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RESEARCH INTERESTS

- Computer architecture: memory and storage technologies; architectural support for security; chip multiprocessors; cache management; onchip interconnection.
- Machine learning: AI accelerators, medical image processing.
- Compilers and program analysis: update-conscious compilation; program profiling; code optimization.

EDUCATION

- Ph.D., Department of Computer Science, University of Arizona, Tucson, AZ, August 2002, Thesis: "The Design and Implementation of Compression Techniques for Profile Guided Compilation", Advisor: Professor Rajiv Gupta.

- M.Eng., Department of Computer Science and Technology, Nanjing University, China, June 1996.

- B.S., Department of Computer Science and Technology, Nanjing University, China, June 1993.

EMPLOYMENT

- Professor, University of Pittsburgh, Pittsburgh, PA, September 2020 – present.

- Associate Professor, University of Pittsburgh, Pittsburgh, PA, September 2011 – August 2020.

- Assistant Professor, University of Pittsburgh, Pittsburgh, PA, January 2006 – August 2011.

- Assistant Professor, University of Texas at Dallas, Richardson, TX, November 2002 – December 2005.

AWARDS

- MICRO Hall of Fame, https://www.sigmicro.org/awards/microhof.php.

- HPCA Hall of Fame, http://ieeetcca.org/awards/hpca-hall-of-fame/.

- Best Paper Award, The International Symposium on Low Power Electronics and Design, September 2013.

- NSF CAREER Award, January 2005.

- Distinguished Paper Award, IEEE/ACM International Conference on Software Engineering, May 2003.

- Most Original Paper Award, International Conference on Parallel Processing, October 2003.

I. RESEARCH

PUBLICATIONS

JOURNAL PUBLICATIONS

[J-1] TC	Liang Liu, Yanan Guo, Yueqiang Cheng, Youtao Zhang, and Jun Yang, "Generating Robust DNN with Resistance to Bit-Flip based Adversarial Weight Attack," *IEEE Transactions on Computers*, Accepted.
[J-2] THPC	Yue Dai, Xulong Tang, and Youtao Zhang, "An Efficient Segmented Quantization for Graph Neural Networks," *CCF Transactions on High Performance Computing*, Accepted.
[J-3] TOS	Congming Gao, Min Ye, Chun Jason Xue, Youtao Zhang, Liang Shi, Jiwu Shu, and Jun Yang, "Reprogramming 3D TLC Flash Memory based Solid State Drives," *ACM Transactions on Storage*, Vol. 18(1):9:1-33, 2022.

[J-4] TIM   Zijie Yue , Shuai Ding , Shanlin Yang , Hui Yang , Zhili Li , Youtao Zhang , and Yinghui Li, "Deep Super-Resolution Network for rPPG Information Recovery and Non-Contact Heart Rate Estimation," *IEEE Transactions on Instrumentation and Measurement*, Vol.70:1-11, 2021.

[J-5] TCAD   Zhengguo Chen, Youtao Zhang, and Nong Xiao, "CacheTree: Reducing Integrity Verification Overhead of Secure Non-Volatile Memories," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, Vol.40(7):1340-1353, 2021.

[J-6] TKDD   Shuai Ding, Hao Wang, Yeqing Li, Xiaojian Li, and Youtao Zhang, "Hierarchical Physician Recommendation via Diversity-enhanced Matrix Factorization," *ACM Transactions on Knowledge Discovery in Data*, Vol.15(1):1:1-17, 2021.

[J-7] TPDS   Congming Gao, Liang Shi, Kai Liu, Chun Jason Xue, Jun Yang and Youtao Zhang, "Boosting the Performance of SSDs via Fully Exploiting the Plane Level Parallelism," *IEEE Transactions on Parallel and Distributed Systems*, Vol.31(9):2185-2200, 2020.

[J-8] JSA   Jinhua Cui, Youtao Zhang, Liang Shi, Chun Jason Xue, Jun Yang, Weiguang Liu, and Laurence T. Yang, "Leveraging Partial-refresh for Performance and Lifetime Improvement of 3D NAND Flash Memory in Cyber-physical Systems," *Journal of System Architecture*, Vol.103:101685, 2020.

[J-9] TCAD   Quan Deng, Youtao Zhang, Zhenyu Zhao, Shuzheng Zhang, Minxuan Zhang, and Jun Yang, "FRF: Towards Warp-Scheduler Friendly STT-RAM/SRAM Fine-grained Hybrid GPGPU Register File Design," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, Vol.39(10):2396-2409, 2020.

[J-10] TCAD   Wen Wen, Lei Zhao, Youtao Zhang, and Jun Yang, "Exploiting In-memory Data Patterns for Performance Improvement on Crossbar Resistive Memory," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, Vol.39(10):2347-2360, 2020.

[J-11] TCAD   Congming Gao, Liang Shi, Qiao Li, Kai Liu, Chun Jason Xue, Jun Yang, and Youtao Zhang, "Aging Capacitor Supported Cache Management Scheme for Solid State Drives," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, Vol.39(10):2230-2239, 2020.

[J-12] TCAD   Chen Li, Andrew Zigerelli, Jun Yang, Youtao Zhang, Sheng Ma, and Yang Guo, "A Dynamic and Proactive GPU Preemption Mechanism using Checkpointing," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, Vol.39(1):75-87, 2020.

[J-13] TKDE   Shuai Ding, Zijie Yue, Shanlin Yang, Feng Niu, and Youtao Zhang, "A Novel Trust Model based Overlapping Community Detection Algorithm for Social Networks," *IEEE Transactions on Knowledge and Data Engineering*, Vol.32(11):2101-2114, 2020.

[J-14] JBHI   Zijie Yue, Shuai Ding, Weidong Zhao, Hao Wang, Jie Ma, Youtao Zhang, Yanchun Zhang, "Automatic CIN Grades Prediction of Sequential Cervigram Image using LSTM with Multistate CNN Features," *IEEE Journal of Biomedical and Health Informatics*, Vol.24(3):844–854,2020.

[J-15] TECS   Zhengguo Chen, Quan Deng, Nong Xiao, Kirk Pruhs, and Youtao Zhang, "DWMAcc: Accelerating Shift-based CNNs with Domain Wall Memories," *ACM Transactions on Embedded Computing Systems*, Special issue of ESWEEK'2019, International Conference on Hardware/Software Codesign and System Synthesis, Vol.18(5s):69:1-69:19, 2019.

[J-16] IEEE Micro   Mimi Xie, Cheng Pan, Yongpan Liu, Youtao Zhang, Chun Jason Xue, Jingtong Hu, "A Novel STT-RAM-based Hybrid Cache for Intermittently Powered Processors in IoT Devices," *IEEE Micro*, Vol.39(1):24–32, 2019.

[J-17] TCAD   Jinhua Cui, Youtao Zhang, Liang Shi, Chun Jason Xue, Weiguo Wu, and Jun Yang, "Approx-FTL: On the Performance and Lifetime Improvement of 3D NAND Flash based SSDs," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, Vol.37(10):1957-1970, 2018.

[J-18] TCAD   Jinhua Cui, Youtao Zhang, Weiguo Wu, Jun Yang, Yinfeng Wang, and Jianhang Huang, "DLV: Exploiting Device Level Latency Variations for Performance Improvement on Flash Memory Storage Systems," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, Vol.37(8): 1546-1559, August 2018.

[J-19] IJPR   Hao Wang, Shuai Ding, Desheng Wu, Youtao Zhang, Shanlin Yang, "Smart Connected Electronic Gastroscope System for Gastric Cancer Screening using Multi-column Convolutional Neural Networks," *International Journal of Production Research*, April 2018.

[J-20] DSS   Shuai Ding, Yeqing Li, Desheng Wu, Youtao Zhang, and Shanlin Yang, "Time-aware Cloud Service Recommendation using Similarity-enhanced Collaborative Filtering and ARIMA Model," *Elsevier, Decision Support Systems*, Vol. 107(3), pages 103-115, 2018.

[J-21] CAL   Rujia Wang, Sparsh Mittal, Youtao Zhang, and Jun Yang, "Decongest: Accelerating Super-Dense PCM under Write Disturbance by Hot Page Remapping," *IEEE Computer Architecture Letters*, Vol. 16(2), pages 107-110, 2017.

[J-22] DSS   Shuai Ding, Chengyi Xia, Chengjiang Wang, Desheng Wu, and Youtao Zhang, "Multi-objective Optimization based Ranking Prediction for Cloud Service Recommendation," *Elsevier, Decision Support Systems*, pages 106–114, Vol. 101, September 2017.

[J-23] MICPRO   Wen Wen, Jun Yang, and Youtao Zhang, "Optimizing Power Efficiency for 3D Stacked GPU-In-Memory Architecture," *Elsevier Microprocessors and Microsystems: Embedded Hardware Design*, Vol. 49: 44-53, 2017.

[J-24] TODAES   Xianwei Zhang, Youtao Zhang, Bruce R. Childers, and Jun Yang, "On the Restore Time Variations of Future DRAM Memory," *IEEE Transactions on Design Automation of Electronic Systems*, Vol. 22(2), 26:1-26:24, 2017.

[J-25] CAL   Zhenning Wang, Jun Yang, Rami Melhem, Bruce R. Childers, Youtao Zhang, and Minyi Guo, "Simultaneous Multikernel: Fine-grained Sharing of GPUs," *IEEE Computer Architecture Letters*, pages 113-116, Vol. 15(2), 2016.

[J-26] TODAES   Lei Jiang, Bo Zhao, Jun Yang, and Youtao Zhang, "Constructing Large and Fast On-chip Cache for Mobile Processors with Multi-Level Cell STT-MRAM Technology," *IEEE Transactions on Design Automation of Electronic Systems*, Vol. 20(4), 54:1-54:24, 2015.

[J-27] TOPC   Yi Xu, Bo Zhao, Jun Yang, and Youtao Zhang, "Simple Virtual Channel Allocation for High Throughput and High Frequency On-Chip Routers," *ACM Transactions on Parallel Computing*, pages 6:1–6:23, Vol. 2(1), 2015.

[J-28] TCAD   Mengying Zhao, Lei Jiang, Liang Shi, Youtao Zhang and Chun Jason Xue, "Wear Relief for High-density Phase Change Memory through Cell Morphing Considering Process Variation," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, pages 227-237, Vol. 34(2), 2015.

[J-29] TC   Ping Zhou, Bo Zhao, Youtao Zhang, and Jun Yang, "Throughput Enhancement for Phase Change Memories," *IEEE Transactions on Computers*, Vol. 63(8), 2080-2093, 2014.

[J-30] KBS   Shuai Ding, Shanlin Yang, Youtao Zhang, Chang-yong Liang, Chenyi Xia, "Combining QoS Prediction and Customer Satisfaction Estimation to Solve Cloud Service Trustworthiness Evaluation Problems," *Elsevier Journal, Knowledge Based Systems*, Vol. 56, 216-225, 2014.

[J-31] TODAES   Bo Zhao, Jun Yang, Youtao Zhang, Yiran Chen, and Hai Li, "Architecting a Common-Source-Line Array for Bipolar Non-Volatile Memory Devices," *IEEE Transactions on Design Automation of Electronic Systems*, Vol. 18(4), 2013.

[J-32] TC   Bo Zhao, Yu Du, Jun Yang, and Youtao Zhang, "Process Variation Aware Non-Uniform Cache Management in 3D Die Stacked Multicore Processor," *IEEE Transactions on Computers*, Vol. 62(11), 2252-2265, 2013.

[J-33] TACO   Lei Jiang, Yu Du, Bo Zhao, Youtao Zhang, Bruce R. Childers, and Jun Yang, "Hardware Assisted Cooperative Integration of Wear-Leveling and Salvaging for Phase Change Memory, " *ACM Transactions on Architecture and Code Optimization*, Vol. 10(2), May 2013.

[J-34] JSA   Yang Zhao, Youtao Zhang, Zhiguang Qin, Taieb Znati, "A Co-commitment based Secure Data Collection Scheme for Tiered Wireless Sensor Networks," *Journal of System Architecture*, Vol. 57(6), pages 655–662, 2011.

[J-35] JPDC   Jun Yang, Lan Gao, Youtao Zhang, Marek Chrobak, and Hsien-Hsin S Lee, "A Low-cost Memory Remapping Scheme for Address Bus Protection," *Journal of Parallel and Distributed Computing*, Vol. 70(5), pages 443–457, 2010.

[J-36] TACO   Xiuyi Zhou, Jun Yang, Marek Chrobak, and Youtao Zhang, "Performance-aware thermal management via task scheduling," *ACM Transactions on Architecture and Code Optimization*, Vol. 7(1), pages 5:1–5:31, 2010.

[J-37] WINET   Youtao Zhang, Jun Yang, Hai T. Vu, and Yizhi Wu, "The Design and Evaluation of Interleaved Authentication for Filtering False Reports in Multipath Routing WSNs," *Wireless Networks*, Springer, Vol. 16(1), pages 125–140, 2010.

[J-38] TPDS   Xiuyi Zhou, Jun Yang, Yi Xu, Youtao Zhang, Jianhua Zhao, "Thermal-Aware Task Scheduling for 3D Multicore Processors," *IEEE Transactions on Parallel and Distributed Systems*, Vol. 21(1), pages 60–71, 2010.

[J-39] IEEE Micro   Benjamin C. Lee, Ping Zhou, Doug Burger, Engin Ipek, Onur Mutlu, Jun Yang, Youtao Zhang, and Bo Zhao, "Phase Change Technology and the Future of Main Memory (tentative title)," *IEEE Micro, Special Issue:* **Micro's Top Picks** *from 2009 Computer Architecture Conferences (MICRO TOP PICKS)*, Vol. 30(1), January/February 2010.

[J-40] JNCA   Youtao Zhang, Jun Yang, Weijia Li, Linzhang Wang, and Lingling Jin, "An Authentication Scheme for Locating Compromised Sensor Nodes in WSNs," *Journal of Network and Computer Applications*, Elsevier, Vol 33(1), pages 50–62, 2010.

[J-41] TACO   Weijia Li, Youtao Zhang, Jun Yang, and Jiang Zheng, "Towards Update-Conscious Compilation for Energy-Efficient Code Dissemination in WSNs," *ACM Transactions on Architecture and Code Optimization*, Vol. 6(4), 2009.

[J-42] JCEE   Youtao Zhang, Jun Yang, and Lan Gao, "Supporting Flexible Streaming Media Protection through Privacy-aware Secure Processors," a special issue on Circuits and Systems for Real-Time Security and Copyright Protection of Multimedia, *Journal of Computers and Electrical Engineering*, Elsevier, Vol. 35(2), pages 286–299, 2009.

[J-43] JSS   Yongjing Lin, Youtao Zhang, and Rajiv Gupta, "The Design and Evaluation of Path Matching Schemes on Compressed Control Flow Traces", *Journal of Systems and Software*, Elsevier, Vol. 80(3), pages 396–409, 2007.

[J-44] SP&E   Youtao Zhang and Rajiv Gupta, "Compressing Heap Data for Improved Memory Performance," *Software Practice & Experience*, Vol. 36(10), pages 1081–1111, 2006.

[J-45] TC   Jun Yang, Lan Gao, and Youtao Zhang, "Improving Memory Encryption Performance in Secure Processors," *IEEE Transactions on Computers*, Vol. 54(5), pages 630–640, 2005. **Featured in MIT Technology Review, July 2005**.

[J-46] JSA   Jun Yang, Jia Yu, and Youtao Zhang, "A Low Energy Cache Design for Multimedia Applications Exploiting Set Access Locality," *Journal of Systems Architecture*, Elsevier, Vol. 51(10–11), pages 653-664, 2005.

[J-47] TOPLAS   Xiangyu Zhang, Rajiv Gupta, and Youtao Zhang, "Cost and Precision Tradeoffs of Dynamic Slicing Algorithms," *ACM Transactions on Programming Languages and Systems*, Vol. 27(4), pages 631–661, 2005.

[J-48] JEC   Youtao Zhang and Jun Yang, "Reducing I-cache Energy of Multimedia Applications through LowCost Tag Comparison Elimination," *Journal of Embedded Computing*, IOS Press, Vol. 1(4), pages 461–470, 2005.

[J-49] IJHPCN   Zili Shao, Qingfeng Zhuge, Youtao Zhang, Edwin H.-M. Sha, "Algorithms and Analysis of Scheduling for Low-Power High-Performance DSP on VLIW Processors," *International Journal of High Performance Computing and Networking*, Vol. 1, pages 3–16, 2004.

CONFERENCE PUBLICATIONS

[C-1] HPCA   Mehrnoosh Raoufi, Jun Yang, Xulong Tang, and Youtao Zhang, "AB-ORAM: Constructing Adjustable Buckets for Space Reduction in Ring ORAM," *IEEE the 29th International Symposium on High-Performance Computer Architecture*, Montreal, QC, Canada, February 2023. (acceptance rate = 91/364 = 25%).

[C-2] HPCA	Yue Dai, Youtao Zhang, and Xulong Tang, "CEGMA: Coordinated Elastic Graph Matching Acceleration for Graph Matching Networks," *IEEE the 29th International Symposium on High-Performance Computer Architecture*, Montreal, QC, Canada, February 2023. (acceptance rate = 91/364 = 25%).
[C-3] HPCA	Bingyao Li, Jieming Yin, Anup Holey, Youtao Zhang, Jun Yang, and Xulong Tang, "Trans-FW: Short Circuiting Page Table Walk in Multi-GPU Systems via Remote Forwarding," *IEEE the 29th International Symposium on High-Performance Computer Architecture*, Montreal, QC, Canada, February 2023. (acceptance rate = 91/364 = 25%).
[C-4] HPCA	Yina Lv, Liang Shi, Qiao Li, Congming Gao, Yunpeng Song, Longfei Luo, and Youtao Zhang, "MGC: Multiple-Gray-Code for 3D NAND Flash based High-Density SSDs," *IEEE the 29th International Symposium on High-Performance Computer Architecture*, Montreal, QC, Canada, February 2023. (acceptance rate = 91/364 = 25%).
[C-5] MICRO	Yanan Guo, Xin Xin, Youtao Zhang, and Jun Yang, "Leaky Way: A Conflict-Based Cache Covert Channel Bypassing Set Associativity," *The 55th IEEE/ACM International Symposium on Microarchitecture*, Chicago, October 2022.
[C-6] ISVLSI	Lei Zhao, Youtao Zhang, and Jun Yang, "A DNN Protection Solution for PIM Accelerators With Model Compression," *IEEE Computer Society Annual Symposium on VLSI*, Nicosia, Cyprus, July 2022.
[C-7] DAC	Lei Zhao, Youtao Zhang, and Jun Yang, "SRA: A Secure ReRAM-based DNN Accelerator," *The 59th ACM/IEEE Design Automation Conference*, San Francisco, July 2022.
[C-8] S&P	Yanan Guo, Andrew Zigerelli, Youtao Zhang, and Jun Yang, "Adversarial Prefetch: New Cross-Core Cache Side Channel Attacks," *The 43rd IEEE Symposium on Security and Privacy*, San Francisco, May 2022. (acceptance rate = 147/1012 =15%).
[C-9] HPCA	Mehrnoosh Raoufi, Youtao Zhang, and Jun Yang, "IR-ORAM: Path Access Type based Memory Intensity Reduction for Path ORAM," *IEEE the 28th International Symposium on High-Performance Computer Architecture*, Seoul, South Korea, February 2022. (acceptance rate = 80/262 =24%).
[C-10] HPCA	Yilun Zhao, Yanan Guo, Yuan Yao, Amanda Dumi, Devin M Mulvey, Shiv Upadhyay, Youtao Zhang, Kenneth D Jordan, Jun Yang, and Xulong Tang, "Q-GPU: A Recipe of Optimizations for Quantum Circuit Simulation Using GPUs," *IEEE the 28th International Symposium on High-Performance Computer Architecture*, Seoul, South Korea, February 2022. (acceptance rate = 80/262 =24%).
[C-11] HPCA	Han Zhao, Weihao Cui, Quan Chen, Youtao Zhang, Yanchao Lu, Chao Li, Jingwen Leng, and Minyi Guo, "Tacker: Tensor-CUDA Core Kernel Fusion for Improving the GPU Utilization while Ensuring QoS," *IEEE the 28th International Symposium on High-Performance Computer Architecture*, Seoul, South Korea, February 2022. (acceptance rate = 80/262 =24%).
[C-12] MICRO	Xin Xin, Yanan, Youtao Zhang, and Jun Yang, "SAM: Accelerating Strided Memory Accesses," *The 54nd IEEE/ACM International Symposium on Microarchitecture*, October 2021.
[C-13] MICRO	Congming Gao, Xin Xin, Youyou Lu, Youtao Zhang, Jun Yang and Jiwu Shu, "ParaBit: Processing Parallel Bitwise Operations in NAND Flash Memory based SSDs," *The 54nd IEEE/ACM International Symposium on Microarchitecture*, October 2021.
[C-14] MICRO	Bingyao Li Jieming Yin, Youtao Zhang, and Xulong Tang, "Improving Address Translation in Multi-GPUs via Sharing and Spilling aware TLB Design," *The 54nd IEEE/ACM International Symposium on Microarchitecture*, October 2021.
[C-15] MICRO	Fei Hua, Yanhao Chen, Yuwei Jin, Chi Zhang, Ari Hayes, Youtao Zhang, and Eddy Z. Zhang, "AutoBraid: A Framework for Enabling Efficient Surface Communication in Quantum Computing," *The 54nd IEEE/ACM International Symposium on Microarchitecture*, October 2021.
[C-16] ICCAD	Weizheng Xu, Ashutosh Pattnaik, Geng Yuan, Yanzhi Wang, Youtao Zhang, and Xulong Tang, "ScaleDNN: Data Movement Aware DNN Training on Multi-GPU," *IEEE/ACM International Conference on Computer-Aided Design*, November 2021.

[C-17] ICCD   Lei Zhao, Youtao Zhang, and Jun Yang, "Flipping Bits to Share Crossbars in ReRAM-Based DNN Accelerator," *The 39th IEEE International Conference on Computer Design*, October 2021.

[C-18] ICCD   Yanan Guo, Liang Liu, Yueqiang Cheng, Youtao Zhang, and Jun Yang, "ModelShield: A Generic and Portable Framework Extension for Defending Bit-Flip based Adversarial Weight Attacks," *The 39th IEEE International Conference on Computer Design*, October 2021.

[C-19] GLVLSI   Yanan Guo, Andrew Zigerelli, Youtao Zhang, and Jun Yang, "IVcache: Defending Cache Side Channel Attacks via Invisible Accesses," *ACM Great Lakes Symposium on VLSI*, pages 403-408, 2021.

[C-20] SEED   Yanan Guo, Andrew Zigerelli, Yueqiang Cheng, Youtao Zhang, and Jun Yang, "Performance-Enhanced Integrity Verification for Large Memories," *IEEE International Symposium on Secure and Private Execution Environment Design*, 2021.

[C-21] ICCAD   Wen Wen, Youtao Zhang, and Jun Yang, "Accelerating 3D Vertical Resistive Memories with Opportunistic Write Latency Reduction," *IEEE/ACM International Conference on Computer-Aided Design*, November 2020.

[C-22] DAC   Lei Zhao, Youtao Zhang, and Jun Yang, "SCA: A Secure CNN Accelerator for Both Training and Inference," *The 57th ACM/IEEE Design Automation Conference*, San Francisco, July 2020.

[C-23] DAC   Xin Xin, Youtao Zhang, and Jun Yang, "Reducing DRAM Access Latency via Helper Rows," *The 57th ACM/IEEE Design Automation Conference*, San Francisco, July 2020.

[C-24] DAC   Shiqiang Nie, Youtao Zhang, Weiguo Wu, and Jun Yang, "Layer RBER Variation Aware Read Performance Optimization for 3D Flash Memories," *The 57th ACM/IEEE Design Automation Conference*, San Francisco, July 2020.

[C-25] HPCA   Xin Xin, Youtao Zhang, and Jun Yang, "ELP2IM: Efficient and Low Power Bitwise Operation Processing in DRAM," *IEEE the 26th International Symposium on High-Performance Computer Architecture*, San Diego, California, February 2020. (acceptance rate = 48/248 =19%).

[C-26] MSST   Zhengguo Chen, Youtao Zhang, and Nong Xiao, "ExtraCC: Improving Performance of Secure NVM with Extra Counters and ECC," *The 35th International Conference on Massive Storage Systems and Technology*, Santa Clara, CA, October 2020.

[C-27] MICRO   Congming Gao, Min Ye, Qiao Li, Chun Jason Xue, Youtao Zhang, Liang Shi, and Jun Yang, "Constructing Large, Durable and Fast SSD System via Reprogramming 3D TLC Flash Memory," *The 52nd IEEE/ACM International Symposium on Microarchitecture*, Columbus, Ohio, October 2019.

[C-28] ICS   Lei Zhao, Quan Deng, Youtao Zhang, and Jun Yang, "RFAcc: A 3D ReRAM Associative Array based Random Forest Accelerator," *International Conference on Supercomputing*, Phoenix, AZ, June 2019. (acceptance rate = 45/193 = 23%).

[C-29] DAC   Quan Deng, Youtao Zhang, Minxuan Zhang, and Jun Yang, "LAcc: Exploiting Lookup Table-based Fast and Accurate Vector Multiplication in DRAM-based CNN Accelerator," *The 56th ACM/IEEE Design Automation Conference*, Las Vegas, NV, June 2019.

[C-30] DAC   Xin Xin, Youtao Zhang, and Jun Yang, "ROC: DRAM-based Processing with Reduced Operation Cycles," *The 56th ACM/IEEE Design Automation Conference*, Las Vegas, NV, June 2019.

[C-31] DAC   Liang Liu, Rujia Wang, Youtao Zhang, and Jun Yang, "H-ORAM: A Cacheable ORAM Interface for Efficient I/O Accesses," *The 56th ACM/IEEE Design Automation Conference*, Las Vegas, NV, June 2019.

[C-32] DAC   Qiao Li, Liang Shi, Jun Yang, Youtao Zhang, and Jason Chun Xue, "Leveraging Approximate data for Robust Flash Storage," *The 56th ACM/IEEE Design Automation Conference*, Las Vegas, NV, June 2019.

[C-33] ASPLOS   Chen Li, Rachata Ausavarungnirun, Christopher J. Rossbach, Youtao Zhang, Onur Mutlu, Yang Guo, and Jun Yang, "A Framework for Memory Oversubscription Management in Graphics Processing Units," *The 24th International Conference on Architectural Support for Programming Languages and Operating Systems*, Providence, RI, April 2019. (acceptance rate = 74/350 = 21%).

[C-34] ICCD   Wen Wen, Youtao Zhang, and Jun Yang, "ReNEW: Enhancing Lifetime for ReRAM Crossbar based Neural Network Accelerators," *The 37th IEEE International Conference on Computer Design*, Abu Dhabi, UAE, November 2019. (acceptance rate = 23.8%).

[C-35] ASP-DAC   Xianwei Zhang, Rujia Wang, Youtao Zhang, and Jun Yang, "Boosting Chipkill Capability under Retention-Error Induced Reliability Emergency," *The 24th Asia and South Pacific Design Automation Conference*, Japan, January 2019.

[C-36] ISVLSI   Mehrnoosh Raoufi, Quan Deng, Youtao Zhang, and Jun Yang, "PageCmp: Bandwidth Efficient Page Deduplication through In-memory Page Comparison," *IEEE Computer Society Annual Symposium on VLSI*, Miami, FL, July 2019.

[C-37] NVMSA   Shiqiang Nie, Youtao Zhang, Weiguo Wu, Chi Zhang and Jun Yang, "DIR: Dynamic Request Interleaving for Improving the Read Performance of Aged SSDs," *The 8th Non-Volatile Memory Systems and Applications Symposium*, Hangzhou, China, August 2019.

[C-38] MSST   Congming Gao, Liang Shi, Jason Chun Xue, Jun Yang and Youtao Zhang, "Parallel all the time: Plane Level Parallelism Exploration for High Performance SSD," *The 35th International Conference on Massive Storage Systems and Technology*, Santa Clara, CA, May 2019.

[C-39] HPCA   Rujia Wang, Youtao Zhang, and Jun Yang, "D-ORAM: Path-ORAM Delegation for Low Execution Interference on Cloud Servers with Untrusted Memory," *IEEE the 24th International Symposium on High-Performance Computer Architecture*, Vienna, Austria, February 2018. (acceptance rate = 54/260 =21%).

[C-40] DAC   Wen Wen, Youtao Zhang, and Jun Yang, "Wear Leveling for Crossbar Resistive Memory," *The 55th ACM/IEEE Design Automation Conference*, San Francisco, CA, June 2018. (acceptance rate = 168/591 =24.3%).

[C-41] DAC   Quan Deng, Lei Jiang, Youtao Zhang, Minxuan Zhang, and Jun Yang, "DrAcc: A DRAM based Accelerator for Accurate CNN Inference," *The 55th ACM/IEEE Design Automation Conference*, San Francisco, CA, June 2018. (acceptance rate = 168/591 =24.3%).

[C-42] ISLPED   Tyler Garrett, Jun Yang and Youtao Zhang, "Enabling Intra-Plane Parallel Block Erase in NAND Flash to Alleviate the Impact of Garbage Collection," *ACM/IEEE International Symposium on Low Power Electronics and Design*, Bellevue, Washington, July 2018. (acceptance rate = 23.3%).

[C-43] DATE   Jinhua Cui, Youtao Zhang, Jianhang Huang, Weiguo Wu and Jun Yang, "ShadowGC: Cooperative Garbage Collection with Multi-level Buffer for Performance Improvement in NAND flash-based SSDs," *The IEEE conference on Design, Automation and Test in Europe*, Dresden, Germany, March 2018. (acceptance rate = 23.7%).

[C-44] ISCA   Zhenning Wang, Jun Yang, Rami Melhem, Bruce R. Childers, Youtao Zhang, and Minyi Guo, "Quality of Service Support for Fine-Grained Sharing on GPUs," *The 44th International Symposium on Computer Architecture*, Toronto, ON, Canada, 2017. (acceptance rate = 54/322 = 17%).

[C-45] HPCA   Rujia Wang, Youtao Zhang, and Jun Yang, "Cooperative Path-ORAM for Effective Memory Bandwidth Sharing in Server Settings," *IEEE the 23rd International Symposium on High-Performance Computer Architecture*, Austin, TX, February 2017. (acceptance rate = 50/224 = 22%).

[C-46] PACT   Xianwei Zhang, Youtao Zhang, Bruce R. Childers, and Jun Yang, "DrMP: Mixed Precision-aware DRAM for High Performance Approximate and Precise Computing," *IEEE the 26th International Symposium on Parallel Architectures and Compilation Techniques*, Portland, Oregon, September 2017. (acceptance rate = 25/108 = 23%).

[C-47] ICCAD   Lei Zhao, Youtao Zhang and Jun Yang, "AEP: An Error-bearing Neural Network Accelerator for Energy Efficiency and Model Protection," *IEEE/ACM International Conference on Computer-Aided Design*, Irvine, CA, November 2017. (acceptance rate = 105/399 = 26%).

[C-48] ICCAD   Quan Deng, Youtao Zhang, Minxuan Zhang and Jun Yang, "Towards Warp-Scheduling Friendly STT-MRAM/SRAM Hybrid GPGPU Register File Design," *IEEE/ACM International Conference on Computer-Aided Design*, Irvine, CA, November 2017. (acceptance rate = 105/399 = 26%).

[C-49] ICCAD   Wen Wen, Lei Zhao, Youtao Zhang and Jun Yang, "Speeding Up Crossbar Resistive Memory by Exploiting In-memory Data Patterns," *IEEE/ACM International Conference on Computer-Aided Design*, Irvine, CA, November 2017. (acceptance rate = 105/399 = 26%).

[C-50] ISQED   Lei Zhao, Lei Jiang, Youtao Zhang, Nong Xiao, and Jun Yang, "Constructing Fast and Energy Efficient 1TnR based ReRAM Crossbar Memory," *IEEE the 18th International Symposium on Quality Electronic Design*, Santa Clara, March 2017. **Nominated for best paper award.**

[C-51] ICCD   Wen Wen, Youtao Zhang, and Jun Yang, "Read Error Resilient MLC STT-MRAM based Last Level Cache," *The 35th IEEE International Conference on Computer Design*, Boston, Massachusetts, November 2017. (acceptance rate = 75/258 = 29%).

[C-52] NVMSA   Lei Zhao, Youtao Zhang, and Jun Yang, "Mitigating Shift-Based Covert-Channel Attacks in Racetrack Last Level Caches," *The 6th Non-Volatile Memory Systems and Applications Symposium*, Hsinchu, Taiwan, August 2017.

[C-53] CODES + ISSS   Mimi Xie, Mengying Zhao, Hehe Li, Chen Pan, Youtao Zhang, Yongpan Liu, Jason Xue, and Jingtong Hu, "Checkpoint Aware Hybrid Cache Architecture for NV Processor in Energy Harvesting Powered Systems," *The International Conference on Hardware/Software Codesign and System Synthesis*, Pittsburgh, October 2016.

[C-54] NVMSA   Chi Zhang, Wonsun Ahn, Youtao Zhang, and Bruce R. Childers, "Live Code Update for IoT Devices in Energy Harvesting Environments," *The 5th Non-Volatile Memory Systems and Applications Symposium*, Daegu, Korea, August 2016.

[C-55] DSN   Rujia Wang, Youtao Zhang, and Jun Yang, "ReadDuo: Constructing Reliable MLC Phase Change Memory through Fast and Robust Readout," *The 46th Annual IEEE/IFIP International Conference on Dependable Systems and Networks*, Toulouse, France, June 2016. (acceptance rate = 58/259 = 22.4%).

[C-56] HPCA   Xianwei Zhang, Youtao Zhang, Bruce R. Childers, and Jun Yang, "Restore Truncation for Performance Improvement in Future DRAM Systems," *IEEE the 22nd International Symposium on High-Performance Computer Architecture*, Barcelona, Spain, March 2016. (acceptance rate = 53/240 = 22%).

[C-57] HPCA   Zhenning Wang, Jun Yang, Rami Melhem, Bruce R. Childers, Youtao Zhang, and Minyi Guo, "Simultaneous Multikernel GPU: Multi-tasking Throughput Processors via Fine-Grained Sharing," *IEEE the 22nd International Symposium on High-Performance Computer Architecture*, Barcelona, Spain, March 2016. (acceptance rate = 53/240 = 22%).

[C-58] ICCD   Xianwei Zhang, Lei Zhao, Youtao Zhang, and Jun Yang, "Exploit Common Source-Line to Construct Energy Efficient Domain Wall Memory based Caches," *The 33rd IEEE International Conference on Computer Design*, New York City, October 2015. (acceptance rate = 83/269 = 31%).

[C-59] ICCD   Xianwei Zhang, Youtao Zhang, and Jun Yang, "DLB: Dynamic Lane Borrowing for Improving Bandwidth and Performance in Hybrid Memory Cube," *The 33rd IEEE International Conference on Computer Design*, New York City, October 2015. (acceptance rate = 83/269 = 31%).

[C-60] ICCD   Xianwei Zhang, Youtao Zhang, and Jun Yang, "TriState-SET: Proactive SET for Improved Performance of MLC Phase Change Memories," *The 33rd IEEE International Conference on Computer Design*, New York City, October 2015. (acceptance rate = 83/269 = 31%).

[C-61] MEMSYS   Bruce R. Childers, Jun Yang, and Youtao Zhang, "Achieving Yield, Density and Performance Effective DRAM at Extreme Technology Sizes," *International Symposium on Memory Systems*, Washington, DC, October 2015.

[C-62] DAC   Rujia Wang, Lei Jiang, Youtao Zhang, Linzhang Wang, and Jun Yang, "Selective Restore: an Energy Efficient Read Disturbance Mitigation Scheme for Future STT-MRAM," *The 52nd ACM/IEEE Design Automation Conference*, San Francisco, CA, June 2015. (acceptance rate = 162/789 = 21%).

[C-63] DAC   Rujia Wang, Lei Jiang, Youtao Zhang, Linzhang Wang, and Jun Yang, "Exploit Imbalanced Cell Writes to Mitigate Write Disturbance in Dense Phase Change Memory," *The 52nd ACM/IEEE Design Automation Conference*, San Francisco, CA, June 2015. (acceptance rate = 162/789 = 21%).

[C-64] ASPLOS   Rujia Wang, Lei Jiang, Youtao Zhang, and Jun Yang, "SD-PCM: Constructing Reliable Super Dense Phase Change Memory under Write Disturbance," *The 20th International Conference on Architectural Support for Programming Languages and Operating Systems*, Istanbul, Turkey, March 2015. (acceptance rate = 48/287 = 17%).

[C-65] DATE   Xianwei Zhang, Youtao Zhang, Bruce Childers, and Jun Yang, "Exploiting DRAM Restore Time Variations in Deep Sub-micron Scaling," *The IEEE conference on Design, Automation and Test in Europe*, Grenoble, France, March 2015. (acceptance rate = 25%).

[C-66] HPCC   Yizhi Wu, and Youtao Zhang, "GA based Placement Optimization for Hybrid Distributed Storage," *The IEEE 17th International Conference on High Performance Computing and Communications*, New York, August 2015.

[C-67] CLUSTER   Yimo Du, Youtao Zhang, Nong Xiao, and Fang Liu, "CD-RAIS: Constrained dynamic striping in redundant array of independent SSDs," *The 2014 IEEE International Conference on Cluster Computing*, September 22-26, Madrid, Spain, 2014.

[C-68] ICPP   Yimo Du, Youtao Zhang, and Nong Xiao, "R-Dedup: Content Aware Redundancy Management for SSD-based RAID Systems," *The 43rd International Conference on Parallel Processing*, Minneapolis, MN, 2014.

[C-69] ISCA   Lei Jiang, Bo Zhao, Youtao Zhang, and Jun Yang, "A Low Power and Reliable Charge Pump Design for Phase Change Memories," *The 41st International Symposium on Computer Architecture*, Minneapolis, MN, 2014. (acceptance rate = 46/258 = 18%).

[C-70] DSN   Lei Jiang, Youtao Zhang, and Jun Yang, "Mitigating Write Disturbance in Super Dense Phase Change Memories," *The 44th Annual IEEE/IFIP International Conference on Dependable Systems and Networks*, San Atlanta, GA, 2014. (acceptance rate = 56/185 = 30%).

[C-71] DAC   Mengying Zhao, Lei Jiang, Youtao Zhang, Chun Jason Xue, "SLC-enabled Wear Leveling for MLC PCM Considering Process Variation," *The 51st ACM/IEEE Design Automation Conference*, San Francisco, CA, June 2014. (acceptance rate = 174/787 = 22.1%).

[C-72] APCIIT   Yizhi Wu, Guo Zhang, Youtao Zhang, "Evolution Algorithm Based PRAM/DRAM Hybrid Memory Allocation Optimization," *The 2013 Asia-Pacific Computational Intelligence and Information Technology Conference*, Shanghai,China, December 2013.

[C-73] ISLPED   Xianwei Zhang, Lei Jiang, Youtao Zhang, Chuanjun Zhang, and Jun Yang, "WoM-SET: Lowering Write Power of Proactive-SET based PCM Write Strategy using WoM Code," *The International Symposium on Low Power Electronics and Design*, Beijing, China, 2013. **Best paper award.** (acceptance rate = 23%).

[C-74] LCTES   Qingan Li, Lei Jiang, Youtao Zhang, Yanxiang He and Chun Xue, "Compiler Directed Write-Mode Selection for High Performance Low Power Volatile PCM," *ACM SIGPLAN/SIGBED Conference on Languages, Compilers and Tools for Embedded Systems*, Seattle, June 2013.

[C-75] NOCS   Bo Zhao, Youtao Zhang, and Jun Yang, "A Speculative Arbiter Design to Enable High-Frequency Many-VC Router in NoCs," *The 7th International Symposium on Networks-on-Chip*, Tempe, Arizona, April 2013.

[C-76] DATE   Jie Guo, Jun Yang, Youtao Zhang, and Yiran Chen, "Low Cost Power Failure Protection For MLC NAND Flash Storage Systems with PRAM/DRAM Hybrid Buffer," *The IEEE conference on Design, Automation and Test in Europe*, Grenoble, France, 2013.

[C-77] MICRO   Lei Jiang, Youtao Zhang, Bruce R. Childers, and Jun Yang, "FPB: Fine-grained Power Budgeting to Improve Write Throughput of Multi-level Cell Phase Change Memory," *The 45th Annual IEEE/ACM International Symposium on Microarchitecture*, Vancouver, BC, Canada, December 2012. (acceptance rate = 40/228 =17.5%).

[C-78] ISLPED   Lei Jiang, Youtao Zhang, and Jun Yang, "ER: Elastic RESET for Low Power and Long Endurance MLC based Phase Change Memory," *The International Symposium on Low Power Electronics and Design*, Redondo Beach, CA, July 2012. **Nominated for best paper award.**

[C-79] DAC   Lei Jiang, Bo Zhao, Youtao Zhang, and Jun Yang, " Constructing Large and Fast Multi-level Cell STT-MRAM based Cache for Embedded Processors," *ACM/IEEE the 49th Design Automation Conference*, San Francisco, CA, June 2012. (acceptance rate = 168/741 =23%).

[C-80] HPCA   Lei Jiang, Bo Zhao, Youtao Zhang, Jun Yang, and Bruce R. Childers, "Improving Write Operations in MLC Phase Change Memory," *IEEE the 18th International Symposium on High-Performance Computer Architecture*, pages 1-10, New Orleans, Louisiana, February 2012. (acceptance rate = 36/210 =17%).

[C-81] ISLPED   Lei Jiang, Youtao Zhang, and Jun Yang, "Enhancing Phase Change Memory Lifetime through Fine-Grained Current Regulation and Voltage Upscaling," *The International Symposium on Low Power Electronics and Design*, pages 127-132, Fukuoka, Japan, August 2011. (acceptance rate = 66/201=22.4%).

[C-82] ICS   Yi Xu, Yu Du, Youtao Zhang, and Jun Yang, "A Composite and Scalable Cache Coherence Protocol for Large Scale CMPs," *The 25th International Conference on Supercomputing*, pages 285–294, Tucson, Arizona, June 2011. (acceptance rate = 35/161 = 21.7%).

[C-83] DSN   Lei Jiang, Yu Du, Youtao Zhang, Bruce R. Childers, and Jun Yang, "LLS: Cooperative Integration of Wear-Leveling and Salvaging for PCM Main Memory," *The 41st Annual IEEE/IFIP International Conference on Dependable Systems and Networks*, Hong Kong, China, June 2011. (DCCS track acceptance rate = 26/148=17.6%).

[C-84] ISPASS   Santiago Bock, Bruce R. Childers, Rami Melhem, Daniel Mosse, and Youtao Zhang, "Analyzing the Impact of Useless Write-backs on Endurance and Energy Consumption of PCM Main Memory," *IEEE International Symposium on Performance Analysis of Systems and Software*, pages 56–65, Austin, Texas , April 2011. (acceptance rate = 24/64 = 37.5%).

[C-85] DATE   Lin Li, Youtao Zhang, and Jun Yang, "Proactive Recovery for BTI in High-k SRAM Cells," *The IEEE conference on Design, Automation and Test in Europe*, pages 1–6, Grenoble, France, 2011. (acceptance rate = 211/781=27%).

[C-86] IPDPS   Ping Zhou, Yu Du, Youtao Zhang, and Jun Yang, "'Fine-Grained QoS Scheduling for PCM-based Main Memory Systems," *IEEE the 24th International Parallel & Distributed Processing Symposium*, Atlanta, Georgia, April 2010. (acceptance rate = 127/527 = 24%).

[C-87] LCTES   Weijia Li, and Youtao Zhang, "An Efficient Code Update Scheme for DSP Applications in Mobile Embedded Systems," *ACM SIGPLAN/SIGBED Conference on Languages, Compilers and Tools for Embedded Systems*, Stockholm, Sweden, April 2010. (acceptance rate = 18/58 = 31%).

[C-88] DATE   Lin Li, Youtao Zhang, Jun Yang, and Jianhua Zhao, "Proactive NBTI Mitigation for Busy Functional Units in Out-of-Order Microprocessors," *The IEEE conference on Design, Automation and Test in Europe*, Dresden, Germany, March 8-12, 2010. (acceptance rate = 26%).

[C-89] HPCA   Yi Xu, Bo Zhao, Youtao Zhang, and Jun Yang, "Simple Virtual Channel Allocation for High Throughput and High Frequency On-Chip Routers," *IEEE the 16th International Symposium on High-Performance Computer Architecture*, Bangalore, India, January 2010. (acceptance rate = 32/175 = 18%).

[C-90] MICRO   Bo Zhao, Yu Du, Youtao Zhang, and Jun Yang, "Variation-Tolerant Non-Uniform 3D Cache Management in Die Stacked Multicore Processor," *The 42nd Annual IEEE/ACM International Symposium on Microarchitecture*, pages 222-231, New York, December 2009. (acceptance rate = 52/210 = 25%).

[C-91] ICCAD   Ping Zhou, Bo Zhao, Jun Yang, and Youtao Zhang, "Energy Reduction for STT-RAM Using Early Write Termination," *IEEE/ACM International Conference on Computer-Aided Design*, pages 264-268, San Jose, CA, November 2009. acceptance rate = 115/438 = 26%).

[C-92] ISCA   Ping Zhou, Bo Zhao, Jun Yang, and Youtao Zhang, "A Durable and Energy Efficient Main Memory Using Phase Change Memory Technology," *The 36th International Symposium on Computer Architecture*, pages 14-23, Austin, Texas, June 2009. (acceptance rate = 43/210 = 20%).

[C-93] RTCSA   Yang Zhao, Youtao Zhang, Zhiguang Qin, and Taieb Znati, "SDC: Secure Data Collection for Time Based Queries in Tiered Wireless Sensor Networks," *The 15th IEEE International Conference on Embedded and Real-Time Computing Systems and Applications*, pages 255-262, Beijing, China, August 2009. (acceptance rate: 39/124=31%).

[C-94] DCOSS   Weijia Li, Youtao Zhang, and Bruce Childers, "MCP: an Energy-Efficient Code Distribution Protocol for Multi-Application WSNs," *The 5th IEEE International Conference on Distributed Computing in Sensor Systems*, LNCS 5516, Springer-Verlag, pages 259-272, Marina Del Rey, California, June 2009. (acceptance rate = 26/116 = 22%).

[C-95] HPCA   Yi Xu, Yu Du, Bo Zhao, Xiuyi Zhou, Youtao Zhang, and Jun Yang, "A Low-Radix and Low-Diameter 3D Interconnection Network Design," *IEEE the 15th International Symposium on High-Performance Computer Architecture*, pages 30–41, Raleigh, North Carolina, 2009. **Nominated for best paper award.** (acceptance rate = 35/184 = 19%).

[C-96] ASPDAC   Ping Zhou, Bo Zhao, Yi Xu, Yu Du, Youtao Zhang, Jun Yang, Li Zhao, "Frequent Value Compression in Packet-based NoC Architecture," *The 14th Asia and South Pacific Design Automation Conference*, Yokohama, Japan, January 2009. (acceptance rate = 116/355 = 33%).

[C-97] EUC   Weijia Li, Yu Du, Youtao Zhang, Bruce Childers, Ping Zhou, Jun Yang, "Adaptive Buffer Management for Efficient Code Dissemination in Multi-Application Wireless Sensor Networks," *International Conference on Embedded and Ubiquitous Computing*, Shanghai, China, 2008. (acceptance rate = 70/233 = 30%).

[C-98] ICPP   Xiuyi Zhou, Yi Xu, Yu Du, Youtao Zhang and Jun Yang, "Thermal Management for 3D Processors via Task Scheduling," *International Conference on Parallel Processing*, Portland, Oregon, September 2008. (acceptance rate = 81/263 = 30%).

[C-99] ISPASS   Jun Yang, Xiuyi Zhou, Marek Chrobak, Youtao Zhang, Lingling Jin, "Dynamic Thermal Management through Task Scheduling," *International Symposium on Performance Analysis of Systems and Software*, April 2008. (acceptance rate = 22/63 = 35%).

[C-100] PLDI   Weijia Li, Youtao Zhang, Jun Yang, and Jiang Zheng, "UCC: Update-conscious Compilation for Energy Efficiency in Wireless Sensor Networks," *ACM SIGPLAN Conference on Programming Language Design and Implementation*, San Diego, California, 2007. (acceptance rate = 45/178 = 25%).

[C-101] MASS   Weijia Li, Youtao Zhang, and Jun Yang, "Dynamic Authentication-Key Re-assignment for Reliable Report Delivery," *The 3rd IEEE International Conference on Mobile Ad-hoc and Sensor Systems*, Vancouver, Canada, October 2006. (acceptance rate = 49/197 = 25%).

[C-102] ICCD   Lingling Jin, Wei Wu, Jun Yang, Chuanjun Zhang, and Youtao Zhang, "Reduce Register Files Leakage Through Discharging Cells," *International Conference on Computer Design*, California, October 2006. (acceptance rate = 45/178 = 25%).

[C-103] PACT   Lan Gao, Jun Yang, Marek Chrobak, Youtao Zhang, San Nguyen, Hsien-Hsin Lee, "A Low-cost Memory Remapping Scheme for Address Bus Protection," *The 15th International Conference on Parallel Architectures and Compilation Techniques*, Seattle, Washington, September 2006. (acceptance rate = 30/117 = 26%).

[C-104] DCOSS   Youtao Zhang, Jun Yang, Lingling Jin, and Weijia Li, "Locating Compromised Sensor Nodes through Incremental Hashing Authentication," *IEEE International Conference on Distributed Computing in Sensor Systems*, San Francisco, June 2006. (acceptance rate = 33/87 = 38%).

[C-105] IPDPS   Youtao Zhang, Jun Yang, and Hai T Vu, "The Interleaved Authentication for Filtering False Reports in Multipath Routing based Sensor Networks," *IEEE 20th International Parallel and Distributed Processing Symposium*, Rhodes Island, Greece, April 2006. (acceptance rate = 125/531 = 24%).

[C-106] HPCA   Weidong Shi, Joshua B. Fryman, Guofei Gu, Hsien-Hsin S. Lee, Youtao Zhang, and Jun Yang, "InfoShield: A Security Architecture for Protecting Information Usage in Memory," *IEEE 12th International Symposium on High-Performance Computer Architecture*, Austin, TX, February 2006. (acceptance rate = 26/172 = 15%).

[C-107] HPCA   Youtao Zhang, Lan Gao, Jun Yang, Xiangyu Zhang, and Rajiv Gupta, "SENSS: Security Enhancement to Symmetric Shared Memory Multiprocessors," *IEEE 11th International Symposium on High Performance Computer Architecture*, San Francisco, California, February 2005. (acceptance rate = 28/181 = 15%).

[C-108] SAC   Yongjing Lin, Youtao Zhang, Quanzhong Li, and Jun Yang, "Supporting Efficient Query Processing on Compressed XML Files," *ACM The 20th Annual Symposium on Applied Computing*, Santa Fe, New Mexico, March, 2005. (acceptance rate = 278/764 = 36%).

[C-109] DCC   Yongjing Lin, and Youtao Zhang, "Performance Comparison of Path Matching Algorithms over Compressed Control Flow Traces," *IEEE Data Compression Conference*, Snowbird, Utah, March 2005. (acceptance rate = n/a).

[C-110] ICESS   Lingling Jin, Wei Wu, Jun Yang, Chuanjun Zhang, and Youtao Zhang, "Dynamic Co-allocation of Level One Caches," *The Second International Conference on Embedded Software and Systems*, pages 373-385, Xi'an, China 2005. (acceptance rate = 68/361 = 19%).

[C-111] ICSE   Xiangyu Zhang, Rajiv Gupta, and Youtao Zhang, "Efficient Forward Computation of Dynamic Slices Using Reduced Ordered Binary Decision Diagrams," *IEEE/ACM International Conference on Software Engineering*, Edinburgh, UK, May 2004. (acceptance rate = 58/436 = 13%).

[C-112] ICPADS   Guodong Li, Youtao Zhang, Yongjing Lin, Yaochun Huang, "Scalable Duplication Strategy with Bounded Availability of Processors," *IEEE The Tenth International Conference on Parallel and Distributed Systems*, Newport Beach, California, July 2004. (acceptance rate = 65/292 = 22%).

[C-113] MICRO   Jun Yang, Youtao Zhang and Lan Gao, "Fast Secure Processor for Inhibiting Software Piracy and Tampering," *IEEE/ACM 36th International Symposium on Microarchitecture*, pages 351-360, San Diego, December 2003. (acceptance rate = 35/134 = 26%).

[C-114] ICPP   Youtao Zhang and Rajiv Gupta, "Enabling Partial Cache Line Prefetching Through Data Compression," *International Conference on Parallel Processing*, pages 277-285, Kaohsiung, Taiwan, October 2003. (acceptance rate = 69/192 = 36%). **ICPP 2003 Most Original Paper Award**.

[C-115] ICPP   Youtao Zhang and Jun Yang, "Procedural Level Address Offset Assignment of DSP Applications with Loops," *International Conference on Parallel Processing*, pages 21-28, Kaohsiung, Taiwan, October 2003. (acceptance rate = 69/192 = 36%).

[C-116] ICSE   Xiangyu Zhang, Rajiv Gupta, and Youtao Zhang, "Precise Dynamic Slicing Algorithms," *IEEE/ACM International Conference on Software Engineering*, pages 319-329, Portland, Oregon, May 2003. (acceptance rate = 42/324 = 13%). **ICSE 2003 Distinguished Paper Award**.

[C-117] ISLPED   Youtao Zhang and Jun Yang, "Low Cost Instruction Cache Designs for Tag Comparison Elimination," *ACM/IEEE International Symposium on Low Power Electronics and Design*, pages 266-269, Seoul, Korea, August 2003. (acceptance rate = 90/221 = 41%).

[C-118] ISLPED   Jun Yang, Jia Yu, and Youtao Zhang, "Lightweight Set Buffer: Low Power Data Cache for Multimedia Applications," *ACM/IEEE International Symposium on Low Power Electronics and Design*, pages 270-273, Seoul, Korea, August 2003. (acceptance rate = 90/221 = 41%).

[C-119] CC	Youtao Zhang and Rajiv Gupta, "Data Compression Transformations for Dynamically Allocated Data Structures," *International Conference on Compiler Construction*, LNCS 2304, Springer Verlag, pages 14-28, Grenoble, France, April 2002. (acceptance rate = 18/44 = 41%).
[C-120] CC	Rajiv Gupta, Eduard Mehofer, and Youtao Zhang, "A Representation for Bit Section based Analysis and Optimization," *International Conference on Compiler Construction*, LNCS 2304, Springer Verlag, pages 62-77, France, April 2002. (acceptance rate = 18/44 = 41%).
[C-121] DCC	Youtao Zhang and Rajiv Gupta, "Path Matching in Compressed Control Flow Traces," *IEEE Data Compression Conference*, pages 132-141, Snowbird, Utah, April 2002. (acceptance rate = n/a).
[C-122] PLDI	Youtao Zhang and Rajiv Gupta, "Timestamped Whole Program Path Representation and its Applications," *ACM SIGPLAN Conference on Programming Language Design and Implementation*, pages 180–190, Snowbird, Utah, June 2001. (acceptance rate = 30/144 = 21%).
[C-123] MICRO	Jun Yang, Youtao Zhang, and Rajiv Gupta, "Frequent Value Compression in Data Caches," *IEEE/ACM 33rd International Symposium on Microarchitecture*, pages 258–265, Monterey, CA, December 2000. (acceptance rate = 31/110 = 28%).
[C-124] ASPLOS	Youtao Zhang, Jun Yang, and Rajiv Gupta, "Frequent Value Locality and Value-Centric Data Cache Design," *ACM 9th International Conference on Architectural Support for Programming Languages and Operating Systems*, pages 150-159, Cambridge, MA, November 2000. (acceptance rate = 24/114 = 21%).

BOOK CHAPTERS

[B-1] JW&S	Youtao Zhang, Rajiv Gupta, "Enabling Partial Cache Line Prefetching Through Data Compression," *High-Performance Computing: Paradigm and Infrastructure*, pages 183-200, John Wiley & Sons, Inc., October 2005.
[B-2] CRC	Rajiv Gupta, Eduard Mehofer and Youtao Zhang, "Profile Guided Code Optimizations," *The Compiler Design Handbook: Optimizations and Machine Code Generation, Chapter 4*, CRC Press, September 2002.

PATENT

[P-1]	Youtao Zhang, Lei Zhao, Jun Yang, and Shuai Ding. System and method of deploying an artificial neural network on a target device. United States Patent 11531877. Publication data: 12/20/2022.

GRANTS

[1] NSF/Intel, PI, (co-PIs: Prof. Xulong Tang, and Prof. Jun Yang, University of Pittsburgh), $390,000, "FoMR: A Software and Hardware Codesign for Addressing the Performance Bottlenecks in Secure NVM ," 8/1/2020-7/30/2023.

[2] NSF, PI, (co-PI: Prof. Jun Yang, University of Pittsburgh), $499,972, "SHF: Small: Architectural Support for Securing Deep Neural Networks," 10/1/2019-9/30/2022.

[3] NSF, co-PI, (PI: Prof. Jun Yang, University of Pittsburgh), $400,000, "SHF: Small: Approximate-Computing Enabled Robust 3D NAND Flash Memories," 7/1/2017-6/30/2020.

[4] NSF, co-PI, (PI: Prof. Jun Yang, University of Pittsburgh), $450,000, "SHF: Small: Architectural Support for Reliable ReRAM Crossbar Memory," 7/1/2016-6/30/2019.

[5] NSF, co-PI, (PI: Prof. Kirk Pruhs, University of Pittsburgh), $399,910, "AitF: EXPL: Data Management in Domain Wall Memory-based Scratchpad for High Performance Mobile Devices," 9/1/2015-8/31/2018.

[6] NSF, co-PI, (PI: Prof. Jun Yang, other co-PI: Prof. Bruce R. Childers, University of Pittsburgh), $473,999, "SHF: Small: A Brick in the Wall: Achieving Yield, Performance and Density Effective DRAM Beyond 22nm Technology," 7/15/2014-7/14/2017.

[7] NSF, co-PI, (PI: Prof. Bruce Childers, other co-PIs: Prof. Sangyeun Cho, Prof. Daniel Mossé, Prof. Rami Melhem, Prof. Jun Yang, University of Pittsburgh), $1,928,126, "CSR: Large: Storage Class Memory Architecture for Energy Efficient Data Centers," 7/1/2010-6/30/2014.

[8] CRDF, University of Pittsburgh, PI, $16,000, "Scalable Memory System Designs for Next Generation Chip-Multiprocessors," 7/1/2010-6/30/2012.

[9] Google, Android Education, Donation of 5 Verizon DROID phones, "Experimenting Effective Code Update Techniques for Android", 2010.

[10] NSF, co-PI, (PI: Prof. Jun Yang, ECE Department, University of Pittsburgh), $120,000, "CSR-CSI: An Update-conscious Compilation Framework for Energy-Efficient Code Dissemination in Wireless Sensor Networks", 9/1/2007-8/31/2009.

[11] NSF CAREER Award, PI, $400,000, "A Compilation Framework for the Development of High Performance Secure Applications on Trusted Processors", 01/2005-12/2009.

[12] Emmitt Project, PI, $45,000, University of Texas at Dallas, "Architectural support for enhancing security", 6/2005-8/2006.

[13] NSF, PI, $100,000, "Collaborative: Architectural Support for Security and Privacy Protection on Uni- and Multi-Processors", (PI: Prof. Jun Yang, CSE Department, University of California at Riverside), 11/2004-10/2005.

MEMBERSHIP

- ACM, IEEE, IEEE computer society.

II. TEACHING

TEACHING EXPERIENCE

University of Pittsburgh

- CS2210 Compiler Construction (graduate level)
- CS3220 Compiler Techniques for Parallel Systems (graduate level)
- CS1621 Structure of Programming Languages (undergraduate level)
- CS1622 Introduction to Compiler Design (undergraduate level)
- CS0447 Computer Organization and Assembly Language Programming (undergraduate level)
- CS0441 Discrete Mathematics (undergraduate level)

University of Texas at Dallas

- CS6353 Compiler Construction (graduate level)
- CS4348 Operating System Concepts (undergraduate level)
- CS5348 Operating System Concepts (graduate level)

STUDENTS

As the degree committee chair/co-chair

- Lei Zhao, PhD student, University of Pittsburgh
- Mehrnoosh Raoufi, PhD student, University of Pittsburgh
- Yue Dai, PhD student, University of Pittsburgh

- Wen Wen, PhD in 2020, co-advised with Prof. Jun Yang, ECE Department, University of Pittsburgh
  First job: Cadence
- Rujia Wang, PhD in 2018, co-advised with Prof. Jun Yang, ECE Department, University of Pittsburgh.

Current job: Assistant Professor at the Illinois Institute of Technology

- Xianwei Zhang, PhD in 2017, University of Pittsburgh
  Recipient of Andrew Mellon Pre-doctoral Fellowship for 2016-2017
  First job: AMD Research.
- Lei Jiang, PhD in 2014, co-advised with Prof. Jun Yang, ECE Department, University of Pittsburgh.
  Current job: Assistant Professor at the Indiana University of Bloomington
- Yi Xu, PhD in 2012, co-advised with Prof. Jun Yang, CoE program, University of Pittsburgh.
  Current job: Associate Professor at Macau University of Science and Technology
- Ping Zhou, PhD in 2012, co-advised with Prof. Jun Yang, CoE program, University of Pittsburgh.
  First job: Intel Inc.
- Weijia Li, PhD in 2011, University of Pittsburgh.
  Recipient of Andrew Mellon Pre-doctoral Fellowship for 2010-2011
  First job: Conviva Inc.

- Yuyu Zhou, MS in 2018, University of Pittsburgh. First job: NetApp
- Mengmeng Li, MS in 2013, University of Pittsburgh. First job: Facebook.
- Yang Hu, MS in 2011, University of Pittsburgh. First job: Amazon.
- Mohammed Mohammed, MS in 2009, University of Pittsburgh.
- Hai T Vu, MS in 2005, University of Texas at Dallas.

III. SERVICE

PROFESSIONAL ACTIVITIES

Journal Editorial Board

- Associate Editor, Journal of Systems Architecture (JSA), 2018 – .

Steering Committee Chair

- Chair, ACM SIGPLAN Conference on Languages, Compilers and Tools for Embedded Systems, 2015 – 2019.

Conference Organization

- Track co-chair, The 36th IEEE International Conference on Computer Design (ICCD), 2018.
- Chair, ACM SIGPLAN Conference on Languages, Compilers and Tools for Embedded Systems, June 2014.
- Program chair, The 27th IEEE International Performance Computing and Communication Conference (IPCCC), December 2008.
- Program chair, The 13th Workshop on Interaction between Compilers and Computer Architectures (Interact-13), February 2009.
- Publication chair, The International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), 2010, 2011.
- Local arrangement chair, The International Conference on Parallel Processing (ICPP), 2012.
- General co-chair, the 28th IEEE International Performance Computing and Communication Conference (IPCCC), December 2009.

Guest Editor

- Journal of Embedded Computing (JEC), Special issue on Embedded System Optimization, Volume 3, Issue 1, 2009.

Recent Conference Technical Committee

- IEEE International Symposium on Workload Characterization (IISWC), 2021.

- IEEE International Conference on Computer Design (ICCD), 2019, 2021.
- IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS), 2020, 2021.
- IEEE International Parallel & Distributed Processing Symposium (IPDPS), 2011, 2020.
- IEEE Non-Volatile Memory Systems and Applications Symposium, 2017, 2018, 2019, 2020, 2021.
- ACM Design Automation Conference (DAC), 2017, 2018, 2019.
- IEEE/ACM International Conference On Computer Aided Design (ICCAD), 2015, 2016, 2017.

Panelist and Reviewer

- NSF Panelist: SPX (2019), XPS (2015), SHF (2009), CRI (2008), CPA (2008), SoD (2006), CyberTrust (2005), ITR (2003).
- Reviewer for Estonian Science Foundation, 2010.
- Reviewer for Indiana State the 21st Century S&T Fund, 2006.
- Reviewer for many journals and conferences.

DEPARTMENT SERVICE

University of Pittsburgh

- Chair of Graduate Admission and Financial Aid Committee, Fall 2017 – 2019.
- Director of Graduate Studies, Fall 2017 – Spring 2018.
- Faculty Search Committee, Spring 2018.
- Graduate Programs and Examinations Committee, Fall 2008 – Spring 2018.
- Graduate Assessment Committee, Fall 2009 – Spring 2010.
- School of Information Science, Faculty Search Committee, Spring 2010.
- Graduate admission and financial aid committee, Fall 2007 – Spring 2008.
- Undergraduate advising committee, Fall 2006 – Spring 2007.

University of Texas at Dallas

- Department Equipment Committee, Fall 2003 – Fall 2005.
- Computer Engineering Graduate Admission Committee, Spring 2004 – Fall 2005.