GPU versions of the same set of printer operations accelerations using a GPU compiler. These accelerations produced roughly **10x performance improvements** over the equivalent C versions.
- Completed optimizations for a well-known robotics manufacturer using the CUDA framework for nVidia GPUs. Validation testing confirms results that are an **over 700X performance improvement** across the board compared to the existing PointCloud implementation.

## Technical Capabilities

- SIMD Acceleration
- IMGUI
- Direct3D
- GPU Acceleration
- OpenGL
- D3D
- CUDA Acceleration
- WPF
- XNA Framework

## Applications

- Self-driving vehicles
- Graph analytics
- Image processing
- Speech recognition
- Policy learning
- Multimodal data analytics
- Simulation
- Virtual reality
- Machine learning
- Advanced visualization
- Molecular modeling
- Genomics
- Real-time video processing
- Medical imaging
- Network and security
- Seismic analysis
- Recommendation engines
- Fraud detection
- Advanced text analysis
- Financial analytics
- and many more!