Everett H. Phillips

Mechanical and Aeronautical Engineering   ehphillips@ucdavis.edu
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University of California
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Education

M.S. Mechanical Engineering, University of California, Davis, 2009 (Expected)
B.S. Mechanical Engineering, University of California, Davis, 2006

Research Experience

Research Assistant   Summer 2008
Roger Davis and John Owens   UC Davis
Develop GPU accelerated solver routines and integrate into a Fortran based parallel multiblock flow solver (MBFLO) for the 2D and axi-symetric variants of the compressible Navier-Stokes equations with turbulence modeling capability in the near future. Build a 32 GPU cluster with NVIDIA donated graphics cards and motherboards. Assemble cluster hardware, install and configure operating system.

Research Assistant   Spring 2008
John Owens   UC Davis IDAV Lab
Develop Multigrid solver for 2-D Compressible Euler Equations on an irregular grid using NVIDIA's CUDA API. Assist with GPU optimizations and investigate impact of new hardware features. Extend GPU Solver to a Cluster of 8 GPUs using MPI.

Volunteer Researcher   Summer 2007
John Owens   UC Davis IDAV Lab
Impliment Multigrid solver for Poisson's Equation using NVIDIA's CUDA API. Apply solver to the incompressible Navier-Stokes equations on a regular 2-D grid.

Teaching Experience

Teaching Assistant, Heat Transfer, UC Davis, Fall 2008

Teaching Assistant, Mechanical Design, UC Davis, Spring 2008

Teaching Assistant, System Dynamics, UC Davis, Winter 2008

Teaching Assistant, Finite Element Analysis of Aerospace Structures, UC Davis, Fall 2007

Teaching Assistant, Manufacturing Processes, Summer 2007

Teaching Assistant, Vehicle Stability, Spring 2007

Employment

SWF Companies   Reedley, CA
Machine Designer   4/2006–10/2006
Design steel and aluminum parts and assembly configurations for packaging machines using Solidworks 2006. Create Detailed Part and Assembly Drawings for manufacturing. Select and size purchased components. Update old designs for use with new laser cutting process. Supervisor: James Mossier.

Publications

In Progress: Everett H. Phillips, Roger L. Davis, John D. Owens, "Unsteady Turbulent flow simulations on a GPU cluster," Submitted to the 19th AIAA Computational Fluid Dynamics Conference, 22-25 June 2009, San Antonio, Texas

Everett H. Phillips, Yao Zhang, Roger L. Davis, John D. Owens, "Rapid Aerodynamic Performance Prediction on a Cluster of Graphics Processors," Proc. 49th AIAA Aerospace Sciences Meeting and Exhibit, 5-8 Jan 2009, Orlando, Florida

Michael Garland, Scott Le Grand, John Nickolls, Joshua Anderson, Jim Hardwick, Scott Morton, Everett Phillips, Yao Zhang, Vasily Volkov, "Parallel Computing Experiences with CUDA," IEEE Micro, vol. 28, no. 4, pp. 13-27, Jul/Aug, 2008

Everett H. Phillips, Yao Zhang, Roger L. Davis, John D. Owens. A Multi-Grid Solver for the 2D Compressible Euler Equations on a GPU Cluster. Technical Report ECE-CE-2008-2, Computer Engineering Research Laboratory, University of California, Davis, 2008.