

## Miaoqing Huang

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CURRENT POSITION	Associate Professor, University of Arkansas	<b>July 2016 -</b>
AREA OF SPECIALIZATION	Manycore architecture and system, high-performance computing with accelerators (e.g., FPGA, GPU, Intel MIC), cloud computing, edge computing, reconfigurable computing, hardware-oriented security	
APPOINTMENTS HELD	Assistant Professor, University of Arkansas, USA Postdoctoral Scientist, The George Washington University, USA Research Assistant, The George Washington University, USA Teaching Assistant, The George Washington University, USA Product Engineer, Intel Products (Shanghai) Ltd., China	<b>Jan. 2010 - June 2016</b> <b>Sept. - Dec. 2009</b> <b>Sept. 2004 - Aug. 2009</b> <b>Sept. 2003 - May 2004</b> <b>Jan. - Aug. 2003</b>
EDUCATION	Ph.D. in Computer Engineering, The George Washington University ▷ Advisor: Prof. Tarek El-Ghazawi Doctor of Engineering, Shanghai Institute of Technical Physics, Chinese Academy of Sciences (CAS) ▷ Advisor: Prof. CHEN Guilin (Academician of CAS) B.S. in Electrical Engineering, Fudan University	<b>Sept. 2003 - Aug. 2009</b> <b>Aug. 1998 - Aug. 2002</b> <b>Sept. 1994 - July 1998</b>
GRANTS AND DONATIONS	Department of Defense: ▷ H98230-18-1-0319 DoD Cybersecurity Scholarship Program (Capacity Building); 8/16/2018-8/15/2019; Co-PI with Brajendra Panda (PI); \$94,100 National Science Foundation (NSF): ▷ CNS-1219062 Cache Design for Solid-State Drives and Its Application in Data-intensive Applications; 10/1/2012-9/30/2015; Solo-PI; \$230,000 + \$16,000 (REU) National Aeronautics and Space Administration (NASA): ▷ New Computer Vision Methods for NASA Robotic Planetary Exploration; 12/21/2012-10/31/2016; Co-PI with Cang Ye (PI) and Yu Sun (Co-PI); \$187,540 (out of \$750,000) ▷ Arkansas NASA EPSCoR Research Infrastructure Development (RID) Travel Grant; 2013; \$1,500 University of Arkansas: ▷ Engineering Research and Innovation Seed Funding Program (ERISF): Spatio-Temporal Big Data Analytics for Convection-Diffusion Processes; 01/01/2019-12/31/2019; Co-PI with Xiao Liu (PI); \$25,000 ▷ Chancellor's Innovation and Collaboration Fund: Toward Efficient and Broadband Terahertz Sources with Ultrathin Black Phosphorus; 07/01/2018-06/30/2019; Co-PI with Hugh Churchill (PI) and Magda El-Shenawee (Co-PI); \$83,876 ▷ Engineering Research and Innovation Seed Funding Program (ERISF): Enabling Large-Scale Network Analysis in Complex Systems Design; 07/01/2018-06/30/2019; PI with Zhenghui Sha (Co-PI); \$24,801	

- ▷ Provost’s Collaborative Research Grant: Innovative High-Throughput Computing for Predictive Modeling in Biological and Material Sciences; 01/01/2018-08/01/2018; PI with Feng Wang (Co-PI); \$3,000
- ▷ Honors College: Faculty Equipment and Technology Grants; 2017; PI; \$4,423
- ▷ Provost’s Collaborative Research Grant: An Edge-count Test to Identify Molecular Pathways Associated with Cancer Progressions; 01/01/2017-07/01/2017; Co-PI with Qingyang Zhang (PI); \$2,000
- ▷ Arkansas Biosciences Institute: A Systems Biology Approach for Pathway Level Analysis of TCGA Lung Cancer Data; 07/01/2016-06/30/2017; Co-PI with Qingyang Zhang (PI); \$21,410

NVIDIA Corporation:

- ▷ CUDA Teaching Center, CUDA Research Center
- ▷ 3 Titan Xp, 1 Tesla K40, 1 Tesla K20, 1 Tesla C2075, 1 Tesla C2070, 50 Geforce GTX480, 1 CARMA development kit, 2 Jetson TK1 DevKits
- ▷ \$6,638 (TA Matching Fund)

Altera Corporation:

- ▷ FPGA and software donations (1 Stratix-2S130, 2 Stratix-2S180 devices: \$30,224; 1 DE5 board: \$8,000; 9 Stratix-4E820 devices: \$105,831)

Xilinx Corporation:

- ▷ FPGA and software donations (5 ML605 boards: \$8,975; 5 VC707 boards: \$17,475)

AWARDS Outstanding Researcher Award, College of Engineering, University of Arkansas, 2013-2014

PATENTS US 8,386,546 B2 “A Montgomery Multiplication Architecture,” – *issued on February 26, 2013.*  
 US 8,433,736 B2 “A Scalable Montgomery Multiplication Architecture,” – *issued on April 30, 2013.*

PUBLICATIONS JOURNAL ARTICLES (Total: 17)

- J17 Chenggang Lai, Xuan Shi, and **Miaoqing Huang**, “Efficient utilization of multi-core processors and many-core co-processors on supercomputer Beacon for scalable geocomputation and geo-simulation over big earth data”, *Big Earth Datas*, vol. 2, no. 1, pp. 65-85, February 2018.
- J16 Genlang Chen, Chenggang Lai, **Miaoqing Huang**, and Guanghui Song, “A hierarchical learning framework for seafloor scene classification”, *Indian Journal of Geo-Marine Sciences (IJMS)*, vol. 46, no. 7, pp. 1352-1357, July 2017.
- J15 **Miaoqing Huang**, Chenggang Lai, Xuan Shi, Zhijun Hao, and Haihang You, “Study of Parallel Programming Models on Computer Clusters with Intel MIC Coprocessors”, *International Journal of High Performance Computing Applications*, vol. 31, no. 4, pp. 303-315, July 2017.
- J14 Qingfeng Guan, Xuan Shi, **Miaoqing Huang**, and Chenggang Lai, “A hybrid parallel Cellular Automata model for urban growth simulation over GPU/CPU heterogeneous architectures,” *International Journal of Geographical Information Science*, vol. 30, no. 3, pp. 494-514, March 2016.
- J13 Xuan Shi, Chenggang Lai, **Miaoqing Huang**, and Haihang You, “Geocomputation over the Emerging Heterogeneous Computing Infrastructure,” *Transactions in GIS*, vol. 18, no. S1, pp. 3-24, Nov. 2014.
- J12 Xuan Shi, **Miaoqing Huang**, Haihang You, Chenggang Lai, and Zhong Chen, “Unsupervised image classification over supercomputers Kraken, Keeneland and Beacon,” *GIScience & Remote Sensing*, vol. 51, no. 3, pp. 321-338, May 2014.
- J11 **Miaoqing Huang** and David Andrews, “Modular Design of Fully Pipelined Reduction Circuits on FPGAs,” *IEEE Transactions on Parallel and Distributed Systems*, vol. 24, no. 9, pp. 1818-1826, Sept. 2013.

- J10 Khaled Benkrid, Esam El-Araby, **Miaoqing Huang**, Kentaro Sano, and Thomas Steinke, “High-Performance Reconfigurable Computing,” *editorial for special issue on high-performance reconfigurable computing, International Journal of Reconfigurable Computing*, vol. 2012, Article ID 104963, pp. 1-2, 2012. doi:10.1155/2012/104963.
- J9 **Miaoqing Huang**, Vikram K. Narayana, Mohamed Bakhouya, Jaafar Gaber, and Tarek El-Ghazawi, “Efficient Mapping of Task Graphs onto Reconfigurable Hardware Using Architectural Variants,” *IEEE Transactions on Computers*, vol. 61, no. 9, pp. 1354-1360, Sept. 2012.
- J8 Lingyuan Wang, **Miaoqing Huang**, and Tarek El-Ghazawi, “Towards Efficient GPU Sharing on Multicore Processors,” *ACM SIGMETRICS Performance Evaluation Review*, vol. 40, no. 2, pp. 119-124, Sept. 2012.
- J7 **Miaoqing Huang**, Kris Gaj, and Tarek El-Ghazawi, “New Hardware Architectures for Montgomery Modular Multiplication Algorithm,” *IEEE Transactions on Computers*, vol. 60, no. 7, pp. 923-936, July 2011.
- J6 Ozlem Kilic, **Miaoqing Huang**, Charles Conner, and Mark S. Mirotznik, “Hardware Accelerated Design of Millimeter Wave Antireflective Surfaces: A Comparison of Field-Programmable Gate Array (FPGA) and Graphics Processing Unit (GPU) Implementations,” *ACES (The Applied Computation Electromagnetics Society) Journal*, vol. 26, no. 3, pp. 188-198, March 2011.
- J5 **Miaoqing Huang**, Vikram K. Narayana, Harald Simmler, Olivier Serres, and Tarek El-Ghazawi, “Reconfiguration and Communication-Aware Task Scheduling for High Performance Reconfigurable Computing,” *ACM Transactions on Reconfigurable Technology and Systems*, vol. 3, no. 4, pp. 20:1-20:25, Nov. 2010.
- J4 Ozlem Kilic and **Miaoqing Huang**, “Overview of Reconfigurable Computing Platforms and Their Applications in Electromagnetics Applications,” *ACES (The Applied Computation Electromagnetics Society) Journal*, vol. 25, no. 4, pp. 283-293, April 2010.
- J3 **Miaoqing Huang**, Olivier Serres, Tarek El-Ghazawi, and Gregory Newby, “Parameterized Hardware Design on Reconfigurable Computers: An Image Processing Case Study,” *International Journal of Reconfigurable Computing*, vol. 2010, pp. 1-11, April 2010. doi:10.1155/2010/454506.
- J2 Proshanta Saha, Esam El-Araby, **Miaoqing Huang**, Mohamed Taher, Sergio Lopez-Buedo, Tarek El-Ghazawi, Chang Shu, Kris Gaj, Alan Michalski, Duncan Buell, “Portable library development for reconfigurable computing systems: A case study,” *Parallel Computing*, vol. 34, no. 4+5, pp. 245-260, May 2008.
- J1 Tarek El-Ghazawi, Esam El-Araby, **Miaoqing Huang**, Kris Gaj, Volodymyr Kindratenko, and Duncan Buell, “The promise of high-performance reconfigurable computing,” *IEEE Computer*, vol. 41, no. 2, pp. 69-76, February 2008.

CONFERENCE PUBLICATIONS (Total: 61)

- C61 Chenggang Lai, Yirong Chen, Xuan Shi, **Miaoqing Huang**, and Genlang Chen, “Performance Improvement on Heterogeneous Platforms: A Machine Learning Based Approach,” in *Proceedings of 5th Annual Conference on Computational Science & Computational Intelligence (CSCI'18)*, pp. 1-9, Las Vegas, USA, December 13-15, 2018.
- C60 Chenggang Lai, Xuan Shi, and **Miaoqing Huang**, “Performance Optimization on Intel Xeon Phi Through Load Balancing,” in *Proceedings of 24th International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'18)*, pp. 1-7, July 30 - August 2, 2018.
- C59 Amir Shariffar, Tyler Bowman, Chenggang Lai, **Miaoqing Huang**, Magda El-Shenawee, and Keith Bailey, “Modelling the Interaction of THz Waves with Breast Cancer Tissues,” in *Proceedings of 2018 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, pp. 1843-1844, July 8-13, 2018.
- C58 Hongyuan Ding and **Miaoqing Huang**, “PolyPC: Polymorphic Parallel Computing Framework on Embedded Reconfigurable System,” in *Proceedings of 27th International Conference on Field-Programmable Logic and Applications (FPL)*, pp. 1-8, September 4-8, 2017.

- C57 Chenggang Lai, **Miaoqing Huang**, and Xuan Shi, "SRC: Accelerating the Calculation of Minimum Set of Viewpoints for Maximum Coverage over Digital Elevation Model Data by Hybrid Computer Architecture and Systems," in *Proceedings of the 24th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, pp. 1-2, October 31- November 3, 2016.
- C56 Chenggang Lai and **Miaoqing Huang**, "Hybrid Implementation of Image Stitching on Computers with GPUs," in *Proceedings of 20th International Conference on Image Processing, Computer Vision, & Pattern Recognition (IPCV'16)*, pp. 1-7, Las Vegas, July 25-28, 2016.
- C55 Hong Fan, **Miaoqing Huang**, Chenggang Lai, Jinming Yu, and Wujun Xu, "Accelerating DCT-based color image watermarking on GPUs," in *Proceedings of 20th International Conference on Image Processing, Computer Vision, & Pattern Recognition (IPCV'16)*, pp. 1-4, Las Vegas, July 25-28, 2016.
- C54 Hongyuan Ding, Sen Ma, **Miaoqing Huang**, and David Andrews, "OoGen: An Automated Generation Tool for Custom MPSoC Architectures Based on Object-oriented Programming Methods," in *Proceedings of 23rd Reconfigurable Architectures Workshop (RAW)*, as part of IPDPS 2016, pp. 1-8, Chicago, May 23-24, 2016.
- C53 Hongyuan Ding and **Miaoqing Huang**, "Exploiting Hardware Abstraction for Hybrid Parallel Computing Framework," in *Proceedings of 2015 International Conference on Reconfigurable Computing and FPGAs (ReConFig 2015)*, pp. 1-7, Mayan Riviera, Mexico, December 7-9, 2015.
- C52 Hongyuan Ding and **Miaoqing Huang**, "Achieving Energy-efficiency on MPSoCs: Performance and Power Optimizations," in *Proceedings of 2015 International Conference on Reconfigurable Computing and FPGAs (ReConFig 2015)*, pp. 1-7, Mayan Riviera, Mexico, December 7-9, 2015.
- C51 Sen Ma, Hongyuan Ding, **Miaoqing Huang**, and David Andrews, "Archborn: An Open Source Tool for Automated Generation of Multiprocessor Architecture," in *Proceedings of 2015 International Conference on Reconfigurable Computing and FPGAs (ReConFig 2015)*, pp. 1-6, Mayan Riviera, Mexico, December 7-9, 2015.
- C50 Chenggang Lai, **Miaoqing Huang** and Genlang Chen, "Towards Optimal Task Distribution on Computer Clusters with Intel MIC Coprocessors," in *Proceedings of 2015 International Conferences on High Performance Computing and Communications (HPCC)*, pp. 1-4, New York, NY, August 24-26, 2015.
- C49 Genlang Chen, Chenggang Lai and **Miaoqing Huang**, "Parallel Sparse Coding for Seafloor Image Analysis," in *Proceedings of Sixth International Symposium on Highly Efficient Accelerators and Reconfigurable Technologies (HEART)*, pp. 1-4, Boston, MA, June 1-2, 2015.
- C48 Hongyuan Ding and **Miaoqing Huang**, "Performance and Energy Optimization on MPSoCs by Enabling STT-MRAM LUTs," in *Proceedings of 23rd IEEE International Symposium on Field-Programmable Custom Computing Machines (FCCM)*, pp. 35, Vancouver, BC, Canada, May 3-5, 2015.
- C47 Hongyuan Ding and **Miaoqing Huang**, "An Automatic Design Flow for Hybrid Parallel Computing on MPSoCs," in *Proceedings of 23rd ACM/SIGDA International Symposium on Field-Programmable Gate Arrays (FPGA 2015)*, Monterey, California, February 22-24, 2015.
- C46 Hongyuan Ding and **Miaoqing Huang**, "Improve memory access for achieving both performance and energy efficiencies on heterogeneous systems," in *Proceedings of 2014 International Conference on Field-Programmable Technology (FPT'14)*, pp. 91-98, Shanghai, China, December 10-12, 2014.
- C45 Hongyuan Ding and **Miaoqing Huang**, "A Unified OpenCL-flavor Programming Model with Scalable Hybrid Hardware Platform on FPGAs," in *Proceedings of 2014 International Conference on ReConfigurable Computing and FPGAs (ReConFig 2014)*, pp. 1-7, Cancun, Mexico, December 8-10, 2014.

- C44 **Miaoqing Huang** and Chenggang Lai, "Parallelizing Computer Vision Algorithms on Acceleration Technologies: A SIFT Case Study," in *Proceedings of 2nd IEEE China Summit and International Conference on Signal and Information Processing (ChinaSIP14)*, pp. 325-329, Xi'an, China, July 9-13, 2014.
- C43 Chenggang Lai, Zhijun Hao, **Miaoqing Huang**, Xuan Shi, and Haihang You, "Comparison of Parallel Programming Models on Intel MIC Computer Cluster," in *Proceedings of Fourth International Workshop on Accelerators and Hybrid Exascale Systems (AsHES) as part of IPDPS*, pp. 925-932, Phoenix, AZ, May 19, 2014.
- C42 Shiming Li, **Miaoqing Huang**, Hongyuan Ding, and Sen Ma, "A Hierarchical Memory Architecture with NoC Support for MPSoC on FPGAs," in *Proceedings of The 22nd IEEE International Symposium on Field-Programmable Custom Computing Machines (FCCM)*, pp. 173, Boston, MA, May 11-13, 2014.
- C41 **Miaoqing Huang** and Shiming Li, "A Delay-based PUF Design Using Multiplexer Chains," in *Proceedings of 2013 International Conference on ReConFigurable Computing and FPGAs (ReConFig 2013)*, pp. 1-6, Cancun, Mexico, Dec. 9-11, 2013.
- C40 **Miaoqing Huang** and Chenggang Lai, "Accelerating Applications using GPUs on Embedded Systems and Mobile Devices," in *Proceedings of 15th IEEE International Conference on High Performance Computing and Communications (HPCC 2013)*, pp. 1031-1038, Zhangjiajie, China, November 13-15, 2013.
- C39 Chenggang Lai, **Miaoqing Huang**, Xuan Shi, and Haihang You, "Accelerating Geospatial Applications on Hybrid Architectures," in *Proceedings of 15th IEEE International Conference on High Performance Computing and Communications (HPCC 2013)*, pp. 1545-1552, Zhangjiajie, China, November 13-15, 2013.
- C38 Ping Huang, Guangping Wan, Ke Zhou, **Miaoqing Huang**, Chunhua Li, and Hua Wang, "Improve Effective Capacity and Lifetime of Solid State Drives," in *Proceedings of 8th IEEE International Conference on Networking, Architecture, and Storage (NAS 2013)*, pp. 50-59, Xi'an, China, July 17-19, 2013.
- C37 **Miaoqing Huang** and Shiming Li, "A Delay-based PUF Design Using Multiplexers on FPGA," in *Proceedings of The 21st IEEE International Symposium on Field-Programmable Custom Computing Machines (FCCM 2013)*, pp. 226, Seattle, Washington, USA, April 28-30, 2013.
- C36 Sen Ma, **Miaoqing Huang**, and David Andrews, "Developing Application-Specific Multiprocessor Platforms on FPGAs," in *Proceedings of 2012 International Conference on ReConFigurable Computing and FPGAs (ReConFig 2012)*, pp. 1-6, Cancun, Mexico, Dec. 5-7, 2012.
- C35 Liang Men, **Miaoqing Huang**, and John Gauch, "Accelerating Mean Shift Segmentation Algorithm on Hybrid CPU/GPU Platforms," in *Proceedings of 2012 International Workshop on Modern Accelerator Technologies for GIScience (MAT4GIScience 2012) held as part of GIScience 2012*, Columbus, OH, Sept. 18, 2012.
- C34 Eugene Cartwright, Azad Fakhari, Sen Ma, Christina Smith, **Miaoqing Huang**, David Andrews, and Jason Agron, "Automating the Design of MLUT MPSOPC FPGA's in the Cloud," in *Proceedings of the 22nd International Conference on Field Programmable Logic and Applications (FPL 2012)*, pp. 231-236, Oslo, Norway, August 29-31, 2012.
- C33 **Miaoqing Huang** and Liang Men, "Improving the Performance of On-Board Cache for Flash-based Solid-State Drives," in *Proceedings of The 7th IEEE International Conference on Networking, Architecture, and Storage (NAS 2012)*, pp. 283-287, Xiamen, China, June 28-30, 2012.
- C32 Sen Ma, **Miaoqing Huang**, Eugene Cartwright, and David Andrews, "Scalable Memory Hierarchies for Embedded Manycore Systems," in *Proceedings of The 8th International Symposium on Applied Reconfigurable Computing (ARC 2012), LNCS 7199*, pp. 151-162, Hong Kong, China, March 19-23, 2012.

- C31 Lingyuan Wang, **Miaoqing Huang**, and Tarek El-Ghazawi, "Towards Efficient GPU Sharing on Multicore Processors," in *Proceedings of The 2nd International Workshop on Performance Modeling, Benchmarking and Simulation of High Performance Computing Systems (PMBS11) held as part of SC11*, Seattle, US, Nov. 13, 2011.
- C30 Liang Zhou, **Miaoqing Huang**, and Scott C. Smith, "High-Performance and Area-Efficient Hardware Design for Radix- $2^k$  Montgomery Multipliers," in *Proceedings of The 2011 International Conference on Computer Design (CDES'11)*, Las Vegas, USA, July 18-21, 2011.
- C29 Lingyuan Wang, **Miaoqing Huang**, and Tarek El-Ghazawi, "Exploiting Concurrent Kernel Execution on Graphic Processing Units," in *Proceedings of The 2011 International Conference on High Performance Computing & Simulation (HPCS 2011)*, pp. 24-32, Istanbul, Turkey, July 4-8, 2011.
- C28 Eugene Cartwright, Sen Ma, David Andrews, and **Miaoqing Huang**, "Creating HW/SW Co-Designed MPSoPC's from High Level Programming Models," in *Proceedings of Workshop on Multiprocessor Systems on (Programmable) Chips (MPSoC 2011) as part of The 2011 International Conference on High Performance Computing & Simulation (HPCS 2011)*, pp. 554-560, Istanbul, Turkey, July 4-8, 2011.
- C27 Lingyuan Wang, **Miaoqing Huang**, Vikram K. Narayana, and Tarek El-Ghazawi, "Scaling Scientific Applications on Clusters of Hybrid Multicore/GPU Nodes," in *Proceedings of The 8th ACM International Conference on Computing Frontiers (CF'11)*, Ischia, Italy, May 3-5, 2011.
- C26 **Miaoqing Huang**, David Andrews, and Jason Agron, "Operating System Structures for Multiprocessor Systems on Programmable Chip," in *Proceedings of 2010 International Conference on ReConfigurable Computing and FPGAs (ReConFig 2010)*, Cancun, Mexico, Dec. 13-15, 2010.
- C25 **Miaoqing Huang** and David Andrews, "Modular Design of Fully Pipelined Accumulators," in *Proceedings of The 2010 International Conference on Field-Programmable Technology (FPT'10)*, pp. 118-125, Beijing, China, Dec. 8-10, 2010.
- C24 **Miaoqing Huang**, Lingyuan Wang, and Tarek El-Ghazawi, "Accelerating Double Precision Floating-point Hessenberg Reduction on FPGA and Multicore Architectures," in *Proceedings of 2010 Symposium on Application Accelerators in High Performance Computing (SAAHPC'10)*, Knoxville, Tennessee, USA, July 13-15, 2010.
- C23 **Miaoqing Huang**, Olivier Serres, Vikram K. Narayana, Tarek El-Ghazawi, and Gregory Newby, "Efficient Cache Design for Solid-State Drives," in *Proceedings of The 7th ACM International Conference on Computing Frontiers (CF'10)*, pp. 41-50, Bertinoro, Italy, May 17-19, 2010.
- C22 **Miaoqing Huang** and Ozlem Kilic, "Reaping the processing potential of FPGA on double-precision floating-point operations: an eigenvalue solver case study," in *Proceedings of the 18th Annual International IEEE Symposium on Field-Programmable Custom Computing Machines (FCCM 2010)*, pp. 95-102, Charlotte, North Carolina, USA, May 2-4, 2010.
- C21 Ozlem Kilic and **Miaoqing Huang**, "Hardware Accelerated Design of Millimeter Wave Antireflective Surfaces", in *Proceedings of ACES 2010 Conference*, Tampere, Finland, April 25-29, 2010.
- C20 Teng Li, **Miaoqing Huang**, Tarek El-Ghazawi, and H. Howie Huang, "Reconfigurable Active Disk: An FPGA Accelerated Storage Architecture for Data-Intensive Applications," in *Proceedings of 2009 Symposium on Application Accelerators in High-Performance Computing (SAAHPC'09)*, Urbana, Illinois, USA, July 27-31, 2009.
- C19 **Miaoqing Huang**, Harald Simmler, Olivier Serres, and Tarek El-Ghazawi, "RDMS: A Hardware Task Scheduling Algorithm for Reconfigurable Computing," in *Proceedings of the 16th Reconfigurable Architectures Workshop (RAW 2009)*, Rome, Italy, May 25-26, 2009.
- C18 **Miaoqing Huang**, Vikram K. Narayana, and Tarek El-Ghazawi, "Efficient mapping of hardware tasks on reconfigurable computers using libraries of architecture variants," in *Proceedings of the Seventeenth Annual IEEE Symposium on Field-Programmable Custom Computing Machines (FCCM'09)*, pp. 247-250, Napa, CA, USA, April 5-7, 2009.

- C17 **Miaoqing Huang**, Olivier Serres, Tarek El-Ghazawi, and Greg Newby, "Parameterized Hardware Design on Reconfigurable Computers: An Image Registration Case Study" in *Proceedings of V Southern Programmable Logic Conference (SPL 2009)*, pp. 71-76, Sao Carlos, Brazil, April 1-3, 2009.
- C16 **Miaoqing Huang**, Harald Simmler, Proshanta Saha, and Tarek El-Ghazawi, "Hardware Task Scheduling Optimizations for Reconfigurable Computing," in *Proceedings of the Second International Workshop on High-Performance Reconfigurable Computing Technology and Applications (HPRCTA '08)*, Austin, Texas, USA, Nov. 17, 2008.
- C15 **Miaoqing Huang**, Olivier Serres, Tarek El-Ghazawi, and Greg Newby, "Implementing Image Registration Algorithms on Reconfigurable Computer," in *Proceedings of 10th Military and Aerospace Programmable Logic Devices Conference (MAPLD 2008)*, Annapolis, Maryland, USA, Sept. 15-18, 2008.
- C14 **Miaoqing Huang**, Ivan Gonzalez, Sergio Lopez-Buedo, Tarek El-Ghazawi, "A Framework to Improve IP Portability on Reconfigurable Computers," in *Proceedings of The 10th International Conference on Engineering of Reconfigurable Systems and Algorithms (ERSA 2008)*, pp. 191-197, Las Vegas, Nevada, USA, July 14-17, 2008.
- C13 **Miaoqing Huang**, Esam El-Araby, Tarek El-Ghazawi, "Divide-and-Conquer Approach for Designing Large-operand Functions on Reconfigurable Computers," in *Proceedings of the 4th Reconfigurable Systems Summer Institute, 2008 (RSSI'08)*, Urbana, Illinois, USA, July 7-9, 2008.
- C12 Tarek El-Ghazawi, Olivier Serres, Samy Bahra, **Miaoqing Huang** and Esam El-Araby, "Parallel Programming of High-Performance Reconfigurable Computing Systems with Unified Parallel C," in *Proceedings of the 4th Reconfigurable Systems Summer Institute, 2008 (RSSI'08)*, Urbana, Illinois, USA, July 7-9, 2008.
- C11 **Miaoqing Huang**, Olivier Serres, Sergio Lopez-Buedo, Tarek El-Ghazawi, and Greg Newby, "An Image Processing Architecture To Exploit I/O Bandwidth on Reconfigurable Computers," in *Proceedings of IEEE IV Southern Conference on Programmable Logic (SPL 2008)*, pp. 257-260, Bariloche-Patagonia, Argentina, March 26-28, 2008.
- C10 **Miaoqing Huang**, Kris Gaj, Soonhak Kwon, and Tarek El-Ghazawi, "An Optimized Hardware Architecture for the Montgomery Multiplication Algorithm," in *Proceedings of The 11th International Workshop on Practice and Theory in Public Key Cryptography (PKC 2008)*, LNCS vol. 4939, pp. 214-228, March 9-12, 2008.
- C9 **Miaoqing Huang**, Ivan Gonzalez, and Tarek El-Ghazawi, "A Portable Memory Access Framework on Reconfigurable Computers," in *Proceedings of IEEE 2007 International Conference on Field-Programmable Technology (ICFPT'07)*, pp. 333-336, December 12-14, 2007.
- C8 Proshanta Saha, Esam El-Araby, **Miaoqing Huang**, Mohamed Taher, Tarek El-Ghazawi, Chang Shu, Kris Gaj, Alan Michalski and Duncan Buell, "Portable Library Development for Reconfigurable Computing Systems," in *Proceedings of the 3rd Reconfigurable Systems Summer Institute, 2007 (RSSI'07)*, Urbana, Illinois, USA, July 17-20, 2007.
- C7 **Miaoqing Huang**, Tarek El-Ghazawi, Brian Larson, and Kris Gaj, "Development of Block-Cipher Library for Reconfigurable Computers," in *Proceedings of IEEE III Southern conference on Programmable Logic (SPL 2007)*, pp. 191-194, February 26-28, 2007.
- C6 Tarek El-Ghazawi, Kris Gaj, Duncan Buell, Proshanta Saha, Esam El-Araby, Chang Shu, **Miaoqing Huang**, Mohamed Taher, and Alan Michalski, "Libraries of Hardware Macros for Reconfigurable Computers," in *Proceedings of 9th Military and Aerospace Programmable Logic Devices Conference (MAPLD 2006)*, Washington, DC, USA, September 26-28, 2006.
- C5 Kris Gaj, Tarek El-Ghazawi, Dan Poznanovic, Hoang Le, Proshanta Saha, Steve Heistand, Chang Shu, Esam El-Araby, **Miaoqing Huang**, Deapesh Misra, and Paul Gage, "Design of parameterizable hardware macros for reconfigurable computers," in *Proceedings of 9th Military and Aerospace Programmable Logic Devices Conference (MAPLD 2006)*, Washington, DC, USA, September 26-28, 2006.

- C4 John Harkins, Tarek El-Ghazawi, Esam El-Araby, and **Miaoqing Huang**, “Performance of sorting algorithms on the SRC 6 reconfigurable computer,” in *Proceedings of IEEE 2005 International Conference on Field-Programmable Technology (ICFPT’05)*, pp. 295-296, December 11-14, 2005.
- C3 John Harkins, Tarek El-Ghazawi, Esam El-Araby, and **Miaoqing Huang**, “Performance and Analysis of Sorting Algorithms on the SRC 6 Reconfigurable Computer,” in *Proceedings of 8th Military and Aerospace Programmable Logic Devices Conference (MAPLD 2005)*, Washington, DC, USA, Sept. 7-9, 2005.
- C2 Kris Gaj, Tarek El-Ghazawi, Paul Gage, Dan Poznanovic, Chang Shu, Deapesh Misra, **Miaoqing Huang**, Esam El-Araby, Mohamed Taher, “Development and Maintenance of User Libraries for SRC Reconfigurable Computers,” in *Proceedings of 8th Military and Aerospace Programmable Logic Devices Conference (MAPLD 2005)*, Washington, DC, USA, Sept. 7-9, 2005.
- C1 Hatim Diab, **Miaoqing Huang**, Kris Gaj, Tarek El-Ghazawi and Nikitas Alexandridis, “An automated pipeline balancing in the SRC Reconfigurable Computer and its application to the RC5 cipher breaking,” in *Proceedings of 7th Military and Aerospace Programmable Logic Devices Conference (MAPLD 2004)*, Washington, DC, USA, Sept. 8-10, 2004.

BOOK CHAPTERS (Total: 3)

- B3 Xuan Shi and **Miaoqing Huang**, “GPGPU in GIS,” in *Encyclopedia of GIS (Editors: Shashi Shekhar, Hui Xiong, Xun Zhou)*, Springer, December 2016.
- B2 Xuan Shi and **Miaoqing Huang**, “MIC in GIS,” in *Encyclopedia of GIS (Editors: Shashi Shekhar, Hui Xiong, Xun Zhou)*, Springer, December 2016.
- B1 **Miaoqing Huang**, Liang Men, and Chenggang Lai, “Accelerating Mean Shift Segmentation Algorithm on Hybrid CPU/GPU Platforms,” in *Modern Accelerator Technologies for Geographic Information Science (Editors: Xuan Shi, Volodymyr Kindratenko, Chaowei Yang)*, pp. 157-166, Springer, 2013.

POSTERS (Total: 3)

- P3 Chenggang Lai and **Miaoqing Huang**, “A Performance Autotuning Framework on Hybrid Computer Clusters,” *PhD Forum in the 28th IEEE International Parallel & Distributed Processing Symposium (IPDPS)*, Phoenix, AZ, USA, May 19-23, 2014.
- P2 Sen Ma, Liang Men, and **Miaoqing Huang**, “Hybrid Scale-invariant Feature Transform (SIFT) Implementation on CPU/GPU,” *Workshop on Electronic Structure Calculation Methods on Accelerators*, Oak Ridge National Lab, Oak Ridge, Tennessee, USA, Feb. 6-8, 2012. (**Best Poster Award**)
- P1 **Miaoqing Huang**, Kris Gaj, Soonhak Kwon, and Tarek El-Ghazawi, “A New Hardware Architecture for the Montgomery Modular Multiplication Algorithm,” *The 10th Workshop on Cryptographic Hardware and Embedded Systems 2008 (CHES 2008)*, Washington, DC, USA, August 10-13, 2008.

TALK

- Fudan University **July 18, 2017**  
 “PolyPC: Polymorphic Parallel Computing Framework on Embedded Reconfigurable System”
- Nanjing University of Aeronautics and Astronautics **July 3, 2014**  
 “Delay-based PUF Designs on FPGAs”
- Nanjing University of Aeronautics and Astronautics **July 3, 2014**  
 “Modular Design of Fully Pipelined Reduction Circuits on FPGAs”
- Nanjing University of Aeronautics and Astronautics **July 2, 2014**  
 “Achieve both performance and energy efficiencies on embedded heterogeneous systems”
- Nanjing University of Aeronautics and Astronautics **July 2, 2014**  
 “Scalable communication infrastructure for embedded manycore systems”
- NASA Ames Research Center, Moffett Field, CA **October 21, 2013**



“Comparison of Parallel Programming Models on Intel MIC Computer Cluster”  
 NASA Langley Research Center, Hampton, VA **July 26, 2013**  
 “Hardware Acceleration for High-Performance Computing”  
 National Center for Supercomputing Applications, UIUC **April 22, 2011**  
 “Scaling Scientific Applications on Clusters of Hybrid Multicore/GPU Nodes”  
 Computer Network Information Center, Chinese Academy of Sciences **Dec. 21, 2010**  
 “Scaling Scientific Applications on Clusters of Hybrid Multicore/GPU Nodes”  
 Workshop on High Performance Computing Application Acceleration **Oct. 22-23, 2010**  
 (Invitation Only)  
 “Research at University of Arkansas Regarding High Performance Computing”  
 Texas A&M University **March 26, 2010**  
 “Efficient Cache Design for Solid-State Drives”

TEACHING CSCE 2214 Computer Organization **S’12, F’12, S’13, S’14, F’14, F’15, F’16, F’17, F’18**  
 CSCE 3513 Software Engineering **S’10, S’11, F’12**  
 CSCE 3613 Operating Systems **S’19**  
 CSCE 4643 GPU Programming **F’13, S’15, S’16, F’16, F’17**  
 CSCE 5013 Cloud Computing & Security **S’19**  
 CSCE 5013 Cloud Computing **F’15, S’17, S’18**  
 CSCE 5013 Hardware/Software Co-design **F’10, F’11**  
 CSCE 5013 Hardware Oriented Security **F’14**

SERVICE TO THE  
 PROFESSION

CONFERENCE/WORKSHOP ORGANIZER

- ▷ 18th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid):  
 2018 Registration Chair
- ▷ 2nd IEEE International Conference on Fog and Edge Computing (ICFEC): 2018 Registration  
 Chair
- ▷ 19th IEEE International Conference on High Performance Computing and Communications  
 (HPCC): 2017 Registration Chair
- ▷ 15th IEEE International Conference on Smart City (SmartCity): 2017 Registration Chair
- ▷ 3rd IEEE International Conference on Data Science and Systems (DSS): 2017 Registration  
 Chair
- ▷ Fifth Central Area Networking and Security Workshop (CANSec): 2014 General Chair
- ▷ ACS/IEEE International Conference on Computer Systems and Applications (AICCSA): 2011  
 Registration Chair
- ▷ Workshop on Multiprocessor Systems on (Programmable) Chips (MPSoC) as part of HPCS:  
 2011 Co-Chair

REVIEWER OF JOURNALS

- ▷ ACM: Transactions on Design Automation of Electronic Systems (TODAES)
- ▷ ACM: Transactions on Reconfigurable Technology and Systems (TRETs)
- ▷ Elsevier: Computers and Electrical Engineering
- ▷ Elsevier: Embedded Hardware Design (Microprocessors and Microsystems)
- ▷ Elsevier: Embedded Software Design (Journal of System Architecture)
- ▷ Elsevier: Future Generation Computer Systems
- ▷ Elsevier: Integration, the VLSI Journal
- ▷ Elsevier: Journal of Parallel and Distributed Computing
- ▷ Elsevier: Microelectronics Journal
- ▷ Elsevier: Parallel Computing
- ▷ Elsevier: Sustainable Computing

- ▷ ETRI Journal
- ▷ Hindawi: International Journal of Reconfigurable Computing, guest editor for special issue on high-performance reconfigurable computing
- ▷ Hindawi: Journal of Electrical and Computer Engineering
- ▷ Hindawi: VLSI Design
- ▷ IEEE: Access Journal
- ▷ IEEE: Antennas and Wireless Propagation Letters
- ▷ IEEE: Transactions on Circuits and Systems II
- ▷ IEEE: Transactions on Cloud Computing (TCC)
- ▷ IEEE: Transactions on Computers (TC)
- ▷ IEEE: Transactions on Parallel and Distributed Systems (TPDS)
- ▷ IEEE: Transactions on Very Large Scale Integration Systems (TVLSI)
- ▷ IET: Computers & Digital Techniques
- ▷ MDPI: Computers
- ▷ Plus One
- ▷ Springer: Journal of Cryptographic Engineering
- ▷ Springer: Journal of Supercomputing
- ▷ Taylor & Francis: International Journal of Geographical Information Science (IJGIS)
- ▷ The Arabian Journal for Science and Engineering
- ▷ The International Journal of Science & Technoledge
- ▷ Wiley: Concurrency and Computation: Practice and Experience
- ▷ Wiley: Transactions in GIS (TGIS))
- ▷ World Scientific: Journal of Circuits, Systems, and Computers

#### TECHNICAL PROGRAM COMMITTEE

- ▷ ACM Southeast Conference: 2012
- ▷ ACS/IEEE International Conference on Computer Systems and Applications (AICCSA): 2013
- ▷ Euromicro International Conference on Parallel, Distributed and Network-based Processing (PDP): 2015, 2016, 2017, 2018
- ▷ High Performance Computing & Simulation Conference (HPCS): 2013, 2014, 2015, 2016, 2017, 2018
- ▷ IEEE Computer Society Annual Symposium on VLSI (ISVLSI): 2018
- ▷ IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP): 2014
- ▷ IEEE International Conference on Embedded Software and Systems (ICCESS): 2011, 2012, 2013
- ▷ IEEE International Conference on Field-Programmable Technology (FPT): 2016, 2017, 2018
- ▷ IEEE International Conferences on High Performance Computing and Communications (HPCC): 2018
- ▷ IEEE International Conference on Pervasive Intelligence and Computing (PICom): 2015, 2016, 2017, 2018
- ▷ IEEE International Conference on Scalable Computing and Communications (ScalCom): 2018
  
- ▷ IEEE International Symposium on Circuits and Systems (ISCAS): 2011, 2013
- ▷ IEEE International Symposium on Field-Programmable Custom Computing Machines (FCCM): 2016, 2017, 2018
- ▷ International Conference on Advanced Communications and Computation (INFOCOMP): 2018
- ▷ International Conference on Computer Engineering & Systems (ICCES): 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018
- ▷ International Conference on Control, Decision and Information Technologies (CoDIT): 2013

- ▷ International Conference on Field-Programmable Logic and Applications (FPL): 2016, 2017, 2018
- ▷ International Conference on Information Processing and Wireless Systems (IP-WiS): 2013
- ▷ International Conference on ReConFigurable Computing and FPGAs (ReConFig): 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018
- ▷ International Conference on Systems and Informatics (ICSAI): 2012
- ▷ International Workshop on Dynamic Reconfigurable Network-on-Chip (DRNoC) as part of HPCS: 2012, 2013, 2014
- ▷ International Workshop on Embedded and Reconfigurable Computing (ERC) as part of HPCS: 2010
- ▷ International Workshop on High Performance Interconnection Networks (HPIN) as part of HPCS: 2014
- ▷ International Workshop on High Performance Interconnection Networks and Interconnects (HPINI) as part of HPCS: 2018
- ▷ International Workshop on High-Performance Reconfigurable Computing Technology and Applications (HPRCTA) as part of SC: 2010
- ▷ International Workshop on Modern Accelerator Technologies for GIScience (MAT4GIScience) as part of GIScience: 2012
- ▷ International Workshop on Multiprocessor Systems on (Programmable) Chips (MPSoC) as part of HPCS: 2011
- ▷ Supercomputing (SC): Doctoral Showcase Committee: 2011, 2015
- ▷ Symposium on Application Accelerators in High Performance Computing (SAAHPC): 2011, 2012

GRANT REVIEW PANELIST

- ▷ NSF: 2014, 2015