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CALL FOR PAPERS

SPECIAL SESSION ON GPU COMPUTING

Held in conjunction with PPAM 2019
13th Int. Conference on Parallel Processing and Applied Mathematics

Bialystok, Poland
September 8-11, 2019
http://ppam.pl
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OVERVIEW:

GPU programming has evolved into a full ecosystem that includes programming languages (CUDA, OpenCL), libraries (e.g., cuBLAS, cuSPARSE, cuFFT, cuSOLVER, AmgX, MAGMA), high level interfaces (e.g., thrust, OCCA, RAJA, Kokkos), annotation-based programming models (e.g., OpenACC, OpenMP), GPU support in mathematical software (e.g., Parallel Computing Toolbox in Matlab, CUDALink in Mathematica), GPU script languages (e.g., PyOpenCL, Bohrium), and new data parallel languages (e.g., Copperhead). Altogether, these languages, tools, and APIs have helped bringing GPU programming to the next level. In addition, the evolution in the GPU hardware has continued to enable higher performance with improved power usage. As a consequence, GPUs play currently a major role in Deep Learning, self-driving cars, smart cities, healthcare, big data, high performance computing, virtual reality, among others.

A major decision for libraries and high level programming tools is the positioning within the triangle performance, coding comfort and specialization. The spectrum ranges from high performance building blocks for common numeric or discrete transformations, to application domain specific libraries facilitating the solution of a certain class of problems, to general high level abstractions increasing the programmer's productivity. By sharing their experiences on GPU programming, we hope that the participants of the session will gain a better understanding about which tools are good for which type of problem and trade-offs between performance, coding comfort, and specialization. This session invites, in particular, submissions that deal with practical applications that have successfully employed GPU libraries or high level programming tools. The focus may lie both on the development of the libraries or utilization of existing tools.

The session topics include, but are not limited to:

- GPU applications encoded with high level programming tools.
- GPU library development and application.
- Comparison of different programming abstractions on the same/similar applications.
- Comparison of the same/similar programming abstractions on different applications.
- Performance and coding effort of high level tools against hand-coded approaches on the GPU.
- Performance and coding effort on multi-core CPUs against GPUs utilizing programming abstractions.
- Classification of different programming abstractions with respect to their best application area.

SUBMISSIONS:
The rules of PPAM conference apply. In particular:

- Papers will be refereed and accepted on the basis of their scientific merit and relevance to the conference topics.
- Regular papers are not to exceed 10 pages (LNCS style).
- Abstracts of accepted papers will be available during the conference in form of a brochure.
- Only papers presented at PPAM 2019 will be included into the proceedings, which is planned to be published after the conference by Springer in the LNCS series.

ORGANIZERS:

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IMPORTANT DATES

Submission of Papers:	~~April 21~~, **May 6, 2019**
Notification of Acceptance:	~~May 31~~, **June 17, 2019**
Camera-Ready Papers:	November 2, 2019