

Petros Apostolou

5403 Friendship Avenue, Pittsburgh, PA-15232, USA • pea11@pitt.edu • (412)-708-6259

Github: <https://github.com/Petros89> • LinkedIn: <https://www.linkedin.com/in/petros-apostolou-35329b19a/>

EDUCATION

University of Pittsburgh | Swanson School of Engineering

(Expected graduation: 04/30/2020)

MSc Research in Mechanical Engineering – Department of Mechanical Engineering & Materials Science

Program Concentration: High Performance Computing (HPC) for Large-Scale Numerical Analysis Systems.

- MS Thesis: [HPC Matrix-Free Linear Algebra Solver for Large-Scale Finite Element Analysis on GPUs](#).
Achieved speed up of [82 x times] and scaled up to [217M x elements] on a 12GB Titan V in DP mode.
- MPI Project: Parallel CPU implementation for distributed memory parallelism of the heat equation using inter-node communication “SendRecv” MPICH MPI distribution on [CRC](#) cluster.
- CUDA Project: CUDA implementation for the acceleration of the vibrating membrane wave problem and the optimization of cuBLAS DGEMM for matrix-matrix multiplications on GTX1080 GPU.

PROFESSIONAL EXPERIENCE

Co-op program at ANSYS Mechanical (MAPDL) – Software Testing (HPC clusters)

(5/13/2019 - 12/13/2019)

- Objective: Used HPC scaling analysis to compute the performance and validate CPU and GPU implementations of ANSYS Mechanical HPC products.
- Cluster Management:

>>> Developed an automated parallel regression testing tool on Linux “Lustre” file system of the cluster, reducing the total execution time of 26K tests from 1 week to 6 hours.

PREVIOUS EDUCATION

National Technical University of Athens (NTUA) | School of Mechanical Engineering (Greece, 2015)

- BS Thesis: 3D Unstructured Mesh Displacement – Adaptation using Torsional Springs Technique.
- Description: Programmed a mesh adaptation method for mesh using unstructured tetrahedral meshes for use in aerodynamic-shape optimization and aeroelasticity. [Parallel CFD & Optimization Unit](#).

COMPUTER SKILLS

- Programming: C/C++, CUDA, Fortran, Linux shell-bash scripting, Perl, Python, MATLAB
- Parallel Programming: MPI, GPGPU, OpenMP, OpenACC
- Linear Algebra: cblas, cuBLAS, cuSOLVER, Amgx, Petsc, FreeFem++
- Cluster Tools: UGE/SGE, SLURM, MS Azure

REFERENCES

Albert To, PhD (Master Thesis Advisor): albertto@pitt.edu

Roxana Cisloiu, PhD (ANSYS Inc – Canonsburg, Manager): roxana.cisloiu@ansys.com

Mehrzad Samadi, PhD (NVIDIA – GPU Genomics): mehrzadsamadi@gmail.com