# HPCA 2018 Paper List

**Amdahl's Law in the Datacenter Era: A Market for Fair Processor Allocation**

*Seyed Majid Zahedi (Duke University), Qiuyun Llull (VMware/Duke University), Benjamin C. Lee (Duke University)*

**iNPG: Accelerating Critical Section Access with In-Network Packet Generation for NoC based Many-cores**

*Yuan Yao, Zhonghai Lu (KTH Royal Institute of Technology)*

**Enabling Efficient Network Service Function Chain Deployment on Heterogeneous Server Platform**

*Yang Hu (University of Florida/The University of Texas at Dallas), Tao Li (University of Florida)*

**Reducing Data Transfer Energy by Exploiting Similarity within a Data Transaction**

*Donghyuk Lee (NVIDIA), Mike O'Connor (NVIDIA / UT-Austin), Niladrish Chatterjee (NVIDIA)*

**Making Memristive Neural Network Accelerators Reliable**

*Ben Feinberg, Shibo Wang, Engin Ipek (University of Rochester)*

**Towards Efficient Microarchitectural Design for Accelerating Unsupervised GAN-based Deep Learning**

*Mingcong Song, Jiaqi Zhang, Huixiang Chen, Tao Li (University of Florida)*

**Compressing DMA Engine: Leveraging Activation Sparsity for Training Deep Neural Networks**

*Minsoo Rhu (POSTECH), Mike O'Connor (NVIDIA / UT-Austin), Niladrish Chatterjee (NVIDIA), Jeff Pool (NVIDIA), Youngeun Kwon (POSTECH), Steve Keckler (NVIDIA)*

**In-situ AI: Towards Autonomous and Incremental Deep Learning for IoT Systems**

*Mingcong Song (University of Florida), Kan Zhong (University of Florida/Chongqing University), Jiaqi Zhang, Yang Hu (University of Florida), Duo Liu (Chongqing University), Weigong Zhang, Jing Wang (Capital Normal University), Tao Li (University of Florida)*

**A Hybrid Cache Partitioning-Sharing Technique for Commodity Multicores**

*Nosayba El-Sayed (CSAIL, MIT (Hosted partially by QCRI, HBKU)), Anurag Mukkara, Po-An Tsai (CSAIL, MIT), Harshad Kasture (Oracle), Xiaosong Ma (QCRI, HBKU), Daniel Sanchez (CSAIL, MIT)*

**SIPT: Speculatively Indexed, Physically Tagged Caches**

*Tianhao Zheng, Haishan Zhu, Mattan Erez (University of Texas at Austin)*

**Domino Temporal Data Prefetcher**

*Mohammad Bakhshalipour (Sharif University of Technology), Pejman Lotfi-Kamran (Institute for Research in Fundamental Sciences (IPM)), Hamid Sarbazi-Azad (Sharif University of Technology)*

**ProFess: A Probabilistic Hybrid Main Memory Management Framework for High Performance and Fairness**

*Dmitry Knyaginin (Chalmers University of Technology), Vassilis Papaefstathiou (FORTH-ICS), Per Stenstrom (Chalmers University of Technology)*

**RCoal: Mitigating GPU Timing Attack via Subwarp-based Randomized Coalescing Techniques**

*Gurunath Kadam (College of William and Mary), Danfeng Zhang (Penn State), Adwait Jog (College of William and Mary)*

**Are Coherence Protocol States vulnerable to Information Leakage?**

*Fan Yao, Milos Doroslovacki, Guru Venkataramani (George Washington University)*

**Record-Replay Architecture as a General Security Framework**

*Yasser Shalabi, Mengjia Yan (University of Illinois at Urbana-Champaign), Nima Honarmand (Stony Brook University), Ruby B Lee (Princeton University), Josep Torrellas (University of Illinois at Urbana-Champaign)*

**The DRAM Latency PUF: Quickly Evaluating Physical Unclonable Functions by Exploiting the Latency-Reliability Tradeoff in Modern DRAM Devices**

*Jeremie S Kim (Carnegie Mellon University), Minesh Patel, Hasan Hassan (ETH Zurich), Onur Mutlu (ETH Zurich; Carnegie Mellon University)*

**Accelerate GPU Concurrent Kernel Execution by Mitigating Memory Pipeline Stalls**

*Hongwen Dai, Zhen Lin, Chao Li (North Carolina State University), Chen Zhao, Fei Wang, Nanning Zheng (Xi'an Jiaotong University), Huiyang Zhou (North Carolina State University)*

**LATTE-CC: Latency Tolerance Aware Adaptive Cache Compression Management for Energy Efficient GPUs**

*Akhil Arunkumar, Shin-Ying Lee, Vignesh Soundararajan, Carole-Jean Wu (Arizona State University)*

**GETM: high-performance GPU transactional memory via eager conflict detection**

*Xiaowei Ren, Mieszko Lis (University of British Columbia)*

**Efficient and Fair Multi-programming in GPUs via Effective Bandwidth Management**

*Haonan Wang, Fan Luo, Mohamed Ibrahim (College of William and Mary), Onur Kayiran (AMD Research), Adwait Jog (College of William and Mary)*

**A Novel Register Renaming Technique for Out-of-Order Processors**

*Hamid Tabani, Jose-Maria Arnau, Jordi Tubella, Antonio Gonzalez (Universitat PolitÃ¨cnica de Catalunya)*

**Architectural Support for Task Dependence Management with Flexible Software Scheduling**

*Emilio Castillo, Lluc Alvarez, Miquel Moreto, Marc Casas (Barcelona Supercomputing Center), Ramon Beivide, Enrique Vallejo, Jose Luis Bosque (Universidad de Cantabria), Mateo Valero (Barcelona Supercomputing Center)*

**GDP: Using Dataflow Properties to Accurately Estimate Interference-free Performance at Runtime**

*Magnus Jahre (Norwegian University of Science and Technology), Lieven Eeckhout (Ghent University)*

**Crash Consistency in Encrypted Non-Volatile Main Memory Systems**

*Sihang Liu (University of Virginia), Aasheesh Kolli (University of Michigan/Pennsylvania State University), Jinglei Ren (Microsoft Research), Samira Khan (University of Virginia)*

**Adaptive Memory Fusion: Towards Transparent, Agile Integration of Persistent Memory**

*Dongliang Xue, Chao Li, Linpeng Huang, Chentao Wu (Shanghai Jiao Tong University), Tianyou Li (Intel Asia Pacific R&D co., LTD)*

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*Matheus Ogleari, Ethan Miller, Jishen Zhao (University of California, Santa Cruz)*

**Enabling Fine-Grain Restricted Coset Coding Through Word-Level Compression for PCM**

*SeyedMohammad Seyedzadeh, Alex Jones, Rami Melhem (University of Pittsburgh)*

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*Chenhao Xie (University of Houston), Shuaiwen Leon Song (Pacific Northwest National Laboratory), Xin Fu (University of Houston)*

**Warp Scheduling for Fine-Grained Synchronization**

*Ahmed ElTantawy, Tor Aamodt (University of British Columbia)*

**WIR: Warp Instruction Reuse to Minimize Repeated Computations in GPUs**

*Keunsoo Kim, Won Woo Ro (Yonsei University)*

**G-TSC: Timestamp Based Coherence for GPUs**

*Abdulaziz Tabbakh, Xuehai Qian, Murali Annavaram (University of Southern California)*

**D-ORAM: Path-ORAM Delegation for Low Execution Interference on Cloud Servers with Untrusted Memory**

*Rujia Wang, Youtao Zhang, Jun Yang (University of Pittsburgh)*

**Secure DIMM: Moving ORAM Primitives Closer to Memory**

*Ali Shafiee, Rajeev Balasubramonian (University of Utah), Mohit Tiwari (University of Texas at Austin), Feifei Li (University of Utah)*

**Comprehensive VM Protection against Untrusted Hypervisor through Retrofitted AMD Memory Encryption**

*Yuming Wu, Yutao Liu, Ruifeng Liu, Haibo Chen, Binyu Zang, Haibing Guan (Shanghai Jiao Tong University)*

**SYNERGY: Rethinking Secure-Memory Design for Error-Correcting Memories**

*Gururaj Saileshwar, Prashant Nair (Georgia Institute of Technology), Prakash Ramrakhyani, Wendy Elsasser (ARM Research), Moinuddin Qureshi (Georgia Institute of Technology)*

**HeatWatch: Optimizing 3D NAND Read Operations With Self-Recovery and Temperature Awareness**

*Yixin Luo, Saugata Ghose (Carnegie Mellon University), Yu Cai (SK Hynix), Erich F. Haratsch (Seagate Technology), Onur Mutlu (ETH Zurich)*

**RC-NVM: Enabling Symmetric Row and Column Memory Accesses for In-Memory Databases**

*Peng Wang (Peking University), Shuo Li (NUDT), Guangyu Sun, Xiaoyang Wang (Peking University), Yiran Chen, Hai (Helen) Li (Duke University), Jason Cong (UCLA), Nong Xiao (NUDT), Tao Zhang (Pennsylvania State University)*

**GraphR: Accelerating Graph Processing Using ReRAM**

*Linghao Song (Duke University), Youwei Zhuo, Xuehai Qian (University of Southern California), Miao Hu (Binghamton University SUNY), Hai Li, Yiran Chen (Duke University)*

**GraphP: Reducing Communication of PIM-based Graph Processing with Efficient Data Partition**

*Mingxing Zhang (Tsinghua University), Youwei Zhuo, Chao Wang (University of Southern California), Mingyu Gao (Stanford University), Yongwei Wu, Kang Chen (Tsinghua University), Christos Kozyrakis (Stanford University), Xuehai Qian (University of Southern California)*

**PM3: Power Modeling and Power Management for Processing-in-Memory**

*Chao Zhang, Tong Meng, Guangyu Sun (Peking University)*

**Don't Correct the Tags in a Cache, just Check their Hamming Distance from the Lookup Tag**

*Alexander Gendler, Arkady Bramnik, Ariel Szapiro (Intel), Yiannakis Sazeides (University of Cyprus)*

**Reliability-aware Data Placement for Heterogeneous Memory Architecture**

*Manish Gupta (UCSD), Vilas Sridharan, David Roberts (AMD), Andreas Prodromou, Ashish Venkat, Dean Tullsen and Rajesh Gupta (UCSD)*

**SmarCo: An Efficient Many-Core Processor for High-Throughput Applications in Datacenters**

*Dongrui Fan, Wenming Li, Xiaochun Ye, Da Wang, Hao Zhang, Zhimin Tang and Ninghui Sun (Institute of Computing Technology)*

**Transcending Hardware Limits with Software Out-of-order Processing**

*Trevor Carlson, Kim-Anh Tran, Alexandra Jimborean, Konstantinos Koukos, Magnus Sjalander, and Stefanos Kaxiras (Uppsala University and National University of Singapore)*