

XULONG TANG

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EDUCATION

- 2014 - Present** **Pennsylvania State University**, Ph.D. Candidate in Computer Science and Engineering
Advisor: Dr. Mahmut Taylan Kandemir, Dr. Chita R. Das
- 2014 Spring** **College of William and Mary**, Ph.D. Candidate in Computer Science and Engineering
Transfer to Pennsylvania State University in 2014 fall
Advisor: Dr. Xipeng Shen
- 2010 - 2013** **University of Science and Technology of China**, M.S. in Computer Science
Advisor: Dr. Hong An
- 2006 - 2010** **Harbin Institute of Technology**, B.S. in Computer Science

RESEARCH EXPERIENCE

- 2014 - present** **Pennsylvania State University**, *Microsystems Design Lab (MDL)*
Research Assistant
Advisor: Dr. Mahmut Taylan Kandemir, Dr. Chita R. Das
- Dynamic parallelism optimization for irregular applications on GPGPUs.
 - Compiler-assisted data locality optimization on manycore platforms.
- 2017 Fall** **Advanced Micro Devices (AMD Research)**
Research Intern
Mentor: Bradford M. Beckmann, Sooraj Puthoor
- Participate in the project of prototyping the next generation GPUs. Specifically exploring efficient runtime task management on GPUs.
- 2015 Summer** **SAMSUNG Research America (SRA)**
Research Intern
Mentor: Liangjun Zhang
- Design tools for modeling the memory hierarchy of high-performance, low-power mobile GPUs.
- 2014 Spring** **College of William and Mary**, *Compilers and Adaptive Programming Systems Lab*
Research Assistant
Advisor: Dr. Xipeng Shen
- Understanding CPU-GPU co-run degradations on integrated heterogeneous processors.
- 2010 - 2013** **ICT of Chinese Academy of Science, Beijing**
Research Assistant
Advisor: Dr. Dongrui Fan
- Build a two-layer video codec benchmark suite.
 - Design x264 codec into a fine-grain pipelined version to achieve task-level parallelism.
- 2010 - 2011** **University of Science and Technology of China (USTC)**
Research Assistant
Advisor: Dr. Hong An
- Characterize program phases using Rodinia benchmark suite.

PUBLICATIONS

- [C1]. Orhan Kislal, Jagadish B. Kotra, **Xulong Tang**, Mahmut T. Kandemir, Myoungsoo Jung “Enhancing Computation-to-Core Assignment with Physical Location Information”, *In proceedings of 39th annual ACM SIGPLAN conference on Programming Language Design and Implementation*.
(PLDI 2018)
- [C2]. Sooraj Puthoor, **Xulong Tang**, Joseph Gross, Bradford M Beckmann “Oversubscribed Command Queues in GPUs.”, *In proceedings of the 11th Workshop on General Purpose GPUs in conjunction with PPOPP 2018*.
(PPoPP 2018)
- [C3]. **Xulong Tang**, Orhan Kislal, Mahmut Kandemir, Mustafa Karakoy “Data Movement Aware Computation Partitioning”, *In proceedings of The 50th Annual IEEE/ACM International Symposium on Microarchitecture*.
(MICRO 2017)
- [C4]. Akbar Sharifi, Wei Ding, Diana Guttman, Hui Zhao, **Xulong Tang**, Mahmut Kandemir, Chita Das “DEMM: a Dynamic Energy-saving mechanism for Multicore”, *In proceedings of The 25th IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems*.
(MASCOTS 2017)
- [C5]. Orhan Kislal, Jagadish Kotra, **Xulong Tang**, Mahmut Taylan Kandemir, Myoungsoo Jung “POSTER: Location-Aware Computation Mapping for Manycore Processors”, *In proceedings of The 26th International Conference on Parallel Architectures and Compilation Techniques*.
(PACT 2017)
- [C6]. **Xulong Tang**, Ashutosh Pattnaik, Huaipan Jiang, Onur Kayiran, Adwait Jog, Sreepathi Pai, Mohamed Ibrahim, Mahmut Kandemir, Chita Das “Controlled Kernel Launch for Dynamic Parallelism in GPUs”, *In Proceedings of 23th International Symposium on High-Performance Computer Architecture*.
(HPCA 2017)
- [C7]. **Xulong Tang**, Mahmut Kandemir, Praveen Yedlapalli, Jagadish Kotra “Improving Bank-Level Parallelism for Irregular Applications”, *In Proceedings of 49th Annual IEEE/ACM International Symposium on Microarchitecture*.
(MICRO 2016) **Best Paper Nomination.**
- [C8]. Ashutosh Pattnaik, **Xulong Tang**, Adwait Jog, Onur Kayiran, Asit K. Mishra, Mahmut T. Kandemir, Onur Mutlu, Chita R. Das “Scheduling Techniques for GPU Architectures with Processing-In-Memory Capabilities”, *In Proceedings of 25th International Conference on Parallel Architectures and Compilation Techniques*.
(PACT 2016)
- [C9]. Onur Kayiran, Adwait Jog, Ashutosh Pattnaik, Rachata Ausavarungnirun, **Xulong Tang**, Mahmut T. Kandemir, Gabriel H. Loh, Onur Mutlu, Chita R. Das “ μ C-States: Fine-grained GPU Datapath Power Management”, *In Proceedings of 25th International Conference on Parallel Architectures and Compilation Techniques*.
(PACT 2016)
- [C10]. Wei Ding, **Xulong Tang**, Mahmut Taylan Kandemir, Yuanrui Zhang, Emre Kultursay “Optimizing Off-Chip Accesses in Manycores”, *In Proceedings of 36th annual ACM SIGPLAN conference on Programming Language Design and Implementation*.
(PLDI 2015)
- [C11]. Mahmut Taylan Kandemir, Hui Zhao, **Xulong Tang**, Mustafa Karky, “Memory Row Reuse Distance and its Role in Optimizing Application Performance”, *In Proceedings of ACM International Conference on Measurement and Modeling of Computer Systems*.
(SIGMETRICS 2015)
- [C12]. **Xulong Tang**, Hong An, Gongjin Sun, Dongrui Fan, “A Video Coding Benchmark Suite for Evaluation of Processor Capability”, *In Proceedings of 14th IEEE/ACIS International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing*.
(SNPD 2013)
- [C13]. Gu Liu, Hong An, Xiaoqiang Li, Wei Zhou, Xuechao Wei, **Xulong Tang**, “FlexBFS: A Parallelism-aware Implementation of Breadth-First Search on GPU”, *Accepted as a poster by 17th ACM SIGPLAN Symposium on*

TEACHING

2018 Fall	Co-instructor of CMPEN 431 - Introduction to Computer Architecture - at Penn State
2016 Spring	Guest Lecture, CSE 521 - Design and implementation of compilers - at Penn State
2015 Spring	Teaching Assistant of CMPEN 431 - Introduction to Computer Architecture - at Penn State
2014 Fall	Teaching Assistant of CMPEN 431 - Introduction to Computer Architecture - at Penn State
2014 Spring	Teaching Assistant of CS 210 - Introduction to Python - at William and Mary.

TALKS

Enhancing Computation-to-Core Assignment with Physical Location Information. *PLDI 2018*
Data Movement Aware Computation Partitioning. *MICRO 2017*
DEMM: a Dynamic Energy-saving mechanism for Multicore. *MASCOTS 2017*
Controlled Kernel Launch for Dynamic Parallelism in GPUs. *HPCA 2017*
Improving Bank-Level Parallelism for Irregular Applications. *MICRO 2016*
Memory Row Reuse Distance and its Role in Optimizing Application Performance. *SIGMETRICS 2015*

AWARDS AND HONORS

2018	NSF Travel Grants / PLDI'39
2017	NSF Travel Grants / MICRO'50 NSF Travel Grants / HPCA'23
2016	Best Paper Nomination of MICRO'49 NSF Travel Grants / MICRO'49
2015	NSF Travel Grants / PLDI'36

PERFESSIONAL SERVICES

Program Committee	Artifact Evaluation Committee of PPoPP'18
Journal Reviewer	Transactions on Parallel and Distributed Systems (TPDS) International Journal of Computational Science and Engineering (IJCSE) Electronics and Telecommunications Research Institute Journal (ETRIJ) Advances in Science Technology and Engineering Systems Journal (ASTESJ)
Conference Reviewer	2015 (PLDI, IPDPS, PPoPP) 2016 (ISCA, MICRO, HPCA, ASPLOS) 2017 (ISCA, MICRO, HPCA, ASPLOS, PACT, PPoPP, IPDPS) 2018 (PACT, ICS)
Other Activities	Submission chair of AIM 2017 workshop

REFERENCES

Mahmut Taylan Kandemir
Professor, CSE Department, PSU
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Chita R. Das
Distinguished Professor, CSE Department, PSU
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Tel: (814) 865-0194