Petros Apostolou

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Link to visit my official website: https://linen-fuze-227703.appspot.com

EDUCATION

University of Pittsburgh | Swanson School of Engineering (expected 07/2020)
Master in Mechanical Engineering – Dept. of Mechanical Engineering & Materials Science

- *Area of* Concentration: High Performance Computing in Computational Mechanics Simulations
- *RelativeCoursework:*
  - Parallel Computing: HPC using MPI distributions & GPU programming in OpenACC & OpenMP for distributed memory parallelism (DMP) using the clusters of the Center of Research Computing.
  - Finite Element Analysis: 3D Modeling & numerical solving in structural, thermal & fluid dynamics.
  - Additive Manufacturing Technology: Topology Optimization & DFAM training at ANSYS AMRL.

National Technical University of Athens (NTUA) – Greece (09/2008 – 09/2015)
BSc & MSc in Mechanical Engineering (5-year joint degree; 300 ECTS)

- *MSc Thesis:* *"2D & 3D Unstructured Mesh Displacement-Adaptation Using Torsional Springs"* (09/2015)

RECENT PROJECTS

- *GPU Performance on 2D Unsteady Vibrating Membrane:* (11/06/2018)

Programmed the analytical & numerical solution of a vibrating membrane for the serial CPU (C) and parallel GPU (CUDA) computations in a mesh of ~2E+6 nodes. The GPU acceleration implemented by connecting with the H2P clusters of the Research Center of Computing of the University of Pittsburgh. Wall time measurements showed a maximum GPU acceleration of 25 x times faster than the CPU.

- *Data Parallelism on Distributed Memory Platforms using MPI:* (12/07/2018)

Computing the analytical & numerical solution for the steady-state temperature distribution in a 2D square plate using Finite Difference Method (FDM). The serial code is parallelized by using the Message Passing Interface (MPI) library with one-dimensional (slice) domain decomposition. Results are expected to illustrate the speed up of the parallel computation of the numerical solution with respect to the number of processors.

RESEARCH EXPERIENCE

Parallel CFD & Optimization Unit, LTT Laboratory (NTUA) – Greece (09/2014–10/2015)
Research Assistant: *"Mesh-Adaptation strategies in 3D Design Unstructured Meshes"*

- Developed softwares for the convenient displacement & adaptation of 3D computational meshes aiming at accelerating the overall execution of the optimization process.
- Programmed codes for the validation of the quality of the available computational meshes.
- Implemented a user-friendly "LaTeX" template in LINUX for efficient scientific writing formats.

CERTIFICATES

- **Edx:** Introduction to Linux— Linux shell scripting and debugging (09/13/2018)

COMPUTER SKILLS

- Compiled Programming: C/C++, Fortran, CUDA, Linux-Shell/Bash Scripting, Cloud Computing
- Interpreted Programming: Python, MATLAB, HTML – Web Design (html,css,scss,google shell)
- Simulation & Graphics Tools: ANSYS, FreeCAD, Gmesh, Google Cloud Shell, Paraview, Inventor
- Text Tools/Editors: LaTeX, Vim, Visual Studio, MS Office

ACTIVITIES - LICENSES

- Music: Expert in drums; Advanced in piano and bouzouki
- Sports: Expert in soccer; Very good in long distance running
- Driving License: Issued car driver's license (US State: Pennsylvania)