EURO-PAR
CONFERENCE 2019

HETROPAR 2019

(W 6) HeteroPar 2019
Seventeenth International Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms

DATE

Tuesday 27.08.2019, 09:00 - 18:00

LOCATION

Alte Mensa, Wilhlemsplatz 3, 37073 Göttingen - Room 1 (Emmy-Noether-Saal) ▶ Map

SCOPE

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. The workshop is intended to be a forum for researchers working on algorithms, programming languages, tools, and theoretical models aimed at efficiently solving problems on heterogeneous platforms.

WORKSHOP CHAIRS

- **Domingo Giménez**, University of Murcia, Spain
- **Alexey Kalinov**, Cadence Design Systems, Russia
- **Alexey Lastovetsky**, University College Dublin, Ireland
- **Radu Prodan**, University of Klagenfurt, Austria
- **Yves Robert**, Ecole Normale Supérieure de Lyon, France
- **Leonel Sousa**, INESC-ID/IST, Universidade de Lisboa, Portugal
- **Denis Trystram**, University Grenoble-Alpes, France

AGENDA

9:00 - 09:15
Welcome from Steering Committee and Program Chair **Alexey Lastovetsky**

Session 1: Heterogeneous data-aware computing
Chair: **Alexey Lastovetsky**

09:15 - 10:00
Jesus Carretero, Polytechnic School of University Carlos III of Madrid, Spain
Scientific keynote: Towards data intensive aware programming models for Exascale systems

10:00 - 10:30
Adrian Schmitz, Joachim Protze, Lechen Yu, Simon Schwitanski and Matthias Mueller
DataRaceOnAccelerator - A Micro-Benchmark Suite for Evaluating Correctness Tools Targeting Accelerators

10:30 - 11:00 Coffee break

Session 2: Scheduling
Chair: **Emmanuel Jeannot**

11:00 - 11:30
Kods Trabelsi, Loïc Cudennec and Rihab Bennour
Application Topology Definition and Tasks Mapping for Efficient Use of Heterogeneous Resources

11:30 - 12:00
Maciej Pawlik, Pawel Banach and Maciej Malawski
Adaptation of Workflow Application Scheduling Algorithm to Serverless Infrastructure

12:00 - 12:30
Robert Dietze and Gudula Ruenger
Search-based Scheduling for Parallel Tasks on Heterogenous Platforms

12:30 - 14:00 Lunch break

Session 3: Performance modelling and tuning
Chair: **Denis Trystram**

14:00 - 14:30
Gyan Ranjan, Albeado Inc., Santa Clara, CA (USA)
Industrial keynote: On Explainability of Autonomous Heterogeneous Systems: A Network Theoretic Approach to AI

14:30 - 15:00
Jaroslav Olha, Jana Hozzová, Jan Fousek and Jiřī Filipovič
Using historical information to improve autotuning

15:00 - 15:30
Matthias Lüders, Oliver Jakob Arndt and Holger Blume
Multicore Performance Prediction - Comparing Three Recent Approaches in a Case Study

15:30 - 16:00 Coffee break

Session 4: Heterogeneous computing
Chair: **Leonel Sousa**

16:00 - 16:30
Jiajian Xiao, Philipp Andelfinger, Wentong Cai, Paul Richmond, Alois Knoll and David Eckhoff
Advancing Automatic Code Generation for Agent-Based Simulations on Heterogeneous Hardware

16:30 - 17:00
Jacob Lambert, Seyong Lee, Allen Malony and Jeffrey Vetter
CCAMP: OpenMP and OpenACC Interoperable Framework

17:00 - 17:30
Hamidreza Khaleghzadeh, Muhammad Fahad, Ravi Reddy Manumachu and **Alexey Lastovetsky**
Optimization of Data-Parallel Applications on Heterogeneous HPC Platforms for Dynamic Energy Through Workload Distribution

17:30 - 18:00
Lukasz Szustak, **Roman Wyrzykowski**, Kamil Halbiniak and Pawel Bratek
Toward Heterogeneous MPI+MPI Programming: Comparison of OpenMP and MPI Shared Memory Models

CONTACT US

HOSTS

GEORG-AUGUST-UNIVERSITÄT GÖTTINGEN

GWDG
Gesellschaft für wissenschaftliche Datenverarbeitung mbH Göttingen

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