HeteroPar - Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms

Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms (HeteroPar)

Workshop Description

Heterogeneity is emerging as one of the most profound and challenging characteristics of today's parallel environments. From the macro level, where networks of distributed computers composed of diverse node architectures are interconnected with potentially heterogeneous networks, to the micro level, where deeper memory hierarchies and various accelerator architectures are increasingly common, the impact of heterogeneity on all computing tasks is increasing rapidly. Traditional parallel algorithms, programming environments and tools, designed for legacy homogeneous multiprocessors, will at best achieve a small fraction of the efficiency and the potential performance that we should expect from parallel computing in tomorrow's highly diversified and mixed environments. New ideas, innovative algorithms, and specialized programming environments and tools are needed to efficiently use these new and multifarious parallel architectures.

HeteroPar is a forum tailored for study of diverse aspects of heterogeneity and caters for researchers working on algorithms, programming languages, tools, and theoretical models aimed at efficiently solving problems on heterogeneous platforms. It includes broad range of topics pertaining to high performance heterogeneous computing from heterogeneous parallel programming paradigms, and algorithms, models and tools for energy optimization on heterogeneous platforms to fault tolerance of parallel computations on heterogeneous platforms.

The sixteenth edition of the workshop (HeteroPar'2018) was held on 27th August in Turin, Italy. For the tenth time, this workshop was organized in conjunction with the Euro-Par annual series of international conferences. The format of the workshop included a keynote followed by four sessions of technical presentations. The program committee (PC) comprised of 25 members with expertise in various aspects of high performance heterogeneous computing. The workshop was well-attended featuring an healthy average of 35 attendees.

We have received 26 articles for review this year from 16 countries. Each paper secured three reviews from members of the PC. After a thorough peer-reviewing process, we have selected 10 articles (an acceptance ratio of 38%) for presentation at the workshop. The review process focused on the quality of the papers, their innovative ideas and their applicability to the field of high performance heterogeneous computing.

The accepted articles covered a diverse range of topics, techniques, and applications exhibiting lucidly the depth, breadth, and growth of the heterogeneous computing field. The topics included realistic simulations of file replication strategies, anomaly detection using FPGA, GPU-accelerated optical coherence tomography, application-centric parallel memories, perturbations in heterogeneous systems, FPGA-accelerated change-point detection, merging publish-subscribe pattern and shared memory, a

modular precision format, fast heuristic-based GPU compilation and benchmarking latest GPU and tensor cores.

Finally, I would like to thank the HeteroPar Steering Committee and the HeteroPar 2018 Program Committee, for their diligent efforts in ensuring the high quality and continued success of this workshop. I would also like to thank Euro-Par for hosting our community, and the Euro-Par workshop chairs Dora Blanco Heras and Gabriele Mencagli for their help and support.

Organization

Steering Committee

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