

Curriculum Vita

Tarek El-Ghazawi

Professor and IEEE Fellow

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PRESENT OCCUPATION:

Professor, Department of Electrical and Computer Engineering, **The George Washington University**, Washington D.C.

Director, GW Strategic Academic Excellence Program in High-Performance Computing

Director, Institute for Massively Parallel Applications and Computing Technology (IMPACT), and the GWU High-Performance Computing Academic Signature Program.

Co-Director, NSF Industry/University Center for High-Performance Reconfigurable Computing (CHREC), UF/GWU/VaTech/BYU.

EDUCATION:

Doctor of Philosophy in Electrical and Computer Engineering, New Mexico State University, May 1988

Dissertation Topic: Theory and Design of a Real-Time Motion Detection Computer System

Major Field: **Computer Engineering**

Minor Field: **Computer Science**

Master of Science in Electrical and Computer Engineering, New Mexico State University, May 1984

Major Field: Computer Control Systems

Thesis Title: Analytical Design of Digital Controllers with Minimum Settling Time

Bachelor of Science in Electronics and Communications Engineering, Helwan University, Cairo, Egypt, May 1980

AREAS OF RESEARCH INTEREST:

- High-Performance Computing
- Computer Architectures
- Reconfigurable and Embedded Computing Systems
- Parallel Programming
- Performance Evaluations and Workload Characterization
- Image Processing and Remote Sensing Applications

HONORS AND PROFESSIONAL MEMBERSHIPS:

- Fellow, Institute of Electrical and Electronics Engineers (IEEE)
- Alexander von Humboldt Research Award, Humboldt Foundation, Germany
- 2012 Alexander Schwarzkopf Prize for Technological Innovation
- Senior Fulbright Scholar, 2011-2012.
- Faculty Fellow, IBM Center for Advanced Studies, Toronto.
- IBM Faculty Partnership Award, 2004
- IFIP WG10.3 (elected)

- Phi Kappa Phi National Honor Society

SPONSORED RESEARCH AWARDS:

1. The NSF Industry/University Center for Reconfigurable High-Performance Computing (CHREC). Collaborative National Center with Sites at UF, VT, and BYU. GWU Site jointly funded by NSF, Intel, AMD, HP, SGI, NSA, ONR, NRO, Arctic Region Supercomputing Center. GWU site funding (3/06-4/15, \$1.5M currently, with new funding memberships and supplements added yearly). Tarek El-Ghazawi (GWU P.I.).
2. Collaborative Research: Development of efficient petascale algorithms for inhomogeneous quantum-mechanical systems. NSF, \$1.5M. Tarek El-Ghazawi (GW PI) (with Freericks [GU] and Saad [UMin]) (9/09-8/13)
3. MRI: Acquisition of a High-Performance Instrument for Interdisciplinary Computational Science and Engineering. NSF, \$1.1M. Tarek El-Ghazawi (P.I.) with Mittal, Lang, Lee and Briscoe. (10/09-09/14).
4. Collaborative Research: FRP: Productive Scientific Computing on Heterogeneous Systems. NSF, \$200K. Tarek El-Ghazawi (GW P.I.) with Alan George (UF). 08/01/12 - 01/31/14
5. Clinical and Translational Science Institute at Children's National (CTSI-CN), NIH. PIs (Jill Joseph, MD; and Peter Hotez, MD). Tarek El-Ghazawi (Associate Director, Biomedical Informatics) (6/10-5/15)
6. Unified Parallel C (UPC). Lawrence Berkeley National Lab (LBNL), \$145K. Tarek El-Ghazawi (P.I.). (11/9-7/11).
7. Exploring Multicore and Multi-Paradigm Processing for High-Performance Computing. Arctic Region Supercomputing Center (ARSC), \$535K. Tarek El-Ghazawi (P.I.). (6/07-5/11).
8. US-Egypt Workshop on Software Development for Multicore and Heterogeneous Processors. NSF, \$40K, Tarek El-Ghazawi (P.I.). (2/09-1/11).
9. Exploration of a Research Roadmap for Application Development and Execution on FPGA-based Systems. Wright-Patterson Air Force Research Lab and DARPA, \$350K. Tarek El-Ghazawi (P.I.), Alan George (Co-P.I.). (9/07-6/08).
10. An Infrastructure for a Parallel C: UPC. DoD, \$1.05M. Tarek El-Ghazawi (P.I.). (6/04-7/09).

11. Libraries and Experiments for Reconfigurable Computing Machines. DoD, \$2.95M. Tarek El-Ghazawi (P.I.) Nik Alexandridis, Kris Gaj, Duncan Buell (Co-PIs). (4/02-8/06)
12. Accelerating UPC and High-Performance Reconfigurable Computing for HPC Centers. ARSC/UAFB, \$405K. Tarek El-Ghazawi (P.I.) (6/05-8/07).
13. A Reconfigurable Computing Architecture for On-Board Data Reduction and Cloud Detection. NASA, \$270K. Tarek El-Ghazawi (P.I.). (1/2004-12/2006).
14. Emerging Parallel Architectures and High-Productivity Languages: A Pilot Study. ARSC/UAFB, \$50K. Tarek El-Ghazawi(P.I.).(3/05-5/05).
15. Grid Computing for Authentication of Arabic Text. National Science Foundation, \$25K. El-Ghazawi. (10/2001-9/2003)
16. Parallel Dimension Reduction of Hyperspectral Data. NASA GSFC, \$106K. El-Ghazawi. (7/2001-6/2004)
17. Programming Models for Globally Addressable Memory Architectures (GAMA). DARPA HPCS/SGL, \$200K. Tarek El-Ghazawi (P.I.). (7/02-6/03)
18. IP Tool: Managing Separate Intellectual Property to Support Embedded Systems Design. DoD, \$260K. N. Alexandridis (P.I.) and El-Ghazawi (Co-P.I.). (1/02-8/04)
19. Effective Use of Networked Reconfigurable Resources. DoD, \$325K. Tarek El-Ghazawi (P.I.) Nik. Alexandridis, Kris Gaj, and Brian Schott (Co-PIs). (11/00-10/02)
20. Towards an Efficient Shared Memory Parallel C Standard. DoD, \$391K. Tarek El-Ghazawi (P.I.) and Guy Robinson (Co-P.I.). (1/00-12/02)
21. Grid Computing in the NASA Context. RIACS, NASA Ames Research Center, \$60K. Tarek El-Ghazawi (P.I.). (10/00-8/01)
22. MAPS: Mathematical Applications with a Parallel-Beowulf System. National Science Foundation, \$200K. Tarek El-Ghazawi (Co-PI), with James Gentle (P.I.), Estela Blaisten, Rainland Lohner, John Wallin and and Edward Wegman (Co-PIs). (10/99-9/01)
23. Low-Cost Science Processing with Parallel COTS Technology, NASA Goddard Space Flight Center Distributed Active Archive Center, \$270K. Tarek El-Ghazawi (P.I.). (9/98-6/01)
24. High-Performance Image Processing for Remote Sensing Data. NASA GSFC, \$25K. Tarek El-Ghazawi (P.I.). (10/00-09/01)

25. Kernel and User Level Support Concepts for File System Enhancement. Scyld Computing Corporation, \$17K. Tarek El-Ghazawi (P.I.). (10/99-2/00)
26. Reconfigurable Architectures for On-Board Image Processing. NASA GSFC, \$40K. Tarek El-Ghazawi (P.I.). (4/99-3/00)
27. Parallel Dimension Reduction for Remote Sensing Data. University Space Research Association, \$25K. Tarek El-Ghazawi (P.I.). (4/99-9/00)
28. High-Performance Registration of Synthetic Aperture Radar Data for Soil Moisture Mapping. United States Air Force, Arctic Region Supercomputing Center, \$91K. Tarek El-Ghazawi (P.I.). (1/99-5/00)
29. Video Image Registration on Parallel Clusters. Image Links Inc., \$18K. Tarek El-Ghazawi (P.I.). (1/99-6/99)
30. SIESIP: Seasonal/Interannual Earth Science Information Partner. NASA, \$2.85M. Tarek El-Ghazawi (Co-I), with *Menas Kafatos (P.I.)*. Other members include *COLA, GSFC, and Udel*. (3/98-2/01)
31. High-Performance Implementations of Wavelet-Based Processing for NASA Earth Science Imagery. NASA Mission To Planet Earth (MTPE), through CESDIS/USRA, \$70K. Tarek El-Ghazawi (P.I.). (3/97-5/98)
32. Parallel Wavelet-Based Image Registration on the Beowulf Architecture. NASA GSFC, Code 930, through CESDIS/USRA, \$72,926. Tarek El-Ghazawi (P.I.). (9/96-2/98)
33. PACET: A PC-Parallel Architecture for Cost Efficient Telemetry. NASA GSFC, Code 500, \$126K. Tarek El-Ghazawi (P.I.). (1/96-5/98)
34. Understanding and Improving High-Performance I/O Subsystems. NASA HPCC Basic Research Program through USRA/CESDIS, \$149,950. Tarek El-Ghazawi (P.I.) and Gideon Frieder (Co-PI). (8/93-9/96)
35. Massively Parallel Telemetry Processing. NASA GSFC, Code 500, \$152,798. Tarek El-Ghazawi (P.I.). (1/94-12/95)
36. Experimental Evaluation and Workload Characterization for High-Performance Computer Architectures. USRA/Center of Excellence in Space Data and Information Sciences, \$86,778. Tarek El-Ghazawi (P.I.). (1/94-5/95)
37. A Pilot Study on the Parallelization of a Water Quality Model for the Chesapeake Bay. Army Corps of Engineers (subcontract through Computer Science Corporation),

with a high-performance computing equipment loan from Silicon Graphics Inc. \$5,000 plus equipment. Tarek El-Ghazawi (P.I.). (3/95-6/95)

38. Parallel Processing Techniques for Level-Zero Processing. *NASA Goddard Space Flight Center, Code 500, \$62,765.* Tarek El-Ghazawi (P.I.). (1/93-12/93)

39. Evaluating Early High-Performance Computing Systems. *USRA/CESDIS, \$26,184.* Tarek El-Ghazawi (P.I.). (6/93-12/93)

INTERNAL FUNDS and Cash Gifts:

GWU Endowment: HPC Academic Excellence Signature Program (**\$1.2 Million plus cost sharing**) (7/06-present)

INDUSTRIAL FUNDS RESEARCH GIFTS:

Unrestricted Cash Gifts (ranged from \$10K to \$70K) IBM, AMD, Mellanox, Microsoft, and Starbridge

Parallel Computers and Computer Boards: Numerous gifts and loans of/from SGI, Cray, HP, ISI, AMI, ISI, Titera, Xilinx, Altera,

EMPLOYMENT HISTORY:

Professor: Department of Electrical and Computer Engineering, The George Washington University, Washington, D.C. (8/2003-present)

Director, the High-Performance Computing Laboratory (**HPCL**) , ECE Department/GWU

Director, the GW Institute for Massively Parallel Applications and Computing Technology (**IMPACT**), GWU with funding from the GWU endowment and academic units contributions.

Co-Director, the NSF Industry/University Center for High-Performance Reconfigurable Computing (**CHREC**), a U.S. national center spanning GWU/UF/VaTech/BYU and created by NSF and more than 40 governmental and industrial organization memberships.

Associate Professor: (8/2001-6/2003) Department of Electrical and Computer Engineering, The George Washington University, Washington, D.C.

Associate Research Professor Department of Electrical Engineering and Computer Science, **The George Washington University**, Washington, D.C. (8/92-8/97) **Visiting**

Assistant Professor: (8/90-8/92) **Assistant Professorial Lecturer:** (1/89-8/90)

Associate Professor of Computational Sciences and Computer Engineering, School of Computational Sciences, with a courtesy appointment in the Department of Electrical and Computer Engineering, **George Mason University**, Fairfax, Virginia (8/98-8/2001)

Associate Professor of Computer Engineering and Computer Science, and Director of the Center for High-Performance Information Processing (CHIP), Florida Institute of Technology, Melbourne, Florida. (8/97-8/98)

Assistant Professor: Department of Computer Science, Frostburg State University, University of Maryland System, Frostburg, Maryland. (8/89-8/90)

Assistant Professor: Department of Electronics and Communications Engineering, Helwan University, Cairo, Egypt (8/88-8/89)

CONSULTING/EXPERT ACTIVITIES:

- International Business Machines(IBM)
- Arctic Region Supercomputing Center(ARSC)
- Goddard Earth Science and Technology (GEST) Center, NASA GSFC
- Transition Team, President, Tuskegee University
- Center of Excellence in Space Data and Information Science (CESDIS), NASA Goddard Space Flight Center
- Research Institute for Advance Computer Science (RIACS), NASA Ames Research Center
- GMU/Hughes Applied Information Systems
- USC/Information Sciences Institute
- Image Links Inc.
- IRMA
- Several Legal Firms for Expert Witnessing

ADVISORY BOARDS:

DSPLogic Technical Advisory Board, Minah Ventures Technical Advisory Board, Arctic Region Supercomputing Center Science Advisory Panel, Advisory Board for the IEEE Task Force on Cluster Computing, OpenFPGA Consortium Steering Committee, UPC Language Consortium. Member of the IEEE Computer Society Fellows Selection Committee.

MEDIA INTERVIEWS

- Interview with IEEE Spectrum, China's Home Grown Supercomputers. January 2012.

<http://spectrum.ieee.org/computing/hardware/chinas-homegrown-supercomputers/0>

- Interview with Sky News TV, UK, on IBM Watson, the Computer that won the Jeopardy game, February 2011.

<http://video.news.sky.com/skynews/Home/Technology/Supercomputer-Watson-Competes-On-US-Game-Show-Jeopardy-In-Test-Of-Understanding-Of-Complex-Language/Article/201102315931224?chooseNews=pictureGalleries>

- Interview with Nile TV IT Show on the NSF Workshop on Multicore, Egypt, December 2010

- Interview with Good Morning Egypt on Supercomputing and New Processing Technologies, TV Channel 1 in Egypt, December 2010.
- China Builds World's Fastest Supercomputer, Interview with IEEE Spectrum Magazine, November 2010, <http://spectrum.ieee.org/tech-talk/computing/hardware/china-builds-worlds-fastest-supercomputer>
- IBM Reclaims Supercomputer Lead, Interview with IEEE Spectrum Magazine, February 2005, <http://spectrum.ieee.org/computing/hardware/ibm-reclaims-supercomputer-lead>

PUBLICATIONS:

Books

1. T. El-Ghazawi, W. Carlson, T. Sterling, and K. Yelick, UPC: Distributed Shared Memory Programming. John Wiley & Sons Inc., New York, 2005. ISBN: 0-471-22048-5. (May 2005)

Book Contributions

2. E. El-Araby, S. Merchant, and T. El-Ghazawi. Assessing productivity of high-level design methodologies for high-performance reconfigurable computers. In W. Vanderbauwhede and K. Benkrid, editors, High- Performance Computing Using FPGAs, pages 719–745. Springer New York, 2013.
3. E. El-Araby, M. Taher, T. El-Ghazawi, and J. Le Moigne, “Remote Sensing and High Performance Reconfigurable Computing Systems”, in High Performance Computing in Remote Sensing, Editors A. J. Plaza, C.I. Chang, Volume 16, New York, Chapman & Hall/CRC Computer & Information Science Series, 2007, pps. 496. ISBN: 9781584886624, ISBN 10: 1584886625
4. Younis, Yeh, Kyriakopoulos, Alexandridis, and El-Ghazawi. Dependability of Reconfigurable Computing, with M. Younis et al, Chapter 23 in Dependable Computing, Edited by Diab and Zomaya, John Wiley and Sons. October 2005, ISBN 0-471-67422-2
5. T. El-Ghazawi, O. Frieder, J. Gaber, S. Alaoui, “Biologically Inspired Solutions for Task Mapping,” in *Biologically Inspired Solutions for Parallel Processing*, edited by A. Zomaya, John Wiley & Sons Inc., New York, 2001. ISBN: 0-471-35352-3.

6. T. El-Ghazawi and G. Frieder, "Input/Output," in *The Encyclopedia of Computer Science*, edited by Anthony Ralston, Edwin Reilly, and David Hemmendinger, Nature Publishing Group, London, 2000. ISBN: 0-333-77879-0.
7. T. El-Ghazawi and G. Frieder, "Redundant Arrays of Inexpensive Disks (RAID)," in *The Encyclopedia of Computer Science*, edited by A. Ralston, E. Reilly, and D. Hemmendinger, Nature Publishing Group, London, 2000. ISBN: 0-333-77879-0.

Journal Papers

8. Abdullah Kayi, Olivier Serres, and Tarek El-Ghazawi, "Adaptive Cache Coherence Mechanisms with Producer-Consumer Sharing Optimization for Chip Multiprocessors," *IEEE Transactions on Computers* (to appear).
9. Suboh Suboh, Vikram Narayana, Mohamed Bakhouya, Jaafar Gaber, Tarek El-Ghazawi, "Methodology for adapting on-chip interconnect architectures," *IET Computers and Digital Techniques* (to appear).
10. Teng Li, Vikram K Narayana, and Tarek El-Ghazawi, "Exploring Graphics Processing Unit (GPU) Resource Sharing Efficiency for High Performance Computing" *Computers*, vol. 2, no. 4. pp. 176-214, Nov 2013.
11. Abdullah Kayi, Olivier Serres, and Tarek El-Ghazawi. Bandwidth adaptive cache coherence optimizations for chip multiprocessors. *International Journal of Parallel Programming*, pages 1–21, 2013.
12. Lubomir Riha, Maria Malik, and Tarek El-Ghazawi, "An Adaptive Hybrid OLAP Architecture with optimized memory access patterns," *Cluster Computing Journal*, Dec. 2012.
13. 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.
14. Miaoqing Huang, Vikram K. Narayana, Tarek El-Ghazawi, Mohamed Bakhouya and Jafer Gaber, "Efficient Mapping of Task Graphs onto Reconfigurable Hardware Using Architectural Variants," *IEEE Transactions on Computers*, vol. 61, no. 9, pp. 1354-1360, Sept. 2012.
15. Aldahlawi, E. El-Araby, S. Suboh, and T. El-Ghazawi, "An Empirical and Architectural Study of Using an SSD-Aware Hybrid Storage System To Improve The Performance Of The Data Intensive Applications", *International Journal of Information and Electronics Engineering* vol. 2, no. 5, pp. 720-730, Aug 2012.
16. Maria Malik, Teng Li, Umar Sharif, Rabia Shahid, Tarek El-Ghazawi, and Greg Newby, "Productivity of GPUs under Different Programming Paradigms,"

- Concurrency and Computation: Practice and Experience, 24(2), pp. 179–191, 2012.
17. Esam El-Araby, Ivan Gonzalez, Sergio Lopez-Buedo, and Tarek El-Ghazawi, “A convolve-and-merge approach for exact computations on high-performance reconfigurable computers,” *Int. J. Reconfig. Comput.* 2012, Article 8, Jan. 2012.
 18. 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.
 19. Mohamed Bakhouya, Suboh Suboh, Jaafar Gaber, T. El-Ghazawi, S. Niar, Performance evaluation and design tradeoffs of on-chip interconnect architectures, *Simulation Modelling Practice and Theory*, Volume 19, Issue 6, June 2011, Pages 1496-1505.
 20. El-Araby, Merchant, and El-Ghazawi. "Evaluating High-Level Design Methodologies for High-Performance Reconfigurable Computers". *IEEE Transactions on Parallel and Distributed Systems*. Jan. 2011. Volume: 22 Issue: 1 On page(s): 33 – 45
 21. M. Huang, V. Narayana, H. Simmler, O. Serres and T. El-Ghazawi: Communication and Reconfiguration-Aware Task Scheduling for High-Performance Reconfigurable Computing. *ACM Transactions on Reconfigurable Technology and Systems (TRETTS)*. Volume 3 Issue 4, November 2010.
 22. Miaoqing Huang, Olivier Serres, and 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.
 23. M. Taher and Tarek El-Ghazawi: Virtual Configuration Management: A Technique for Partial Runtime Reconfiguration. *IEEE Transactions on Computers*. VOL. 58, NO. 10, October 2009
 24. A. Kayi, T. El-Ghazawi, and G. Newby: Performance Issues in Emerging Homogeneous Multicore Architectures. *Advances in System Performance Modeling, Analysis, and Enhancement*. Elsevier Journal: *Simulation, Modeling Practice and Theory*, Vol 17, Issue 9, pp 1485-1499, October 2009.
 25. A. Kayi, E. Kornkven, T. El-Ghazawi, S. Al-Bahra, and G. Newby: Performance Analysis and Tuning for Clusters with ccNUMA Nodes for Scientific Computing: A Case Study. *International Journal of Computer Systems Science and Engineering*, Vol 24, Issue 9, pp 1285-1499, September 2009.

26. Esam El-Araby, Ivan Gonzalez, Tarek A. El-Ghazawi: Exploiting Partial Runtime Reconfiguration for High-Performance Reconfigurable Computing. ACM Transactions on Reconfigurable Technology and Systems (TRETTS) 1(4): (2009)
27. El-Araby, El-Ghazawi, LeMoigne, and Irish: Reconfigurable Processing for Satellite On-Board Automatic Cloud Cover Assessment (ACCA). Journal of Real-Time Image Processing. Springer. Vol4 No3, August 2009 ISSN 1861-8200.
28. Proshanta Saha, Esam El-Araby, Miaoqing Huang, Mohamed Taher, Sergio López- Buedo, Tarek A. El-Ghazawi, Chang Shu, Kris Gaj, Alan Michalski, Duncan A. Buell: Portable library development for reconfigurable computing systems: A case study. Parallel Computing 34(4-5): 245-260 (2008)
29. Suboh A. Suboh, Mohamed Bakhouya, Jaafar Gaber, Tarek A. El-Ghazawi: An interconnection architecture for network-on-chip systems. Telecommunication Systems 37(1-3): 137-144 (2008)
30. 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
31. Abhishek Agarwal, Hesham El-Askary, Tarek El-Ghazawi, Menas Kafatos, and Jacqueline Le-Moigne, "Efficient PCA Fusion Techniques for MISR Multi-angle Observations with Applications to Monitoring Dust Storms" IEEE-Geosciences and Remote Sensing Letters (GRSL), Volume 4, Issue 4, Oct. 2007 Page(s):685 - 703
32. Buell, El-Ghazawi, Gaj, and Kindratenko, High-Performance Reconfigurable Computing" IEEE Computer (Guest Editors Intro), March 2007 (Vol. 40, No. 3).
33. Tarek A. El-Ghazawi, François Cantonnet, Yiyi Yao, Smita Annareddy, Ahmed S. Mohamed: Benchmarking parallel compilers: A UPC case study. Future Generation Comp. Syst. 22(7): 764-775 (2006)
34. El-Araby, E., Taher, M., Gaj, K., El-Ghazawi, T., Caliga, D. and Alexandridis, N. (2006) System-level parallelism and concurrency maximization in reconfigurable computing applications', *Int. J. Embedded Systems*, Vol. 2, Nos. 1/2, pp.62–72.
35. Salem, F., M. Kafatos, T. El-Ghazawi, R. Gomez, and R. Yang, Hyperspectral image assessment of oil-contaminated wetland. *International Journal of Remote Sensing* 26, 811-821(11) (2005).

36. T. El-Ghazawi and J. Le Moigne, "Performance of the Wavelet Decomposition on Massively Parallel Computers, International Journal of Computers and Their Applications. Vol. 27, No2, 2005.
37. T.El-Ghazawi, K.Gaj, N. Alexandridis, F. Vroman, N. Nguyen, J. Radzikowski, P. Samipagdi, and S. Suboh, Performance Study of Job Management Systems,. Concurrency and Computation: Practice and Experience, John Wiley & Sons, Ltd. Vol. 16 Issue 13, October 2004.
38. Sinthop Kaewpijit, Jacqueline Le Moigne, and Tarek El-Ghazawi, Feature reduction of hyperspectral imagery using hybrid wavelet-principal component analysis. Optical Engineering Vol 43 No 350, Feb 2004.
39. EL-Askary, Sarkar, Chiu, Kafatos and El-Ghazawi. Rain gauge derived precipitation variability over Virginia and its relation with the El Nino southern oscillation. Advances in Space Research Volume 33, Issue 3 , 2004.
40. El-Askary, H.M.; Sarkar, S.; Kafatos, M.; El-Ghazawi, T.A. A multisensor approach to dust storm monitoring over the Nile delta. IEEE Transactions on Geosciences and Remote Sensing (TGARS) Volume 41 No. 10, Oct. 2003.
41. S. Kaewpijit, J. Le Moigne, and T. El-Ghazawi, "Automatic Reduction of Hyperspectral Imagery Using Wavelet Spectral Analysis," IEEE Transactions on Geosciences and Remote Sensing (TGARS), Vol. 41 No. 4, April 2003, pp 863-871.
42. H. Baala, O. Flauzac, J. Gaber, M. Bui, and T. El-Ghazawi, "A Self-Stabilizing Distributed Algorithm for Spanning Tree Construction in Wireless Ad-Hoc Networks," Journal of Parallel and Distributed Computing (JPDC), Academic Press. 63(2003) 97-104.
43. P. Chalermwat, T. El-Ghazawi, and J. Le Moigne, "2-Phase GA-based Image Registration on Parallel Clusters," Future Generation Computer Systems, North-Holland Elsevier, vol. 17, pp. 467-476, 2001.
44. S. Alaoui, T. El-Ghazawi, O. Frieder, A. Bellaachia, and A. Bensaid, "Mapping Tasks onto Nodes: A Parallel Local Neighborhood Approach," Future Generation Computer Systems, North-Holland Elsevier, vol. 17, pp. 397-403, 2001.
45. A. Meajil, T.El-Ghazawi, T. Sterling, "Characterizing and Representing Workloads for Parallel Computer Architectures," Journal of Systems Architecture, North-Holland Elsevier, vol. 46, No. 1, Jan. 2000.
46. A. Zomaya, T. El-Ghazawi, and O. Frieder, "Parallel and Distributed Computations for Data Mining," IEEE Concurrency, vol. 7, No. 4. Oct.-Dec. 1999.

47. M. Kafatos, T. El-Ghazawi, S. Wang, and R. Yang, "Earth Observing Data Systems in the Internet Era," *Journal of Photogrammetric Engineering and Remote Sensing*, vol. 65, No. 5, May 1999.
48. S. Nastea, O. Frieder, and T. El-Ghazawi, "Load-Balanced Sparse Matrix-Vector Multiplications on Highly Parallel Computers," *Journal of Parallel and Distributed Computing*, vol. 46, No. 2, Nov. 1997.
49. A. Meajil, T. El-Ghazawi, and T. Sterling, "Performance Prediction Based on Workload Similarity," *Supercomputer*, vol. 13, Aug. 1997.
50. N. Adam, B. Edelson, T. El-Ghazawi, M. Halem, K. Kalpakis, N. Kozura, R. Medina, and Y. Yesha, "The Global Legal Information Network (GLIN)," *The American University Law Review*, vol. 46, No. 2, Dec. 1996.
51. T. El-Ghazawi and J. Le Moigne. "Multiresolution Wavelet Decomposition on the MasPar Massively Parallel System," *Journal of Computers and Their Applications*, vol. 1, No. 1, Aug. 1994.
52. T. El-Ghazawi and A. Youssef, "A General Framework for the Design of Adaptive Fault-Tolerant Routing Algorithms," *IEEE Transactions on Reliability*, vol. 42, No. 2, June 1993.
53. T. El-Ghazawi and A. Youssef, "Fault-Tolerance in Product Networks," *The International Journal of Mini and Microcomputers*, vol. 15, No. 3, Nov. 1993.

Conference Proceedings Papers

54. Vikram K. Narayana, Olivier Serres, Jason Lau, Stuart Licht, and Tarek El-Ghazawi, "Towards a Computational Model for Heat Transfer in Electrolytic Cells," in *Proc. 5th International Conference on Computer Modeling and Simulation*, Barcelona, Spain, February 20-21, 2014
55. Zeki Bozkus, Ahmad Anbar and Tarek El-Ghazawi, Adaptive Computing Library for Quantum Monte Carlo Simulations, *Proc. 5th International Conference on Computer Modeling and Simulation*, Barcelona, Spain, February 20-21, 2014.
56. David Newsom, Ahmad Anbar, Tarek El-Ghazawi and Sardar Azari, "Locality Aware Power Optimization and Measurement Methodology for PGAS Workloads," *IEEE International Green Computing Conference*, June 27-29, 2013, Arlington, VA.
57. David Newsom, Ahmad Anbar, Tarek El-Ghazawi and Sardar Azari, "Granular CPU Power Measurement for Network HPC Clusters," *The Third International*

- Workshop on Power Measurement and Profiling (PMP 2013) in conjunction with IEEE IGCC 2013. June 26-29, Arlington, VA.
58. David Newsom, Ahmad Anbar, Tarek El-Ghazawi and Sardar Azari, "Predictive Energy Management Techniques for PGAS Programming," 10th ACS/IEEE International Conference On Computer Systems And Applications (AICCSA 2013), Fes/Ifrane, Morocco, May 27 – 30, 2013.
 59. Gabriel Yessin, Lubomir Riha, David Mayhew and Tarek El-Ghazawi, "An Exploration of the Design Space for Application-Specific ARM Processors for Web Browsing," 24th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP 2013), June 2013.
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- 167.T. El-Ghazawi and F. Cantonnet, "UPC Performance and Potential: A NPB Experimental Study," Supercomputing'02, IEEE CS, Baltimore, Nov. 16-22, 2002.
- 168.El-Askary H., Sarkar S., Chiu L., Kafatos M., and El-Gahzawi T. "Rain Gauge Derived Precipitation Variability over Virginia and its Relation with the EL NINO Southern Oscillation (ENSO)" Committee On Space Research 34th COSPAR Scientific Assembly The Second World Space Congress 10-19 October 2002 Houston, TX, USA.
- 169.Hesham El-Askary, Sudipta Sarkar, Long Chiu, Menas Kafatos and Tarek El-Ghazawi EL NINO Southern Oscillation impact on Virginia Precipitation Conference on Earth-Observing and Atmosphere-Land-Ocean Interaction (COAA 2002) Fairfax, VA., October 2002.
- 170.O. D. Fidanci, H. Diab, T. El-Ghazawi, and N. Alexandridis, "Implementation Trade-offs of Triple-DES in the SRC Reconfigurable Computing Environment," MAPLD International Conference, Laurel, MD., September 2002.
- 171.M. Taher, K. Gaj, T. El-Ghazawi, and N. Alexandridis, "Job Management System Extension to Support SLAAC-1V Reconfigurable Hardware" MAPLD International Conference, Laurel, MD., Sep. 10-12, 2002.
- 172.J. Le Moigne, A. Cole-Rhodes, R. Eastman, T.El-Ghazawi, K. Johnson, S. Kaewpijit, N. Laporte, J. Morissette, N. S. Netanyahu, H. S. Stone, and I. Zavorin, "Multiple Sensor Image Registration, Image Fusion, and Dimension Reduction of Earth Science Imagery," ISIF/IEEE FUSION'02, Annapolis, July 7-11, 2002.
- 173.S. Kaewpijit, J. Le Moigne, and T. El-Ghazawi, "A Wavelet-based PCA Reduction for Hyperspectral Imagery," IEEE International Geoscience and Remote Sensing Symposium (IEEE IGARSS'02), Toronto, Canada, June 24-28, 2002.
- 174.K. Gaj, T. El-Ghazawi, F. Vroman, N. Nguyen, J. R. Radzikowski, P. Samipagdi, and S. A. Suboh, "Performance Evaluation of Selected Job Management Systems," Proceedings of IEEE International Parallel and Distributed Processing Symposium (PMEO-PDS'02), Fort Lauderdale, Florida, Apr. 15-19, 2002.

175. T. El-Ghazawi, S. Kaewpijit, and J. Le Moigne, "Parallel Adaptive Reduction of Hyperspectral Data to its Intrinsic Dimensionality," Third IEEE International Conference on Cluster Computing (Cluster'01), Newport Beach, California, Oct. 8-11, 2001.
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177. S. Kaewpijit, J. Le Moigne, and T. El-Ghazawi, "A Hybrid Algorithm for Automatic Detection of Hyperspectral Dimensionality," IEEE International Geoscience and Remote Sensing Symposium (IEEE IGARSS'01), Sydney, Australia, July 9-13, 2001.
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179. T. Gharib and T. El-Ghazawi, "A Low Overhead parallel Clustering Algorithm," International Conference on Parallel and Distributed Techniques and Applications (PDPTA), Las Vegas, June 2001.
180. N. Goharian, T. El-Ghazawi, and D. Grossman, "Enterprise Text Processing: A Sparse Matrix Approach," IEEE International Conference on Information Technology: Coding and Computing (ITCC 2001), Las Vegas, Apr. 2001.
181. K. Gaber, J. Bahi and T. El-Ghazawi, "Parallel Mining of Association Rules with a Hopfield Type Neural Network," The Twelfth IEEE International Conference on Tools with Artificial Intelligence (ICTAI-2000), Vancouver, British Columbia, Canada, Nov. 13-15, 2000.
182. N. Goharian, Tarek El-Ghazawi, David Grossman, and Abdur Chowdhury, "On the Enhancements of a Sparse Matrix Information Retrieval Approach. International Conference on Parallel and Distributed Techniques and Applications," Las Vegas, June 26-29, 2000.
183. Tarek El-Ghazawi, Chris Lynnes, Ming Zhu, and Marc Brown, "Science Processing of MODIS Earth Observing Data with a Parallel Cluster," International Conference on Parallel and Distributed Techniques and Applications, Las Vegas, June 26-29, 2000.
184. P. Charlemwat and T. El-Ghazawi, "Multiresolution Image Registration Using Genetics," IEEE International Conference on Image Processing, Kobe, Japan, Oct. 1999.

185. R. Yang, C. Wang, M. Kafatos, X.S. Wang, and T. El-Ghazawi, "Remote Data Access via the SIESIP Distributed Information System," 11th Scientific and Statistical Database Management (SSDBM'99), IEEE CS, Cleveland, July 1999.
186. J. Faik, M. Jiber, A. Bellaachia, and T. El-Ghazawi, "Optimum Expansion Embedding of Binary Trees in the X-mesh," International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'99), Las Vegas, June 1999.
187. N. Goharian, T. El-Ghazawi, and D. Grossman, "On the Implementation of Information Retrieval as Sparse Matrix Application," International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'99), Las Vegas, June 1999.
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190. J. Le Moigne, W. Xia, P. Chalermwat, T. El-Ghazawi, M. Mareboyan, N. Netanyahu, J. Tilton, W. Campbell, R. Cromp, "First Evaluation of Automatic Registration Methods," IEEE International Geoscience and Remote Sensing Symposium (IEEE IGARSS'98), Seattle, July 1998.
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- Irregularly Structured Problems in Parallel (IRREGULAR-97), Paderborn, Germany, June 1997.
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 200. M. Berry and T. El-Ghazawi, "An Experimental Study of Input/Output Characteristics of NASA Earth and Space Sciences Applications," Proceedings of IEEE International Parallel Processing Symposium (IPPS'96), Honolulu, Apr. 1996.
 201. S. Nastea, T. El-Ghazawi, and O. Frieder, "Parallel Input/Output Impact on Sparse Matrix Compression," Proceedings of the Data Compression Conference (DCC'96), IEEE CS, Snowbird, Apr. 1996.
 202. T. El-Ghazawi, "Characteristics of the MasPar Parallel I/O System," Proceedings of Frontiers'95, IEEE CS, McLean, VA., Feb. 1995.
 203. Chan, C. Chui, J. LeMoigne, H. Lee, J. Liu, and T. El-Ghazawi, "The Performance Impact of Data Placement for Wavelet Decomposition of Two Dimensional Image Data on SIMD Machines," Proceedings of Frontiers'95, IEEE CS, McLean, Feb. 1995.
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205. T. El-Ghazawi and A. Youssef, "A Unified Approach to Adaptive Fault-Tolerant Routing," Proceedings of the IEEE 12th International Conference on Distributed Computing Systems, Yokohama, Japan, June 1992.
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209. F. Salem, M. Kafatos, and T. El-Ghazawi, "Hyperspectral Image Analysis for Oil Spill Detection on Contaminated Land of Urban Areas," 3rd International Symposium Remote Sensing of Urban Areas, Istanbul, Turkey, 11-13 June 2002.
210. J. Vongsaard, L. S. Chiu, T. El-Ghazawi, J. Weinman, M. Kafatos, and R. Yang, "Automatic Morphing Using Image Registration: Application to Continuous Tracking of Rain Fields," American Meteorological Society (AMS), Mississippi River Climate and Hydrology, New Orleans, Louisiana, May 13-17, 2002.
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- 216.V. Staicu, J. R. Radzikowski, K Gaj, N. Alexandridis, and T. El-Ghazawi, "Effective Use of Networked Reconfigurable Resources," Proc. 2001 MAPLD Int. Conf., Laurel, MD., Sep. 2001.
- 217.S. Kaewpijit, J. Le Moigne, and T. El-Ghazawi, "Finding the Dimensionality of Hyperspectral Data," 2001 SPIE's OE/Aerospace Sensing, Algorithms for Multispectral and Hyperspectral Data VII, Orlando, Apr. 16-20, 2001.
- 218.F. Salem, T. El-Ghazawi, and M. Kafatos, "Remote Sensing and Image Analysis for Oil Spill Mitigation in the Red Sea," International Conference on Earth Observations and Global Information, Cairo, Egypt, Nov. 11-14, 2000.
- 219.J. Vongsaard, L. S. Chiu, and T. El-Ghazawi, "Image Registration Technique for Comparing Precipitation Radar data and Ground Validation data," Progress in Electromagnetics Research Symposium (PIERS), Cambridge, Massachusetts, July 5-14, 2000
- 220.Christopher Lynnes, Peter Smith, Larry Shotland, Tarek El-Ghazawi, Ming Zhu, "Level 1 Processing of MODIS Direct Broadcast Data," The 4th International Meeting on Direct Broadcast of Earth Observation Data, Dundee, Scotland, June 27-30, 2000.
- 221.J.Gaber, J.Bahi, T.El-Ghazawi and B.Toursel, "Analysis of Randomized on-line load distribution in static network," International Conference on Software Engineering Applied to Networking & Parallel/ Distributed Computing (SNPD'2000), Champagne-Ardenne, France, May 18-21, 2000.
- 222.M. Kafatos, R. Yang, L. Chiu, T. El-Ghazawi, Z. Li, J. McManus, C. Wang, X. S. Wang, H. Weir, and K-S Yang, "Data Access, Querying, and Analysis in a Distributed Data Information Framework Supporting Earth System Science. International Conference on Information Systems Analysis and Synthesis (SCI/ISAS'99 Multiconference), Orlando, July 1999.
- 223.J. Le Moigne, W. Xia, S. Chettri, T. El-Ghazawi, ... et. al, "Towards an Intercomparison of Automated Registration Algorithms for Multiple Source Remote Sensing Data," Image Registration Workshop (IRW'97), Greenbelt, MD., Nov. 1997.
- 224.P. Chalermwat, T. El-Ghazawi, and J. Le Moigne, "Image Registration by Parts," Image Registration Workshop (IRW'97), Greenbelt, MD., Nov. 1997.

225. W. Xia, J. Le Moigne, J. Tilton, B.-T. Lerner, E. Kaymaz, J. Pierce, S. Raghavan, S. Chettri, T. El-Ghazawi, M. Mareboyana, N. Netanyahu, and W. J. Campbell, and R. F. Crompt, "A Registration Toolbox for Multi-Source Remote Sensing Applications," Earth Observations and Environmental Information (EOEI'97), Alexandria, Egypt, Oct. 1997.
226. Meajil and T. El-Ghazawi, "A Framework for Performance Prediction of Parallel Systems Based on Workload Similarity," The Eighth SIAM Conference on Parallel Processing for Scientific Computing, PP '97, Minneapolis, MN., Mar. 14-17, 1997.
227. Ozkaya and T. El-Ghazawi, "An Electrostatic Particle_In_Cell (PIC) Simulations on the Intel Paragon," Proceedings of the Parallel and Distributed Computing and Systems, Orlando, Sep. 1995.
228. T. El-Ghazawi, J. Pritchard, and G. Knoble, "Applications of Massively Parallel Computing in Telemetry Processing," Proceedings of SPACEOPS'94, NASA and CCSDS, Greenbelt, MD, Nov. 1994.
229. T. El-Ghazawi, "Performance Evaluation of Early Systems: An HPCC Perspective," Proceedings of the Sixth SIAM Conference on Parallel Processing for Scientific Computing, Norfolk, VA., Mar. 1993.
230. Baig, N. Alexandridis, and T. El-Ghazawi, "Cost and Performance Analysis of Partitionable SIMD/MIMD Architectures," Proceedings of the ISMM International Conference on Computer Applications in Design, Simulation, and Analysis, Orlando, FL., Mar. 1992.
231. Baig, T. El-Ghazawi, and N. Alexandridis, "A Highly Reconfigurable MSIMD/MIMD Architecture," Proceedings of the Fourth ISMM International Conference on Parallel and Distributed Computing and Systems, Washington D.C., vol. II, Oct. 1991.
232. T. El-Ghazawi and G. Flachs, "Design of Pipelined Processors for Optimal Implementation of Difference Equations," Proceedings of the Fourth ISMM International Conference on Parallel and Distributed Computing and Systems, Washington D.C., Vol. II, Oct. 1991.
233. Youssef and T. El-Ghazawi, "Fault Tolerant Routing in Product Networks," Proceedings of the Fourth ISMM International Conference on Parallel and Distributed Computing and Systems, Washington D.C., Vol. II, Oct. 1991.
234. W. E. Thompson, G. M. Flachs, L. Kazda, V. Kittur, and T. El-Ghazawi, "Vision System Control," Proceedings of 19TH Pittsburgh Conference on Modeling and Simulation, Pittsburgh, PA., May 1988.

235. Schleusener, T. El-Ghazawi, R. Black, and R. Blanco, "Analysis of Scanning Recognition Systems Using Windowed Clutter Measurements," Proceedings of the 29th Midwest Symposium on Circuits and Systems, Lincoln, Nebraska, Aug. 1986.
236. Schleusener, T. El-Ghazawi, R. Black, and R. Blanco, "Analog Windowed Clutter Instrumentation," Proceedings of ISE/IEEE Ideas in Science and Electronics, Albuquerque, New Mexico, May 1986.
237. El-Ghazawi and M. D. Merrill, "An Analytical Design of Digital Controllers with Minimum Settling Time," Proceedings of the 28th Midwest Symposium on Circuits and systems, Louisville, Kentucky, Aug. 1985.

GRADUATE ADVISING:

Doctoral Students Advised

1. Dr. Abdullah Kayi, An Efficient Cache Coherence Mechanism for Chip Multiprocessors. June 2011. (Dr. Kayi is now with the Intel Corporation as part of their Future Technology Group in Hillsborough, Oregon)
2. Dr. Esam El-Araby. Virtualizing and Sharing Resources in High-Performance Reconfigurable Computing Architectures. July 2010. (Dr. El-Araby is an Assistant Professor with the Catholic University of America, Dept. of Electrical Engineering and Computer Science)
3. Dr. Suboh Suboh. Towards an Adaptive Interconnect for System-on-Chip. May 2010. (Dr. Suboh is a Visiting Scholar at the HPCL/GWU)
4. Dr. M. Q. Huang. Mapping and Scheduling Hardware Tasks on High-Performance Reconfigurable Architectures. August 2009. (Dr. Huang is an Assistant Professor with University of Arkansas, Dept of Computer Science and Engineering)
5. Dr. Proshanta Saha Application Hardware/Software Co-Design for Reconfigurable Computing Systems, Defended March 2008. (Dr. Saha is with IBM TJ Watson Research Center)
6. Dr. Mohamed Taher, D.Sc. in Computer Engineering, Thesis Title: Exploiting Processing Locality for Adaptive Computing Systems, September 2006. (Dr. Taher is an Assistant Professor with Ain Shams University and consults for Mentor Graphics)
7. Dr. Abdullah Almojel: An Architecture-Independent Workload Characterization Model for Parallel Computer Architectures, GWU, April 1997. (Dr. Almojel is the VP for Development in KAUST University)
8. Dr. Prachya Chalermwat: High-Performance Automatic Image Registration GMU, November 1999. (Dr. Chalermwat is an Associate Professor with the Computer Science Department at the Thai Royal Military Academ)

9. Dr. Nazil Goharian: A Sparse Matrix Approach for Information Retrieval, FIT, April 2001. (Dr. Goharian is an Associate Professor with the Computer Science Department at Georgetown University)
10. Dr. Jearanai Vongsaard: Automatic Morphing Using Image Registration: Applications to Continuous Tracking of Radar Reflectivity and Rain Fields, GMU, April 2002. (Dr. Vongsaard is an Associate Professor with the Computer Science Department at the Thai Royal Military Academy)
11. Dr. Sinthop Kaewpijit: High-Performance Dimension Reduction of Hyperspectral Data, GMU, August 2002. (Dr. Kaewpijit is an Army Major, Project Engineer/The Battalion of Engineers, Thailand)

M.S. Theses

1. Lingyuan Wang: Exploring Hierarchical Parallelism Using UPC. August 2010. (Mr. Wang is with HPCL/GWU)
2. John Harkins: Improving High-Performance Reconfigurable Architectures: A Sorting Case Study, December 2005 (with US Gov)
3. Smita Anareddy: Adaptive Programming-Model-Based Load-balancing Environment (APLE), GWU, January 2005 (with Microsoft)
4. Esam El-Araby: A System Level Design Life Cycle for Reconfigurable Computing Applications, GWU, January 2005 (Ph.D. in 2010, now Assistant Pof. At CUA)
5. Francios Cantonnet : Compiler Optimizations for Distributed Shared Memory Languages. GWU, December 2003 (Microsoft)
6. Esmail Chitwala : Benchmarking of Recofigurable Computing Systems. GWU, May 2004 (Hughes Network Systems)

PROFESSIONAL SERVICE:

Editorial Boards:

- Associate Editor, IEEE Transactions on Computers, 2006-2012
- Guest Co-Editor, IEEE Computer, Special Issue on High-Performance Reconfigurable Systems (March 2007)
- Associate Editor, Int. Journal of Parallel and Distributed Systems and Networks, 98-01
- Guest Co-Editor, IEEE Concurrency, Track on High-Performance Data Mining, 99-00.

Government Research Funding Selection Panels and Reviews:

- National Science Foundation
- DoD HPCMOD
- NASA Headquarters
- Qatar Foundation

Technical Conference Activities:

Conference Leadership

- Chair, Steering Committee, Partitioned Global Address Space Programming Paradigms Conference.
- General Chair, The 24th IEEE International Conference on Application-specific Systems, Architectures and Processors. Washington DC, June 2013.
- General Chair, International Conference on New Technologies, Mobility and Security, NTMS 2011, Paris, February 2011
- General Co-Chair, International Symposium on Applied Reconfigurable Computing, Belfast, March 2011.
- General Chair, ACS/IEEE International Conference on Computer Systems and Applications, AICCSA 2011, Sharm El-Sheikh, June 2011.
- General Co-Chair, High-Performance Reconfigurable Computing Technology and Applications Workshop, New Orleans, November 2010.
- General Chair, The 10th IEEE International Conference on Scalable Computing and Communications (ScalCom-10), Bradford, UK, June 29-July 1, 2010.
- General Chair, The 10th IEEE International Conference on Computer and Information Technology (CIT-10) Bradford, UK, June 29 – July 1, 2010.
- Program Chair, International Symposium on Applied Reconfigurable Computing, Bangkok, March 2010.
- General Chair, Partitioned Global Address Space Programming Paradigms Conference Washington D.C., October 2009
- General Co-Chair, High-Performance Reconfigurable Computing Technology and Applications Workshop, Portland, November 2009.
- Program Chair, International Conference on Field Programmable Technology (FPT), Taipei, December 2008
- Program Co-Chair, High-Performance Reconfigurable Computing Technology and Applications Workshop, Seattle, November 2008.
- Program Co-Chair, High-Performance Reconfigurable Computing Technology and Applications Workshop, Reno, November 2007.
- Chair, Partitioned Global Address Space Programming Paradigms Conference (PGAS2006), Washington D.C., October 2006.

- Workshops chair for the Frontiers of the Massively Parallel Computation. Sponsored by the IEEE, IEEECS and NASA. Mclean, VA, February 1995.
- Local Arrangements Co-Chair for the International Conference on Reliability, Quality Control and Risk Assessment. Sponsored by IASTED in cooperation with the IEEE Reliability. Washington, D.C., November 1992.
- Program Co-Chair for the Fourth ISMM International Conference on Parallel and Distributed Computing and Systems. Sponsored by the ISMM. Washington D.C., October 1991.

Technical Reviewing/Refereeing:

Served as a referee for textbooks and research papers in Parallel Processing and Computer Architecture for many organizations including:

- John Wiley
- West Publishing
- WCB Publishers
- The IEEE Transactions on Computers
- The IEEE Transactions on Parallel and Distributed Systems
- The IEEE Geosciences and Remote Sensing
- Journal of Parallel and Distributed Computing
- Journal of Computers and Software Engineering
- The Journal of Computers
- Many other publishers and IEEE/ACM major conferences
- Refereed research proposals submitted to NASA and NSF

Recent Keynote, Invited and Plenary Presentations

- Preprocessing Big Data with Heterogeneous Hardware. Keynote at HPC China 2013 Big Data Forum, Oct 29-30, 2013.
- The Next 20 Years of Reconfigurable Computing. Presentation at Reconfigurable Architectures Workshop (RAW 2013) Panel, held in conjunction with IPDPS'13, in Boston, May 20-21, 2013.
- Analyzing Big Data and Crunching Large Scale Simulations at Speed- The Advances in High-Performance Computing. Keynote talk at Interface 2013 Symposium at Chapman University, Orange, California, April 4, 2013.
- Advances in High-Performance Computing: The Race to the Top. Colorado State Univ., ISteC (Informations Sciences and Technology Center, CSU) Distinguished Lecture in conjunction with the Electrical and Computer Engineering Department and Computer Science Department Seminar Series. Feb 18, 2013.
- Making Heterogeneity a First Class Citizen. Colorado State Univ., Electrical and Computer Engineering Department and Computer Science Department Special Seminar Sponsored by ISteC (Informations Sciences and Technology Center,

CSU), Feb 18, 2013.

- Future Directions in High-Performance Computing: Cloud, Datacenters, and Dedicated Systems what are the issues? Presentation at Panel discussion in IEEE International Symposium on Signal Processing and Information Technology, Dec 12-15, 2012 Ho Chi Minh City, Vietnam.
- Mobile Cloud Computing – Opportunities and Challenges. Keynote at International Conference on Complex Systems (ICCS) 2012, Nov 5-6 2012, Agadir, Morocco.
- Advances in Supercomputing - International Workshop on Information Technologies and Communications, Casablanca, November 2011.
- Embracing Heterogeneity in High-Performance Computing, Keynote Address: International Conference on High Performance Computing and Simulation, Istanbul, Turkey, July 6, 2011.
- The Challenges of Computing with FPGAs, Reconfigurable Architectures Workshop, Keynote Address: held in conjunction with the International Parallel and Distributed Processing Symposium, Anchorage, Alaska, May 17, 2011.
- Multimedia Processing Meets High-Performance Computing, Keynote Address: International Conference of Multimedia Computing and Systems, Ouarzazate, Morocco, April 8, 2011.
- PGAS Programming in UPC, Spring School, Tutorial: organized by the Partnership for Advanced Computing in Europe (PACE), at University of Edinburgh, UK. Edinburgh, March 30, 2011.
- Parallel Programming for Multicore and Parallel Computers, Invited Talk: Abdelmalek Essadi University, Tangier, Morocco (Sponsored by the Fulbright Commission and AEU), March 14, 2011.
- Advances in High-Performance Computing, Invited Talk: Abdelmalek Essadi University, Tangier, Morocco (Sponsored by the Fulbright Commission and AEU), March 10, 2011.
- Towards Ease-of-Use and Portability for Heterogeneous Accelerated High-Performance Computing, Invited Talk: A Case Study. US AFOSR-Computational Math Review, Arlington, VA July 2010.
- Computing with FPGAs: Where does it stand and what is next? Keynote Address: FPGA World, Copenhagen, September 2010.
- Towards Ease-of-Use and Portability for Heterogeneous Accelerated High-

- Performance Computing: A Case Study. AFOSR Computational Math Review, Invited Talk: July 2010.
- The Programmer Productivity Challenges in Modern Computing (Distinguished Visiting Professor Lecture), Invited Talk: American University at Cairo (AUC). April 2010.
 - Advances in High-Performance Computing. (Distinguished Visiting Professor Lecture), Invited Talk: American University at Cairo (AUC). April 2010.
 - Programming with the PGAS Programming Model. (Distinguished Visiting Professor Lecture), Invited Talk: American University at Cairo (AUC). April 2010.
 - The Ubiquity of High-Performance Computing: In Search of Unifying Solutions. Invited Talk: DARPA IPTO Distinguished Lecturer Series. July, 2009.
 - The Ubiquity of High-Performance Computing: In Search of Unifying Solutions. Invited Talk: DoD High-Performance Computing Modernization Program Office. July, 2009.
 - High-Performance Computational Science with Hardware Accelerators: Challenges and Potential Solutions. Invited Talk: GaTech and AFRL. August, 2009.
 - The Ubiquity of High-Performance Computing: In Search of Unifying Solutions. Invited Talk: IBM Research- Arlington Research Lab. March 2010.
 - The Challenges of Hardware Accelerated Computations. Invited Talk: Office of the Secretary of Defense and GMU. September 2009.
 - The Ubiquity of High-Performance Computing: In Search of Unifying Solutions. Invited Talk: DoD. September 2009
 - The Case and Hurdles for High-Performance Reconfigurable Computing. Invited Talk: DoD. July 2009.
 - Computing with Manycores and Heterogeneous Processors: The Productivity Challenges. IFIP 2009 International Conference on New Technologies, Mobility and Security (NTMS'09) Keynote Address: Cairo, December 2009.
 - Programming in the PGAS Model, IEEE/ACM Supercomputing, Tutorial: Portland, November 2009.

- Programming in the PGAS Model, IEEE Cluster, Tutorial: New Orleans, August 2009.
- Programming in the PGAS Model, PACT'09, Tutorial: Raleigh, September 2009.
- Do Not Ask What FPGAs Can Do for HPC, Ask What HPC Can Do for FPGAs. Xilinx Corporation, Invited Talk: Santa Clara, January 2009.
- Programming in UPC. The National Security Agency, Invited Talk: Ft Meade, April 2009.
- The Potential for High-Performance Reconfigurable Computing. HPC Users' Forum, Invited Talk: Roanoke, April 2009.
- The Software Challenges of Heterogeneous Multicore Processors: Lessons from High-Performance Computing. International Forum on Multicore Technology, Keynote Address: Cairo, November 2008.
- Advances in High-Performance Computing. IEEE International Conference on Computer Engineering and Systems (ICCES'08) Keynote Address: Cairo, November 2008.
- The Ubiquity of High-Performance Computing. IFIP 2008 International Conference on New Technologies, Mobility and Security (NTMS'08) Keynote Address: Tangier, November 2008.
- Programming in the PGAS Model, IEEE/ACM Supercomputing, Full Day Tutorial: Austin, November 2008.
- Panel Moderator- Software Challenges for Heterogeneous Multicore Processors, IEEE/ACM Supercomputing, Invited Talk: Austin, Nov 2008. Distinguished Panelists (David Patterson – UCB, Mark Snir – UIUC, David Bader- Georgia Tech, Vivek Sarkar- Rice).