

Kirk W. Cameron, Ph.D.

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ACADEMIC EXPERIENCE	VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY Assoc. Dept. Head for Research and Engagement (5 direct reports) QUEENS UNIVERSITY BELFAST World Leading Researcher Fellow BRITISH ROYAL ACADEMY Distinguished Visitor Fellowship Assoc. Dept. Head for Graduate Studies Director, stack@cs Center for Computer Systems Professor of Computer Science Faculty Fellow, College of Engineering Associate Professor of Computer Science Founder and Director, Scalable Performance Laboratory (SCAPE) UNIVERSITY OF SOUTH CAROLINA Asst. Prof. of CSE FLORIDA INSTITUTE OF TECHNOLOGY Asst. Prof. of CS	<i>August 2005-Present</i> <i>August 2018-Present</i> <i>August 2017-May 2018</i> <i>August 2017-May 2018</i> <i>August 2014-2017</i> <i>June 2013-Present</i> <i>June 2012-Present</i> <i>May 2007-Present</i> <i>Aug 2005-May 2012</i> <i>August 2001-Present</i> <i>August 2001-August 2005</i> <i>August 2000-July 2001</i>
CORPORATE EXPERIENCE	MISERWARE, INC. Founder, CEO, and CTO Venture-backed VT Spinout Company; Raised over \$3M in venture capital funding. INTEL CORPORATION Engineer: 82450 NX Multiprocessor Chipset Design Team	<i>August 2007-2014</i> <i>May 1996-January 1997</i>
LABORATORY EXPERIENCE	LOS ALAMOS NATIONAL LABORATORY CIC DIVISION Research Assistant: Parallel Architecture Laboratory, ASCI (Accelerated Strategic Computing Initiative)	<i>January 1998-August 2000</i>
SELECT ACADEMIC HONORS	IEEE FELLOW For contributions to measurement and management of energy in high-performance computing systems DEAN'S AWARD FOR EXCELLENCE IN RESEARCH INFOCOMP 2018 Best Paper Award ACM Distinguished Scientist for "Contributions to Computing" LLNL Deputy Director's Science/Tech Excellence Award U.K. ROYAL ACADEMY OF ENGR. Distinguished Visiting Fellowship ACM HPDC 2017 – Karsten Schwan Memorial Best Paper Award MAGPI MAGAZINE -- #2 RPI PROJECT OF ALL TIME LIST (SeeMore) OUTSTANDING SERVICE – IPDPS 2016 (also CCGRID 2014) INT'L MAKERS FAIRE 2015 – 3 Editor's Choice Awards (SeeMore) AMD FACULTY AWARD NAE FRONTIERS SYMPOSIUM Organizer, (also Invitee 2008, 2010) VT SCHOLAR OF THE WEEK MICROSOFT FACULTY SUMMIT (also 2007) IBM FACULTY AWARD VT COE FACULTY FELLOW IEEE/ACM SUPERCOMPUTING Best Paper Finalist USC COEIT Young Investigator Research Award DEPARTMENT OF ENERGY CAREER AWARD NATIONAL SCIENCE FOUNDATION CAREER AWARD	<i>January 2021</i> <i>September 2020</i> <i>September 2018</i> <i>November 2017</i> <i>September 2017</i> <i>August 2017-May 2018</i> <i>July 2017</i> <i>September 2016</i> <i>May 2016</i> <i>September 2015</i> <i>May 2014</i> <i>May 2014</i> <i>October 2010</i> <i>June 2009</i> <i>July 2007</i> <i>May 2007</i> <i>November 2006</i> <i>May 2005</i> <i>August 2004</i> <i>January 2004</i>
SELECT CORPORATE HONORS	ROANOKE-BLACKSBURG TECH COUNCIL Rising Star Award BLOOMBERG BUSINESSWEEK MAGAZINE Innovator of the Week PC MAGAZINE – TOP 20 FREE UTILITY APP (GRANO.LA) TIME MAGAZINE – TOP 20 GREEN TECH IDEA (GRANO.LA) MINDSHARE NETWORK – CEO Networking and Mentoring Program	<i>May 2013</i> <i>October 2011</i> <i>February 2011</i> <i>December 2010</i> <i>December 2009</i>
GREEN IT	GRANO.LA SOFTWARE Over 500K users in 160+ countries.	<i>April 2010 – March 2014</i>

EXPERIENCE	SPEC POWER BENCHMARK Founding subcommittee member.	June 2005 – Present
	ENERGY STAR FOR SERVERS (DOE) Consulting member.	August 2005 – Present
	IEEE COMPUTER Green IT columnist, associate editor.	January 2009 – January 2017
	THE GREEN500 LIST (GREEN500.ORG) Founder	January 2006 – Present
	THE UPTIME INSTITUTE Fellow	August 2008 – Present
EDUCATION	LOUISIANA STATE UNIVERSITY , Baton Rouge, LA	August 2000
	Doctor of Philosophy in Computer Science	
	UNIVERSITY OF FLORIDA , Gainesville, FL	April 1994
	Bachelor of Science in Mathematics	

NOTABLE ADMINISTRATIVE ACCOMPLISHMENTS

Creation of Associate Department Head for Research and Engagement (2018-present): Recruited by DH (Cal Ribbens) to create position to manage CS Research, Marketing, Communications, Alumni relations, Corporate relations, Economic development

- ◆ Recruited and hired 4 AP/faculty personnel and 1 staff to handle aspects of research and engagement mission
- ◆ Responsible for working with companies to identify research opportunities
- ◆ Rebranded CS|Source corporate membership program and doubled revenue twice
- ◆ Via CS|Source provided \$100k/year in undergraduate merit-based scholarships since 2019 to CS students
- ◆ PI for \$500k Go-Virginia Economic Development Grant for department-led blockchain entrepreneurial activities
- ◆ Designed and aligned marketing and communications efforts around university development model

Research Leadership (2013-present): Recruited by DH (Barbara Ryder) to direct Center for High-End Computing Systems (CHECS)

- ◆ Rebranded and broadened to stack@cs Center for Computer Systems (~1 dozen faculty in systems and security)
- ◆ Doubled external grant funding (\$1M→\$2M annually) over 5 years (2013-2018); on track to double again by 2023
- ◆ Designed protocols for hiring and mentoring systems faculty for 4 years – 5 NSF and 1 DoD Early Career awards
- ◆ PI on first ever department NSF CISE Core Large Grant (\$2.4M/4 years); with 6 personnel from stack@cs center
- ◆ Co-founder of Green500 List and SPEC Power Benchmark; consultant for DOE Energy Star for Servers program

Graduate Program Leadership (2014-2017): Recruited by DH (Barbara Ryder) to direct the CS MS/PhD graduate program

- ◆ Responsible for matriculation of ~250 graduate students per year (~60% PhD, ~40% MS)
- ◆ Created Draft Day event for unification and quality control of graduate recruitment; adopted permanently by department
- ◆ Increased substantially the departments campus-wide competitiveness for graduate scholarships and fellowships
- ◆ Led development and broad adoption of automated software for annual student performance and faculty evaluations

Broadening Participation Leadership (ongoing):

- ◆ Led innovative broadening participation plan to increase student participation from underrepresented groups
- ◆ Fostered pipeline from CS systems intro courses into the BS/MS, MS and PhD programs
- ◆ Increased research participation (2x) above department norms for women (50%) and African Americans (20%).
- ◆ Scaling effort to create Broadening Undergraduate Research Group for Systems (BURGS).
- ◆ Demonstrated SeeMore kinetic sculpture to 100k+ science and technology faire attendees (tens of thousands K-12)

Entrepreneurial Leadership (2006-2014):

- ◆ Founder, CEO, CTO of energy measurement and management startup based on externally funded research
- ◆ Raised >\$3M in venture capital and grew company to 10 employees
- ◆ Mindshare DC-area executive startup management course (by invitation only) and membership Class of 2009
- ◆ Released commercial software and grew user base to 500k users in 160+ countries

Other Relevant Leadership:

- ◆ Elected (by CS faculty) and appointed chair (by dean) of 5-year department head performance review (2020-2021)
- ◆ Elected (by CS faculty) to Tenure and Promotion (Personnel) committee for multiple 3-year terms (Chair: 2015-2016)
- ◆ Appointed (by CS DH) to Faculty Innovation Campus Advisory Board (Chair: Lance Collins, Director Innovation Campus)
- ◆ Initiated most aspects of CS mentoring program for new faculty (mock CAREER panels, mentor structure, etc.)

SELECT FUNDING (Total External Funding as PI: ~\$13M, Total External Funding: ~\$16M)

- [NSF] National Science Foundation, “CSR: Large: VarSys: Managing variability in high-performance computing systems,” **\$1,200,000**, 8/15/19 – 8/14/22. Kirk W. Cameron (PI), Danfeng Yao (co-PI), Layne T. Watson (co-PI), Ali Butt (co-PI), Yili Hong (co-PI), Godmar Back (SP). [NSF CNS #1838271]
- [NSF] National Science Foundation, “CNS: CORE: Small: iLORE: Computer Systems Performance Integrated Lineage Repository,” **\$500,000**, 10/01/2019 - 9/30/2022. Kirk W. Cameron (PI), Margaret Ellis (co-PI), Godmar Back (co-PI). [NSF CNS #1939076]
- [NSF] National Science Foundation, “SPX: Collaborative Research: Cross-stack Memory Optimizations for Boosting I/O Performance of Deep Learning HPC Applications,” **\$1,200,000**, 10/01/2019 - 9/30/2022. Ali Butt (VT PI), Xun Jian (VT co-PI), Kirk W. Cameron (VT co-PI), Yue Cheng (GMU PI). [NSF CCF #1919113]
- [VT] VT ICAT and VT ICTAS, SEAD Program, “Ada: Understanding Decentralized, Distributed Computing and Blockchains through Kinetic Sculpture,” **\$75,000**, 9/1/20 – 8/31/22. Sam Blanchard, Kirk W. Cameron.
- [B1] Block.One, “VT Blockchain Virtual Laboratory,” **\$50,000**, 11/1/2018-6/1/2020. Kirk W. Cameron (PI). This is a grant to support research, development, and training on blockchain technologies in Capstone courses.
- [GOVA] Growth and Opportunity Virginia Grant, “Blockchain Ecosystem Catalyst,” **\$500,000**, 10/15/2019-10/14/2021. Kirk W. Cameron (VT Lead). I am the lead on this economic development project related to blockchain training and education.
- [RAE] Royal Academy of Engineering Distinguished Visiting Fellowship, “Co-design of hardware and software for variability in high-performance computing systems,” **£3,300 (\$4,573)**, 2017-2018. Kirk W. Cameron (PI), Dimitrios Nikolopoulos (QUB Host). Personal Share: \$4,573. [UK-wide, highly competitive]
- [QUB] “World Leading Researcher” Faculty Fellowship, The Queen’s University – Belfast, “Co-design of hardware and software for variability in high-performance computing systems,” **£108,269 (\$150,000)**, 2017-2018. Kirk W. Cameron (PI). Personal Share: \$150,000. [world-wide, highly competitive]
- [NSF] National Science Foundation, “CSR: Large: VarSys: Managing variability in high-performance computing systems,” **\$1,200,000**, 8/15/16 – 8/14/19. Kirk W. Cameron (PI), Danfeng Yao (co-PI), Layne T. Watson (co-PI), Ali Butt (co-PI), Yili Hong (co-PI), Godmar Back (SP). [NSF CNS #1565314]
- [MITRE] Mitre Corporation, “Enhancement of Senior Capstone Projects with Mitre,” **\$25,000**, 8/22/16 – 12/15/16. Kirk W. Cameron (PI). Personal Share: \$25,000.
- [NSF] National Science Foundation, “Exploiting slowdowns for speedup in power-scalable HPC systems,” **\$500,000**, 8/1/14 – 7/31/17. Kirk W. Cameron (PI), Ali Butt (co-PI). Personal Share: \$250,000. [NSF #1422788]
- [NSF] National Science Foundation, “Collaborative: Application-aware Energy Modeling and Power Management for Parallel and High Performance Computing,” **\$500,000**, 8/1/14 – 7/31/17. PIs: Kirk W. Cameron (VT), Yonghong Yan (UHouston). Personal Share: \$250,000. [NSF #1422712]
- [AMD] Advanced Micro Devices, “Power and energy measurement of mobile devices,” **\$75,000**, 5/1/14 – 4/30/15. Kirk W. Cameron (PI). Personal Share: \$75,000.
- [NSF] National Science Foundation, “Kinetic Computing Sculpture: A functional parallel cluster of Raspberry Pi computers that inspire computational thinking,” **\$181,395**, 9/23/13 – 9/23/14. Kirk W. Cameron (PI), Aditya Johri (co-PI), Sam Blanchard (Senior Personnel). Personal Share: \$131,395. [NSF # 1355955]
- [VT] VT Institute for Creativity, Arts, and Technology, SEAD Program, “A kinetic sculpture and functional parallel cluster of Raspberry Pi computers,” **\$25,000**, 7/1/13 – 7/1/14. Sam Blanchard, Kirk W. Cameron, Ali Butt.
- [NSF] National Science Foundation, “SBIR Phase II: Intelligent Software Power Management for Windows-based Systems,” **\$350,000**, 9/15/10 – 9/14/12. Awarded to MiserWare, Inc. (Kirk W. Cameron, CEO)
- [NSF] National Science Foundation, “CSR: Large: Collaborative Research: Multi-core Applications Modeling Infrastructure (MuMI),” **\$2,400,000**, 9/1/09 – 8/31/14. PIs: Kirk W. Cameron (VT), Shirley Moore (Utenn), Valerie Taylor (TAMU). Personal share: \$800,000.

- [NSF] National Science Foundation, “CSR: Medium: Collaborative Research: GridPac: A Resource Management System for Energy and Performance Optimization on Computational Grids,” **\$1,100,000**, 9/1/09 – 8/31/13. PIs: Kirk W. Cameron, Jack Dongarra (Utenn), Ishfaq Ahmad (UTSA), Sanjay Ranka (UF). Personal share: \$180,000.
- [NSF] National Science Foundation, “SBIR Phase I: Intelligent Software Power Management on Multicore Systems,” **\$100,000**, 5/1/10 – 9/15/10. Awarded to MiserWare, Inc. (Kirk W. Cameron, CEO)
- [NSF] National Science Foundation, “Metrics And Methodologies for High Performance System Energy Benchmarking,” **\$200,000**, 7/31/08 -7/30/09. Kirk W. Cameron (PI), Wu-Chun Feng (co-PI). Personal share: \$100,000
- [NSF] National Science Foundation, “CSR-AES: Thermal Conductors: Runtime Software Support for Proactive Heat Management in Advanced Execution Systems,” **\$350,000**, 7/30/07-7/29/10. Kirk W. Cameron (PI), Dimitris Nikolopoulos (co-PI). Personal share: \$175,000.
- [NSF] National Science Foundation, “CRI: MISER: A High-Performance Power-Aware Cluster,” **\$500,000**, 9/18/07-9/17/10. Kirk W. Cameron (PI), Dimitris Nikolopoulos (co-PI), Adrian Sandu (co-PI). Personal share: \$200,000.
- [NSF] National Science Foundation, “High-Performance Power-Aware Computing Workshop,” **\$5,000**, 9/21/07-1/3/09. Kirk W. Cameron (PI). Personal share: \$5,000.
- [IBM] IBM Faculty Award, “Building the Tree of Life using IBM BlueGene/L and Cell Broadband Engine Technologies”, **\$38,000**, 7/1/07 – 6/30/08. Kirk W. Cameron (PI). Personal share: \$38,000
- [ML] Merrill Lynch & Co. Inc, “Integrating PowerPack technologies in the Virtual Server Switch,” **\$55,000**, 7/1/07 – 6/30/08. Kirk W. Cameron (PI). Personal share: \$55,000.
- [CS] Crucial Security, “Study of Parallel I/O,” **\$25,000**, 1 semester. 9/1/06-12/15/06. Kirk W. Cameron (PI). Personal share: \$25,000.
- [NSF] National Science Foundation, “CCF: REU Supplement for high-performance, power-aware, distributed computing,” **\$12,000**, 1 year. 5/15/06-5/14/07. Kirk W. Cameron (PI). Personal share: \$12,000.
- [NSF] National Science Foundation, “Collaborative Research: CSR(SMA): Scalable performance modeling and analysis framework,” **\$50,000**, 1 year. 9/1/05-8/31/06. Kirk W. Cameron (PI, VT), Xian-He Sun (PI, IIT). Personal share: \$25,000.
- [DOE] Department of Energy, Office of Science, Early Career Principal Investigator Program. “Ultra-scale memory analysis for high-end computing”, **\$300,004**, 3 years. 9/1/04-8/31/07. Kirk W. Cameron (PI). Personal share: \$300,004
- [NSF] National Science Foundation, “CCF: REU Supplement for high-performance, power-aware, distributed computing,” **\$17,500**, 1 year. 5/15/04-5/14/05. Kirk W. Cameron (PI). Personal share: \$17,500.
- [NSF] National Science Foundation, “CAREER: High-performance, power-aware distributed computing,” **\$402,203**, 5 years. 2/1/04-1/31/09. Kirk W. Cameron (PI). Personal share: \$402,203.
- [USC] USC Office of Research Equipment Grant, “The SC Grid Initiative.” **\$45,000**, 1 year. 04/04/03 – 06/30/04. Kirk W. Cameron (PI), John Rose (co-PI). Personal share: \$22,500.
- [INTEL] Intel Corporation, “Telecommunication softswitch hardware.” **\$4,000**. Equipment. Permanent beginning 2/1/03. Kirk W. Cameron (PI). Personal share: \$4,000.
- [IXIA] Ixia Corporation, “Utilization of Aggregate Network Load Modules for High-Performance Computing Applications.” **\$301,204** (\$250,000 in hardware, \$51,204 direct+indirect). 9 months. 1/1/03-08/31/03. Kirk W. Cameron (PI), Duncan Buell (co-PI). Personal share: \$225,000 in hardware, \$48,083 research expenditures.
- [IXIA] Ixia University Partnership Program (IxUPP), “Ixia Network Performance Monitoring System.” **\$106,950**, Equipment. Ixia 1600 Chassis (\$26950) and IxExplorer (\$80000). Permanent donation 10/1/02. Kirk W. Cameron (PI), Srihari Nelakuditi (co-PI). Personal share: \$96,255
- [USC] USC Office of Research VPR Opportunity Fund. “Benchmarking Telecommunication Workloads for the Next Generation Network”, **\$71,194**, (\$35,597 + 1:1 match), 1 year. 7/1/02-6/30/03. Kirk W. Cameron (PI). Personal share: \$71,194.
- [DOE] Department of Energy, Laboratory Directed R&D (DOE-LDRD) Computer Science and Software “Dynamic Adaptive Superscalar Microprocessor Architecture” **\$110,000** per year, 3 years. 9/1/99-8/31/02 Yong Luo (PI), Maya Gokhale (PI), Kirk W. Cameron (Senior Personnel). Personal share: none.

SELECT VENTURE-BACKED CAPITAL FUND RAISING (Total Funding as CEO: ~\$3M)

- [VC] Valhalla Partners, Virginia Center for Innovative Technologies, Dark Angels. “Product Development”, \$622,500, December 2007, Kirk W. Cameron (CEO). [Series A]
- [VC] Valhalla Partners, Virginia Center for Innovative Technologies, Dark Angels. “Non-recurrent Engineering”, \$175,000, November 2009, Kirk W. Cameron (CEO). [Series A Bridge]
- [VC] Valhalla Partners. “Non-recurrent Engineering”, \$100,000, March 2010, Kirk W. Cameron (CEO). [Series A Bridge]
- [VC] InQTel. “Non-recurrent Engineering”, \$500,000, March 2010, Kirk W. Cameron (CEO). [Series A Bridge]
- [VC] Valhalla Partners. “Non-recurrent Engineering”, \$400,000, July 2011, Kirk W. Cameron (CEO). [Series A Bridge]
- [VC] Virginia Center for Innovative Technologies. “Non-recurrent Engineering”, \$200,000, February 2012, Kirk W. Cameron (CEO). [Series A Bridge]

PATENTS/DISCLOSURES

- [1] K.W. Cameron and J. Turner, “Systems, devices, and/or methods for managing energy usage”, [United States Patent: 8,918,657] [UK Patent: #GB2476606B]
- [2] K.W. Cameron and J. Turner, “Portable methods for reducing component energy while guaranteeing performance in computer systems”, VTIP Disclosure Number 08.109
- [3] R. Ge, X. Feng, and K.W. Cameron, “Automatic, systemic, performance-constrained techniques for reducing power consumption in computer systems”, VTIP Disclosure Number 07.029
- [4] K.W. Cameron, X. Feng, and H.K. Pyla, “Method and system for correlation and analysis of performance and sensor data in computer systems”, VTIP Disclosure Number 07.019.
- [5] M. Tolentino, J. Turner, and K.W. Cameron, “Performance-centric runtime system minimizing energy consumption in power-scalable cluster architectures”, VTIP Disclosure Number 06.079.
- [6] K.W. Cameron, M.A. Cameron, and J.A. Turner, “Method and System for Classification, Analysis, and Presentation of Spatial-Temporal Risk-of-Incidents During Travel”, VTIP Disclosure Number 06.060.

PUBLICATIONS

REFEREED JOURNALS (*=students or former students, +supervised post doc or researcher)

Note: These are full publications in peer-reviewed, archived journals that require full manuscript submission (10-15 pages) and provide 3-6 full-length reviews. Thompson-Reuters ISI impact factors listed where available.

- [TPDS] *Dichev, K. De Sensi, D., Nikolopoulos, D., Cameron, K.W., & Spence, I., Power Log’n’Roll: Power-Efficient Localized Rollback for MPI Applications Using Message, In press (2021). **ISI Impact factor: 2.6 (2019)**
- [NA] *Lux, T., Watson, *L., Chang, T., Hong, Y., & Cameron, K.W., Interpolation of sparse high-dimensional data, *Numerical Algorithms*, 88(1): 281-313 (2021). **[ISI Impact factor: 2.064 (2019)]**
- [QENG] *Xu, L., *Lux, T., *Chang, T., *Li, B., Hong, Y., Watson, L., Butt, A., Yao, D., & Cameron, K.W., Prediction of high-performance computing input/output variability and its application to optimization for system configurations, *Quality Engineering*, Taylor & Francis Group, In press (2021). DOI: [10.1080/08982112.2020.1866203](https://doi.org/10.1080/08982112.2020.1866203) **[ISI Impact factor: 1.902 (2020)]**
- [JPDC] *Xu, L., *Wang, Y., *Lux, T.C.H., *Chang, T.H., *Bernard, J., *Li, B., *Hong, Y., Cameron, K.W., Watson, L.T., Modeling I/O performance variability in high-performance computing systems using mixture distributions. *Journal of Parallel and Distributed Computing*, 139: 87-98 (2020). **[ISI Impact factor: 2.296 (2019)]**
- [TOMS] *Chang, T.H., Watson, L.T., *Lux, T.C.H., Butt, A.R., Cameron, K.W. Hong, Y., Algorithm 1012: DELAUNAYSPARSE: Interpolation via a Sparse Subset of the Delaunay Triangulation in Medium to High Dimensions. *ACM Transactions on Mathematical Software*, 46(4): 38:1-38:20 (2020). **[ISI Impact factor: 2.33 (2019)]**

- [TPDS] Cameron, K. W., *Anwar, A., *Cheng, Y., *Xu, L., Li, B., *Ananth, U., Lux, T., Hong, Y., Watson, L. T., Butt, A. R. (2019). MOANA: Modeling and Analyzing I/O Variability in Parallel System Experimental Design. *IEEE Transactions on Parallel and Distributed Systems*, 30(8): 1843-1856 (2019). [ISI Impact factor: 2.173 (2013)]
- [JPDC] *Umar, M., Moore, S. V., Meredith, J. S., Vetter, J. S., & Cameron, K. W. (2018), Aspen-Based Performance and Energy Modeling Frameworks. *Journal of Parallel and Distributed Computing*, 120: 222-236. [Impact factor: 1.930 (2016)]
- [JPDC] *Li, B., *Mooring, J., Blanchard, S., Johri, A., Leko, M., & Cameron, K. W. (2017). SeeMore: A kinetic parallel computer sculpture for educating broad audiences on parallel computation. *Journal of Parallel and Distributed Computing*, 105(C), 183-199. doi: [j.jpdc.2017.01.017](https://doi.org/10.1016/j.jpdc.2017.01.017) [Impact factor: 1.930 (2016)]
- [PPL] *Li, B., *Chang, H. -C., *Song, S., *Su, C. -Y., *Meyer, T., *Mooring, J., & Cameron, K. (2014). Extending PowerPack for Profiling and Analysis of High-Performance Accelerator-Based Systems. *Parallel Processing Letters*, 24(4), 1442001. doi:[10.1142/S0129626414420018](https://doi.org/10.1142/S0129626414420018)
- [CSRD] *Lively, C., Taylor, V., Wu, X., *Chang, H. -C., *Su, C. -Y., Cameron, K., Moore, S., & Terpstra, D. (2014). E-AMOM: an energy-aware modeling and optimization methodology for scientific applications. *Computer Science - Research and Development*, 29(3-4), 197-210. doi:[10.1007/s00450-013-0239-3](https://doi.org/10.1007/s00450-013-0239-3)
- [TPDS] *Li, D., de Supinski, B. R., Schulz, M., Nikolopoulos, D. S., & Cameron, K. W. (2013). Strategies for Energy-Efficient Resource Management of Hybrid Programming Models. *IEEE Transactions on Parallel and Distributed Systems*, 24(1), 144-157. doi:[10.1109/TPDS.2012.95](https://doi.org/10.1109/TPDS.2012.95) [ISI Impact factor: 2.173 (2013)]
- [JSC] Vishnu, A., *Song, S., Marquez, A., Barker, K., Kerbyson, D., Cameron, K., & Balaji, P. (2013). Designing energy efficient communication runtime systems: a view from PGAS models. *The Journal of Supercomputing*, 63(3), 691-709. doi:[10.1007/s11227-011-0699-9](https://doi.org/10.1007/s11227-011-0699-9) [ISI Impact factor: 1.088 (2015)]
- [ITJ] *Chang, H. -C., Kruus, E., Barnes, T. J., Agrawal, A. R., & Cameron, K. W. (2012). Storage Power Optimizations for Client Devices and Data Centers. *Intel Technology Journal*, 16(3), 172-193.
- [ITJ] *Chang, H., T. J., Agrawal, A. R., & Cameron, K. W. (2012). Energy-Aware Computing for Android Platforms. *Intel Technology Journal*, 16(3), 92-113.
- [PER] *Su, C., *Li, D., Nikolopoulos, D. S., *Grove, M., Cameron, K., & de Supinski, B. R. (2012). Critical path-based thread placement for NUMA systems. *ACM SIGMETRICS Performance Evaluation Review*, 40(2), 106-112. doi:[10.1145/2381056.2381079](https://doi.org/10.1145/2381056.2381079)
- [CSRD] *Lively, C., Wu, X., Taylor, V., Moore, S., *Chang, H. -C., *Su, C. -Y., & Cameron, K. (2012). Power-aware predictive models of hybrid (MPI/OpenMP) scientific applications on multicore systems. *Computer Science - Research and Development*, 27(4), 245-253. doi:[10.1007/s00450-011-0190-0](https://doi.org/10.1007/s00450-011-0190-0)
- [IJHPCA] *Lively, C., Xingfu Wu., Taylor, V., Moore, S., *Chang, H. -C., & Cameron, K. (2011). Energy and performance characteristics of different parallel implementations of scientific applications on multicore systems. *International Journal of High Performance Computing Applications*, 25(3), 342-350. doi:[10.1177/1094342011414749](https://doi.org/10.1177/1094342011414749) [ISI Impact factor: 1.625 (2013)]
- [IJPED] *Cao, Z., *Easterling, D. R., Watson, L. T., *Li, D., Cameron, K. W., & Feng, W. -C. (2010). Power saving experiments for large-scale global optimisation. *International Journal of Parallel, Emergent and Distributed Systems*, 25(5), 381-400. doi:[10.1080/17445760903492078](https://doi.org/10.1080/17445760903492078)
- [TPDS] *Ge, R., *Feng, X., *Song, S., *Chang, H. -C., *Li, D., & Cameron, K. W. (2010). PowerPack: Energy Profiling and Analysis of High-Performance Systems and Applications. *IEEE Transactions on Parallel and Distributed Systems*, 21(5), 658-671. doi:[10.1109/TPDS.2009.76](https://doi.org/10.1109/TPDS.2009.76) [ISI Impact factor: 2.173 (2013)]
- [IJHPCA] *Song, S., *Ge, R., *Feng, X., & Cameron, K. W. (2009). Energy Profiling and analysis of the HPC Challenge Benchmarks. *International Journal of High Performance Computing Applications*, 23(3), 265-276. doi:[10.1177/1094342009106193](https://doi.org/10.1177/1094342009106193) [ISI Impact factor: 1.625 (2013)]
- [TC] *Tolentino, M. E., *Turner, J., & Cameron, K. W. (2009). Memory MISER: Improving Main Memory Energy Efficiency in Servers. *IEEE Transactions on Computers*, 58(3), 336-350. doi:[10.1109/TC.2008.177](https://doi.org/10.1109/TC.2008.177) [ISI Impact factor: 1.723 (2013)]
- [COMP] Feng, W. -C., & Cameron, K. (2007). The Green500 List: Encouraging Sustainable Supercomputing. *Computer*, 40(12),

50-55. doi:[10.1109/MC.2007.445](https://doi.org/10.1109/MC.2007.445) [ISI Impact factor: 1.115 (2015)]

- [TC] Cameron, K. W., *Ge, R., & Sun, X. -H. (2007). log(n) P and log(3) P: Accurate analytical models of point-to-point communication in distributed systems. *IEEE Transactions on Computers*, 56(3), 314-327. doi:[10.1109/TC.2007.38](https://doi.org/10.1109/TC.2007.38) [ISI Impact factor: 1.723 (2013)]
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- [IMF] Cameron, K.W. & Blanchard, S., “SeeMore Exhibit at International Maker’s Faire,” IMF 2015, New York, NY. September 26—27, 2015.
- [MAKERCON] Cameron, K.W. & Blanchard, S., “SeeMore Exhibit at MakerCon,” MakerCon 2015, New York, NY. September 25, 2015.
- [SC14] Cameron, K.W. & Blanchard, S., “lil SeeMore at SC14 Exhibit,” SC14, New Orleans, LA. Nov 17 – 20, 2014.
- [RHG] Cameron, K.W. & Blanchard, S., “Open at the Source Exhibition,” Ruth C. Horton Gallery, May 3 – 18, Ruth C. Horton Gallery, The Moss Center for the Arts, Blacksburg, Virginia. May 3 – 18, 2014.
- [SIGGRAPH] Cameron, K.W. & Blanchard, S., “Acting in Translation: SeeMore,” SIGGRAPH Art Gallery at the 41st International Conference and Exhibition on Computer Graphics and Interactive Techniques, Vancouver, BC. August 10 – 14, 2014.

SELECT SHORT PAPERS, POSTERS, PANELS, TUTORIALS

- [SIGCSE] Godmar Back, Lance Chao, Pratik Anand, Thomas Lux, Bo Li, Ali Raza Butt, Kirk W. Cameron: Teaching Variability in a Core Systems Course: (Abstract Only). SIGCSE 2018: 1085.
- [SECON] Tyler H. Chang, Layne T. Watson, Thomas C. H. Lux, Bo Li, Li Xu, Ali Raza Butt, Kirk W. Cameron, Yili Hong: A polynomial time algorithm for multivariate interpolation in arbitrary dimension via the Delaunay triangulation. ACM Southeast Regional Conference 2018: 12:1-12:8

- [SECON] Thomas C. H. Lux, Layne T. Watson, Tyler H. Chang, Jon Bernard, Bo Li, Xiaodong Yu, Li Xu, Godmar Back, Ali Raza Butt, Kirk W. Cameron, Danfeng Yao, Yili Hong: Novel meshes for multivariate interpolation and approximation. ACM Southeast Regional Conference 2018: 13:1-13:7
- [SPRSIM] Tyler H. Chang, Layne T. Watson, Thomas C. H. Lux, Jon Bernard, Bo Li, Li Xu, Godmar Back, Ali Raza Butt, Kirk W. Cameron, Yili Hong: Predicting system performance by interpolation using a high-dimensional delaunay triangulation. SpringSim (HPC) 2018: 2:1-2:12
- [SPRSIM] Thomas C. H. Lux, Layne T. Watson, Tyler H. Chang, Jon Bernard, Bo Li, Li Xu, Godmar Back, Ali Raza Butt, Kirk W. Cameron, Yili Hong: Predictive modeling of I/O characteristics in high performance computing systems. SpringSim (HPC) 2018: 8:1-8:12
- [CORR] Kiril Dichev, Kirk W. Cameron, Dimitrios S. Nikolopoulos: Energy-efficient localised rollback after failures via data flow analysis. CoRR abs/1806.01611 (2018)
- [SC-C] Umar, M., Meredith, J. S., Vetter, J. S., & Cameron, K.W. POSTER: Towards Exascale Computing: An Automatic Hardware-Software Co-design Framework for Aspen, In *2016 SC Companion: IEEE/ACM International Conference on High Performance Computing, Networking, Storage, and Analysis (SC-C)*. **Best poster finalist**.
- [MASCOTS]*Li, B., *Song, S., Bezakova, I., & Cameron, K. W. (2012). SHORT PAPER: Energy-aware replica selection for data-intensive services in cloud. Proceedings of the 2012 *IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS)*, (pp. 504-506). IEEE.
- [PACT-SP] *Song, S., & Cameron, K. W. (2012). SHORT PAPER: System-level power-performance efficiency modeling for emergent GPU architectures. Proceedings of the 2012 *ACM/IEEE International Conference on Parallel Architectures and Compilation Techniques (PACT)*, (pp. 473-474).
- [SC-C] *Song, S. L., *Su, C. -Y., Rountree, B., & Cameron, K. W. (2012). POSTER: Three Steps To Model Power-Performance Efficiency for Emergent GPU-Based Parallel Systems. In *2012 SC Companion: IEEE/ACM International Conference on High Performance Computing, Networking, Storage, and Analysis (SC-C)* (pp. 1345-1346). Salt Lake City, UT: IEEE.
- [EUROPAR]Di Martino, B., Petrini, F., Benkner, S., Cameron, K., Kranzlmüller, D., Kurzak, J., Pasetto, D. & Träff, J. L. (2010). SHORT PAPER: Multicore and manycore programming. Proceedings of the 2010 *European Conference on Parallel Processing* (pp. 137-138). Springer Berlin Heidelberg.
- [SC-C] *Li, D., Cameron, K.W., Nikolopoulos, D.S., Schulz, M., & de Supinski (2009). B.R. POSTER: Model-Based Hybrid MPI/OpenMP Power-Aware Computing. In *2009 SC Companion: IEEE/ACM International Conference on High Performance Computing, Networking, Storage, and Analysis (SC-C)* Portland, OR:IEEE.
- [SC-C] *Pyla, H.K., *Li, D., & Cameron, K.W. (2007). POSTER: Thermal-aware High-performance Computing Using TEMPEST, In *2007 SC Companion: IEEE/ACM International Conference on High Performance Computing, Networking, Storage, and Analysis (SC-C)* Reno: NV:IEEE. **[26% accept rate]**
- [SC-C] Cameron, K.W. (2007). PANEL: Is there an HEC energy crisis? In *2007 SC Companion: IEEE/ACM International Conference on High Performance Computing, Networking, Storage, and Analysis (SC-C)* Reno: NV:IEEE.
- [SOSP-WIP]*Tolentino, M. E., & Cameron, K. W. (2005). WIP: Improving the energy efficiency of high-performance server systems. Proceedings of *2005 ACM Symposium on Operating Systems Principles* (pp. 1). ACM.
- [SC-C] Cameron, K.W., Ge, R., Feng, X., Varner, D., & Jones, C. (2004). POSTER: High-performance, Power-aware Distributed Computing Framework. In *2004 SC Companion: IEEE/ACM International Conference on High Performance Computing, Networking, Storage, and Analysis (SC-C)* Reno: NV:IEEE. **[32% accept rate]**
- [HPCA-T] Luo, Y., Cameron, K.W., Torrellas, J., & Solihin, Y. (2000). TUTORIAL: Performance Modeling using Hardware Performance Counters. *Proceedings of the 2000 IEEE International Symposium on High Performance Computer Architecture (HPCA)* Toulouse FRANCE:IEEE.
- [ISCA-T] Cameron, K.W., & Luo, Y. (1999). TUTORIAL: Performance Evaluation using Hardware Performance Counters. *Proceedings of the 1999 IEEE International Symposium on Computer Architecture (ISCA)* Atlanta, GA:IEEE.

CURRENT SYSTEMS/SOFTWARE DESIGNS AND ARTIFACTS

CSGenome. The CSGenome project (<http://csgenome.org>) evolved from efforts in the NSF sponsored VarSys project and were developed further in the iLORE project. The project involves creating data repositories for computer systems, their performance over

time, and their lineage. With the database established, we continue to broaden the coverage while exploring correlation of computer-science advances with advances in hardware and software performance. This project is also a vehicle for broadening participation of students from underrepresented groups in computer systems.

VarViz. Creation of a variability visualization (VarViz) tool. Early on, it was clear that VarSys teams needed a common interface to communicate intentions, needs, findings, and analyses. It was determined that with agreement on a common data interface protocol, the measured data could be automatically visualized for the initial data sets and discussions at weekly meetings. The graphical interface was so successful at communication and discovery that it was later modified for use by the systems undergraduate course students.

VarSub. Automated job submission system (VarSub) tool. After deployment of our VarViz tool to project participants but prior to release to undergraduate operating system class students, we determined the need for a system to enable non-experts to submit variability jobs to a compute cluster. The result was VarSub, which was subsequently used by the operating system class to submit their variability experiments.

Wendy. New compute cluster (wendy.cs.vt.edu). With funds from the VarSys grant, SCHEV, and the department we were able to purchase, install, and configure a 20-node, 160-core compute cluster with both mechanical HDDs and non-volatile SSDs. With both GigE and a Infiniband interconnect, this cluster provides a much needed local resource for long-duration variability experiments in isolation.

SeeMore. First-of-its-kind kinetic sculpture of Raspberry Pi computers that move in response to computation. An educational project designed to impress upon non-technical observers the beauty, elegance, and importance of parallel computation.

PowerPack 3.0. PowerPack was created initially as a testbed for evaluating power-aware approaches for their energy and performance impact. PowerPack was the first tool of its kind to give detailed system-level power profiles of applications separated by component (CPU, disk, memory, etc). PowerPack can provide power measurement data synchronized at the functional level of an application. This provides a testbed to evaluate both performance and power effects of system and algorithmic efficiency techniques. The software has been used by groups all over the world from Texas A&M and the University of Tennessee to the University of Oxford in the UK and the University of Catalunya in.

PAST SYSTEMS/SOFTWARE DESIGNS AND ARTIFACTS

SystemG. First-of-its-kind \$1.2M Green Supercomputer with over 15,000 temperature and power sensors over 325 nodes. Built with Prof. Varadarajan formerly of Virginia Tech. Sponsored in part by a CRI award from the National Science Foundation. This collection of Mac Pro systems was capable of a sustained 22.8 TFLOPS. The system was designed Cameron and Varadarajan and assembled by dozens of students fueled with pizza and caffeine.

FatBatt. First-of-its-kind commercial software for intelligent battery life management for laptops. Commercially released March 2013. Now retired.

GranoJa. First-of-its-kind commercial software for saving energy without performance loss in laptops, PCs, and servers. Developed by VT spinout company MiserWare. Over 500,000 downloads from 160+ countries during its life. Granola is the culmination and commercialization of 10 years of research in power-aware HPC. Granola uses advanced mathematical, statistical, and machine learning techniques to enable performance SLAs between the user and the power management tool. This ensures users performance and availability expectations are met by the software. Now retired.

Tempest: First-of-its-kind system (*Temperature Estimator*) infrastructure for measuring the temperature of software applications and correlating thermal characteristics to source code. Still available at SourceForge.net.

SystemMISER: System Management Infra-Structure for Energy Reduction includes DVS scheduling techniques (CPU MISER) and power-aware memory techniques (Memory MISER) presently.

Manticore: Sony Playstation 3 cluster running parallel applications on IBM Cell architecture; sponsored in part by Virginia Tech and the National Science Foundation.

PBPI: First large-scale parallel Bayesian-based phylogenetic inference tool; 3 orders of magnitude faster than best available codes at release; sponsored in part by the National Science Foundation and IBM.

DORI: The second-generation, power-aware high-performance cluster built from dual-processor, dual-core AMD systems; sponsored in part by Virginia Tech.

NEMO: The first power-aware, high-performance cluster built from Dell laptop computers; sponsored in part by the National Science Foundation, 2003.

ARGUS: High-density supercomputer built from network load modules; sponsored in part by Ixia Corporation, 2001.

Memory Medic. Global memory checker software for Intel 82450 NX Chipset Validation; sponsored by Intel Corporation, 1996.

INVITED/REFEREED TALKS SINCE 2002 (Excluding conference paper presentations)

- [1] *Invited Talk*, University of Southern California, “Limits of the quantitative approach, or why parallel and distributed system energy management needs to move on,” Los Angeles, CA, February 2020.
- [2] *Invited Talk*, University of Florida, “Rethinking Quantitative Approaches to Computer System Design in the Power Age,” Gainesville, FL, October, 2019.
- [3] *Invited Talk*, George Mason University, “Rethinking Quantitative Approaches to Computer System Design in the Power Age,” Fairfax, VA, January, 2019.
- [4] *Invited Talk*, Microsoft Research, “Revisiting Quantitative Approaches to System Design in the Power Age,” Redmond, WA, October, 2018.
- [5] *Invited Talk*, Clemson University, “Revisiting Quantitative Approaches to System Design in the Power Age,” Clemson, SC, October, 2018.
- [6] *Invited Talk*, University of Edinburgh, “Dance of the Dragons: Winning the war of succession in power management,” Edinburgh, U.K., June 2018.
- [7] *Invited Talk*, University of Central Florida, “Dance of the Dragons: Winning the war of succession in power management,” Orlando, FL, September 2017.
- [8] **Keynote**, Symposium on Sensor Network, Systems and Security, “Green Computing: Or how I learned to stop worrying and embrace HPC energy efficiency,” Orlando, FL, September 2017.
- [9] *Invited Talk*, The Queen’s University – Belfast, “Dance of the Dragons: Winning the war of succession in power management,” Belfast, U.K., July 2017.
- [10] **Plenary Talk**, NSF CSR PI Meeting, Kirk Cameron, “VarSys: Managing Variability in High-Performance Computing Systems,” Orlando, FL, May 2017.
- [11] **Keynote**, High-performance, power-aware computing workshop (HPPAC 2017), “Dance of the Dragons: Winning the war of succession in power management,” Orlando, FL, May 2017.
- [12] *Invited Talk*, BrainPop Educators, “SeeMore: a Kinetic Parallel Computer Sculpture for Educating Broad Audiences on Parallel Computation,” New York, NY, July 2016.
- [13] *Panel*, E2SC Workshop, “The Role of Software in Energy Efficiency,” November 2015.
- [14] **Keynote**, Exa2green Workshop, “Why High-performance Systems Need a Little LUC”, June 2015
- [15] *Panel*, “Architect Cloud and HPC for the Big Data Era,” Big Data Panel, CCGrid 2014, May 2014.
- [16] *Presentation*, “SeeMore: A kinetic sculpture and functional parallel cluster of Raspberry Pi Computers,” ECE/CS Beer Bash, October 2014.
- [17] *Presentation*, “SeeMore: A kinetic sculpture and functional parallel cluster of Raspberry Pi Computers,” Invited Speaker, ICAT Community Playdate, October 2014.
- [18] *Interview*, “On Manfred Mohr,” Invited Speaker, My Take Talk, School of Performing Arts, October 2014.
- [19] *Presentation*, “SeeMore: A kinetic sculpture and functional parallel cluster of Raspberry Pi Computers,” Presentation to NSF Director Cordova, ICAT, November 2014.
- [20] *Presentation*, “Improving LUC in cloud environments,” Invited Speaker, NSF Cloud Workshop, December 2014.
- [21] *Presentation*, “Why high-performance systems need a little LUC,” Invited Speaker, Future Technologies Group Colloquium Series, Oak Ridge National Laboratory, April 2015.
- [22] *Presentation*, “Power and Energy Whack-a-mole in HPC”, University of Tennessee – Knoxville, January 2014. **(invited)**
- [23] *Presentation*, “The Powers That Be in HPC: Energy Oddities”, Presented at the SIAM Conference on Computational Science and Engineering, Boston, MA, February 2013. **(invited)**
- [24] *Masterworks Presentation (Plenary)*, “Pushing Water Up Mountains: Green HPC and other energy oddities”, Presented at the SC 12, Salt Lake City, UT, November 2012. **(invited)**
- [25] *BoF*, Feng, W. and Cameron, K.W., “The Green 500”, Presented at the SC 12, Salt Lake City, UT, November 2012. **(refereed)**
- [26] **Keynote**, “The Powers That Be in HPC”, Energy-Aware High-Performance Computing (ENA-HPC), Hamburg, Germany, September 2012. **(invited)**
- [27] *Presentation*, “The Powers That Be in HPC”, Queens University of Belfast, Belfast, United Kingdom, September 2012. **(invited)**

- [28] *Presentation*, “The Powers That Be in HPC”, Oxford University, Oxford, United Kingdom, September 2012. **(invited)**
- [29] *Presentation*, “The Powers That Be in HPC”, Munich Technical University, Munich, Germany, September 2012. **(invited)**
- [30] *Presentation*, “The Powers That Be in HPC”, University of Innsbruck, Innsbruck, Austria, September 2012. **(invited)**
- [31] *Panel*, Faculty and Student Entrepreneurship, VT Office of Economic Development, August 2012. **(invited)**
- [32] *Presentation*, Being Green in HPC, College of William and Mary Seminar, March 2012. **(invited)**
- [33] *Panel*, Technology Start-ups in Virginia, Governor’s Small Business Summit, Richmond, VA, October, 2012. **(invited)**
- [34] *Presentation*, *Adventures in Green Computing*, Energy Aware HPC Minisymposium, SIAM Conference on Parallel Processing for Scientific Computing, Feb. 2012. **(invited)**
- [35] *Presentation*, *Modeling Interactive Effects of Power Performance*, Analysis and Modeling: Techniques and Tools Minisymposium, SIAM Conference on Parallel Processing for Scientific Computing, Feb. 2012. **(invited)**
- [36] *Panel*, *Energy Efficiency BoF*, SC 2011, Washington DC, Nov. 2011. **(invited)**
- [37] *BoF*, Feng, W. and Cameron, K.W., *The Green 500*, Presented at the SC 11, Seattle, WA, November 2011. **(refereed)**
- [38] *Panel*, Governor’s Small Business Summit, *Richmond*, VA, Oct. 2011. **(invited)**
- [39] *Plenary*, *Adventures in Green Computing: Applications and Algorithms*, Workshop on Green High-Performance Computing, Rutgers University, Oct. 2011 **(invited)**
- [40] *Panel*, *Workshop on Green High-Performance Computing*, Rutgers University, Oct. 2011. **(invited)**
- [41] *Presentation*, “Aim Green: Cyber Energy Research @ VT”, presented at Air Force Research Laboratory, Syracuse, NY, May, 2011. **(invited)**
- [42] *Plenary*, “*MiserWare: A University Spinout for Sustainability*”, Sustainable Venture Capital Investment Competition, UNC Kenan-Flagler Business School, Chapel Hill, NC, March, 2011. **(invited)**
- [43] *Presentation*, “*MiserWare: A University Spinout in the Commonwealth*”, presented to Virginia Commonwealth CIO Sam Nixon, Richmond, VA, December 2010. **(invited)**
- [44] *Poster Presentation*, *EU-US Frontiers of Engineering Symposium* sponsored by the National Academy of Engineering and the EU Council of Applied Sciences and Engineering, Cambridge, UK, September, 2010. **(invited)**
- [45] *Adventures in Green Computing: HPC and Beyond*, LSU Department of Computer Science, November, 2010. **(invited)**
- [46] *BoF*, Feng, W. and Cameron, K.W., *The Green 500*, Presented at the SC10, New Orleans, LA, November 2010. **(refereed)**
- [47] *Panel*, *Software for a Sustainable World*, OOPSLA 2010, October 2010. **(invited)**
- [48] *A Tale of Two Lists: Green500 and SPECpower*, CCGSC Workshop, September 2010. **(invited)**
- [49] *The Past, Present, and Future of Green Computing*, Computer Science Distinguished Lecture Series, Wayne State University, April 2010. **(invited)**
- [50] *Panel*, *Value Opportunities in Green IT*, The GreenIT Economic Workshop, Washington DC, April 2010. **(invited)**
- [51] *Panel*, *Present and Future Directions in Sustainable IT*, SustainIT Workshop, San Jose, CA, February 2010. **(invited)**
- [52] *BoF*, Feng, W. and Cameron, K.W., *The Green 500*, Presented at the SC 09, Portland, OR, November 2009. **(refereed)**
- [53] *Directions in Energy Efficient Computing*, IBM Federal Strategy and Technology Institute Speaker Series, Washington DC, October 2009. **(invited)**
- [54] *The Past, Present, and Future of High-Performance, Power-Aware Computing*, Portland State University, July 2009. **(invited)**
- [55] *BoF: The Green 500*, (with W. Feng) Presented at the International Supercomputing Conference (ISC), June 2008. **(refereed)**
- [56] *BoF: Improving The Green 500*, (with W. Feng) Presented at the International Conference on High Performance Computing and Communications (SC 2008), November 2008. **(refereed)**
- [57] *The Past, Present, and Future of High-Performance, Power-Aware Computing*, Thai Grid Computing Conference, September 2008. **(invited)**
- [58] *The Past, Present, and Future of High-Performance, Power-Aware Computing*, CCGSC Workshop, September 2008, **(invited)**
- [59] *The Green500 and the HPCChallenge Benchmarks*, HPC Challenge Summit, November 2008, **(invited)**.
- [60] *PBPI: High Performance Implementations of Parallel Bayesian Phylogenetic Inference on IBM Technologies*, IBM Life Sciences Virtual Expo [Apr 2008]
- [61] *Nature, Nurture, and the Green500*, National Science Foundation, Arlington, VA [Jan 2008]
- [62] *The HEC Energy Crisis*, University of Florida, Gainesville, Fl [Sep 2007]
- [63] *PowerPack and SystemeMISER: The past, present, and future of high-performance, power-aware computing*, Merrill Lynch Power Summit, New York, NY [Mar 2007]
- [64] *The HPC Energy Crisis*, IBM Research, Austin, TX [Feb 2007]
- [65] *Parallel I/O for digital forensics*, Crucial Security. [Dec 2006]

- [66] *The HPC Energy Crisis*, The 7th Annual International Workshop on Performance Analysis and Optimization of High-End Computing Systems (APART) at IEEE/ACM SC06. [Nov 2006]
- [67] *Crucial Technologies for High-end computing*, Crucial Security. [Aug 2006]
- [68] *High-performance, power-aware distributed computing*, Lawrence Livermore National Laboratory. [May 2005]
- [69] *High-performance, power-aware distributed computing*, University of Delaware. [Feb 2005]
- [70] *High-performance, power-aware distributed computing*, Oak Ridge National Laboratory. [Oct 2004]
- [71] *Topics in HPC*, Savannah River National Laboratory. [Aug 2004]
- [72] *High End / Grid Computing*, Software Developers Association. [June 2004]
- [73] *SC Grid Computing*, Columbia Chamber of Commerce. [Nov 2003]
- [74] *Telecommunication workload characterization*, Intel Corporation [Dec 2002].
- [75] *Scalable Performance at USC*, Michelin Corporation visitors. [Nov 2002]
- [76] *Toward a unified, practical model of parallel computation*, Illinois Institute of Technology. [April 2002]
- [77] *Approaches to Telecom Benchmarking*, Intel Corporation. [March 2002]

RECENT MEDIA COVERAGE

- [NPR] “Scientists Studying Why Your Computer Bogs Down,” *WVTF Radio (NPR Affiliate)*, Story on \$3M NSF funded VarSys Project. <http://wvtf.org/post/scientists-studying-why-your-computer-bogs-down-stream/0> (January 19, 2017)
- [HPCWIRE] “VT Researcher Receives NSF Grant to Keep Rogue Forces at Bay in HPC,” *HPCWire.com*, Story on \$3M NSF funded VarSys Project. <https://www.hpcwire.com/off-the-wire/vt-researcher-receives-nsf-grant-keep-rogue-forces-bay-hpc/> (December 9, 2016)
- [MAGPI] “SeeMore: A Raspberry Pi sculpture that’s also secretly a supercomputer,” *MagPi Magazine*, Issue #50, Phillip King. <http://www.raspberrypi.org/magpi/issues/50/> (September, 2016)
- [MAGPI] “SeeMore: Parallel Computing Sculpture,” *MagPi Magazine*, Issue #40, Phillip King. <https://www.raspberrypi.org/magpi/issues/40/> (December 2015)
- [VTUR] “SeeMore: A Living Sculpture of Computational Data Movement,” *VT Presidential Inaugural Highlights Pamphlet*, VA Tech University Relations. <https://www.icat.vt.edu/funding/seemore> (Oct 2014)
- [SIGGRAPH] *Video Production, SeeMore*, ACM SIGGRAPH, Duration: 5:48. <http://www.icat.vt.edu/funding/seemore> (Aug 2014)
- Video Production, The Art and Elegance of Parallel Computing*, J. Scott Parker, VA Tech University Relations, Duration: 3:15. http://www.unirel.vt.edu/audio_video/2014/05/050214-caus-SeeMore.html (May 2014)
- [WIRED] *Interview*, Wired Magazine, Related to November 2011 Green500, November, 2011. **(invited)** <http://www.wired.com/wiredenterprise/2011/11/supercomputers-turn-green/>
- [BLOOM] *Interview*, Bloomberg BusinessWeek, Entrepreneur of the Week, October, 2011. **(invited)** <http://www.businessweek.com/magazine/kirk-cameron-cuts-computers-power-use-10272011.html>
- [ABC] *Interview*, ABC Radio (Nationwide distribution), Related to Granola software, April, 2011. **(invited)**
- [CBS] *Interview*, WDBJ (CBS Affiliate), Related to IBM Watson on Jeopardy, February, 2011. **(invited)**
- [NBC] *Interview*, WSLS (NBC Affiliate), Related to Granola software, February, 2011. **(invited)**

TEACHING – VT/USC RESEARCH SUPERVISION

Ph.D. Advisee Positions Held

Xizhou Feng, 2007, Research Faculty, Clemson University
 Rong Ge, 2008, Associate Professor, Clemson University
 Matthew Tolentino, 2009, Assistant Professor, University of Washington (Tacoma)
 Dong Li, 2011, Assistant Professor, University of California – Merced
 Song “Leon” Shuaiwen, 2013, Senior Research Scientist, Pacific Northwest National Laboratory
 Hung-Ching Chang, 2015, Intel Research
 Chun-Yi Su, 2015, Intel Research
 Mariam Umar, 2018, Intel Research
 Bo Li, 2018, Splunk Research

M.S. Advisee Positions Held

Sam Furman, 2021, PhD Program (4-year GRA), University of Michigan
 Nicolas Hardy, 2021, Amazon
 Chandler Jearls, 2021, Apple

B.S. Advisee Positions Held

Tanvi Haldankar, 2021, Bloomberg
Sam Furman, 2020, VT BS/MS Program
Chandler Jearls (ECE), 2020, VT BS/MS Program
Nicolas Hardy, 2019, VT MS Program
Jiayi “J.W. Wang, 2018, Microsoft
Liz Dao, 2018, Microsoft
Luke McCormick, 2017, Amazon

Advisee Awards

Lalitha Kuppa, Adobe Women in Technology Scholarship [2021]
Greg Bolet, Davenport Leadership Scholar [2020]
Song Shuaiwen, Engineers Australia's Most Innovative Engineers [2020]
Bo Li, Virginia Tech Computer Science Outstanding PhD Thesis [May 2019]
Bo Li, LLNL Deputy Director's Science and Technology Excellence in Publication Award [May 2018]
Song Shuaiwen, IEEE-CS TCHPC Award for Excellence for Early Career Researchers in HPC [Nov 2017]
Dong Li, NSF CAREER Award [Jan 2016]
Rong Ge, NSF CAREER Award [Jan 2015]
Chun-Yi Su, Lawrence Livermore Scholar [May 2013]
Dong Li, Virginia Tech Computer Science Outstanding PhD Thesis [May 2011]
Song Shuaiwen 3rd place Torgersen Graduate Student Research Excellence Award [March 2010]
Matthew Tolentino invited to attend NAE Grand Challenge Summit [March 2009]
Chris Jones, UC System GREAT Award (PhD Fellowship at UCLA) [April 2008]
Rong Ge, VT Computer Science Outstanding Ph.D. Thesis, [June 2007]
Joseph Turner, Virginia Tech Cunningham Graduate Fellowship [May 2007]
Joseph Turner, NSF Fellowship Honorable Mention [May 2007, April 2008]
Chris Jones, NSF Fellowship Honorable Mention [May 2007]
Matt Tolentino, Travel grant to attend HPPAC [April 2007]
Rong Ge, Award to attend Computer Architecture Summer School Workshop, Princeton [July 2006]
Rong Ge, USC CSE Outstanding Graduate Student [April 2005]
Allen Michalski, Grant to attend Landau Meeting of Nobel Laureates [June 2005]
Chris Jones, Joseph Turner, Rong Ge, UPE inductees [March 2005]
Chris Jones, Joseph Turner, Phi Beta Kappa inductees [March 2005]
Joseph Turner, Student Volunteer Grant SC 2005 [November 2005]
Xizhou Feng, IPDPS Student Travel Award [June 2005]
Chris Jones, Student volunteer grant SC 2004 [Nov 2004]
Robert Lewis, Runner-up in Mathematics Division of 2004 SC Region II Science and Engineering Fair.

Supervision of Visiting/Research Faculty

Sand Correa (VT), Power-aware expectations, 1/1/15-1/1/16.
Matthew Grove (VT), Power-aware Software and Architectures, 8/10/10 – 5/1/11.

Supervision of Post-Doctoral Research

Rong Ge (VT), Improving Efficiency in Distributed Systems, 1/1/08 – 8/14/08.
Xizhou Feng (VT), High Performance Computing Algorithms and Systems, 5/16/06 – 5/16/07.
Kiril Dichev (QUB), Resiliency via data flow analysis, 7/15/17 – 5/5/18.
Giorgis Georgakoudis (QUB), Advanced modeling of parallel speedup, 7/15/17 – 5/5/18.

[Chair] Supervision of Doctoral Research (PhD Graduates = 10)

Matthew Tolentino (VT), Managing Memory for Power, Performance, and Thermal Efficiency, 1/1/05 – 5/1/09.
Xizhou Feng (USC, co-chair with D.A. Buell), High Performance Computing Algorithms and Systems, 1/1/03 – 5/15/06.
Rong Ge (VT), Power-performance Efficiency in Distributed Systems, 8/16/02 – 12/31/07.
Dong Li (VT), Scalable and Energy Efficient Execution Methods for Multicore Systems, 8/16/06 – 2/15/11.
Song “Leon” Shuaiwen (VT), Power, Performance and Energy Models and Systems for Emergent Architectures, 8/16/06 – 3/15/13.

Hung-Ching Chang (VT), Power-Performance Efficiency in I/O, 8/16/07 – 5/15/15.
Chun-Yi Su (VT), Power-Performance Analysis of HPC Memory Systems, 8/16/07 – 5/15/15.
Bo Li (VT), Modeling and Runtime Systems for Coordinated Power-Performance Management, 8/16/12 – Present.
Mariam Umar (VT), Extending the Aspen Framework to Support Power and Energy Modeling, 1/15/15 – 5/5/18.
Jon Bernard (VT), TBD, 8/16/17 – Present.
Greg Bolet (VT), TBD, 8/16/20 – Present.

[Chair] Supervision of Masters Research (M.S. Graduates = 12)

Eles Jones (VT), Benchmark variability steering, 8/15/21 –
Ryan Wood (VT), HPC and SPEC Benchmarks, 8/15/21 –
Sam Furman (VT), CPU Performance and Lineage Repository, 1/15/19 – 8/15/21.
Nicolas Hardy (VT), Computer Systems Performance and Lineage Repository, 1/15/19 – 5/15/21.
Chandler Jearls (VT), Hardware memory compression, 1/15/19 – 5/15/21.
Uday Ananth (VT), Studies of system variability, 1/15/15 – 5/15/17.
Sergio Bernales (VT), Orchestration of a Parallel Kinetic Sculpture of Raspberry Pi's, 9/1/13 – 12/15/14. M.S. CS.
Song "Leon" Shuaiwen (VT), Thermal-aware High-performance Computing, 8/16/06 – 5/1/09. M.S. CS.
Hari K. Pyla (VT), Thermal Profiling Tools for Emergent Systems, 1/15/06 – 6/1/07. [w/ Varadarajan] M.S. CS.
Rong Ge (USC), Performance Evaluation/Prediction of Communication Overhead, 8/16/02 – 5/1/05. M.S. CE.
Chip Aaron (USC), Thermal Characteristics of Advanced DRAM Architectures, 9/1/04 – 5/1/05. M.S. CE.
Drew Varner (USC), Evaluation of High-performance Power-aware Clusters, 1/1/04 – 5/1/05. M.S. CE.
Vidya Kolipaka (USC), Performance Evaluation of Intel's Softswitch Architecture, 5/1/02 – 6/1/03. M.S. CE.
Raghuram Renduchintala (USC), Advanced Use of the SimpleScalar Simulator, 7/1/02 – 12/15/02. M.S. CE.

Supervision of Undergraduate Research (Select list, B.S. students mentored = dozens)

Chandler Jearls, VT. Large-scale, cross-platform, system benchmarking. 9/15/17 – 12/20/18.
Samuel Furman, Research Project: Protocols for cross-system performance comparisons. 9/15/17 – 12/20/18.
Nicolas Hardy, Research Project: Protocols for cross-system performance comparisons. 9/15/17 – 12/20/18.
Jiayi "J.W. Wang, Research Project: Protocols for cross-system performance comparisons. 9/15/17 – 5/15/18.
Liz Dao, Research Project: Protocols for cross-system performance comparisons. 9/15/17 – 5/15/18.
Luke McCormick Research Project: Protocols for cross-system performance comparisons. 9/15/17 – 12/15/17.
Zoe Smith, Research Project: Protocols for cross-system performance comparisons. 9/15/17 – 12/15/18.
Barrett Latimer, VT. Performance and power analysis of the Raspberry Pi Computers. 9/15/17 – 12/15/17.
Kelsey, Farenholtz, VT. Design and implementation of a Raspberry Pi Cluster, 10/15/13 – 5/15/15.
John Mooring, VT: Design and implementation of a Raspberry Pi Cluster, 1/1/13 – 8/15/14.
Timmy Meyer, VT: Power-performance benchmarking on HPC Clusters, 1/1/13 – 5/15/15.
Chris Jones, Honors College Research: Evaluation of Power-aware Clusters, 1/1/04 – 5/15/06.
Joseph Turner, Honors College Research: Hardware counter evaluation of high-end systems, 1/1/04 – 12/15/06. B.S. CE.
Tyler Maxwell, Research Project: Implementation & analysis of Intel Softswitch Architecture, 1/1/02 – 8/30/02. B.S. CE.

Supervision of High School Students

Barrett Lattimer, Blacksburg High School, Summer 2016, Project: Programming SeeMore Kinetic Sculpture
Liam Lawrence, Blacksburg High School, Summer 2016, Project: Programming SeeMore Kinetic Sculpture
Kevin Hencke, Blacksburg High School, Summer 2006 Project: Empirical Study of Memory Hierarchies, B.S. UMD.
Robert Lewis, Dreher High School, Project: Building a Beowulf, entrant in 2004 SC Region II Science and Engineering Fair.

[Member] Advisement Committees

Thomas Lux, Ph.D. [2020]
Tyler Chang, Ph.D. [2020]
Tong Zhang, Ph.D. [2019]
Luna Xu, Ph.D. [2019]
Yue Cheng, Ph.D. [2017]
Guanying Wang, PhD – VT [2014]
Alensandr Khasymyski, PhD – VT [2014]
David Easterling, PhD – VT [2013]
Ruslan Nikolav, PhD – VT [2013]
Mustafa Rafiki, PhD – VT [2013]

Balaji Subramaniam, M.S. – VT [2013]
 Filip Balgojevic, PhD – VT [2009]
 Amine Chigani, PhD – VT [2009]
 Rajesh Sudarsan, PhD – VT [2010]
 Matthew Curtis-Maury, PhD – VT [2008]
 Mehmet Belgin, PhD – VT [2010]
 Scott Scheider, Ph.D. – VT [2011]
 John Linford – M.S. VT [2009]
 Amine Chigani, M.S. – VT [2007]
 Ankur Shah, M.S. – VT [2008]
 Ashwin Aji, M.S. – VT [2008]
 Veena Basavaraj, M.S. – VT [2006]

TEACHING – VT CS|ECE & USC CSE COURSES AND CLASS SIZE

Course Subject	Course Code	Course Name	Credit Hours	Date	# of students
CS	6204	Advanced Topics in Systems	3.0	Fall 2021	10
CS	4284	Systems and Networking Capstone	3.0	Spring 2021	40
CS	4284	Systems and Networking Capstone	3.0	Spring 2020	30
CS	4284	Systems and Networking Capstone	3.0	Spring 2019	25
CS	4234	Parallel Computation	3.0	Fall 2018	20
CS	4284	Systems & Networking Capstone	3.0	Fall 2016	16
CS	4234	Parallel Computation	3.0	Fall 2015	24
CS	4284	Systems & Networking Capstone	3.0	Fall 2015	14
CS	4234	Parallel Computation	3.0	Fall 2014	37
CS	6204	Advanced Topics in Systems	3.0	Fall 2014	15
CS	5504	Computer Architecture	3.0	Spring 2014	13
ECE	5504	Computer Architecture	3.0	Spring 2014	25
CS	4284	Systems & Networking Capstone	3.0	Fall 2013	16
CS	5504	Computer Architecture	3.0	Spring 2013	24
ECE	5504	Computer Architecture	3.0	Spring 2013	13
CS	2506	Intro to Computer Organization	3.0	Fall 2012	98
CS	2506	Intro to Computer Organization	3.0	Spring 2012	71
CS	6204	Advanced Topics in Systems	3.0	Spring 2012	15
CS	4234	Parallel Computation	3.0	Fall 2011	25
CS	2506	Intro to Computer Organization	3.0	Spring 2011	72
CS	5504	Computer Architecture	3.0	Spring 2011	7
ECE	5504	Computer Architecture	3.0	Spring 2011	4
CS	4234	Parallel Computation	3.0	Fall 2010	23
CS	2506	Intro to Computer Organization	3.0	Fall 2009	36

CS	4504	Computer Organization	3.0	Spring 2009	3
CS	5504	Computer Architecture	3.0	Spring 2009	15
ECE	4504	Computer Organization	3.0	Spring 2009	3
ECE	5504	Computer Architecture	3.0	Spring 2009	8
CS	6204	Advanced Topics in Systems	3.0	Fall 2008	4
CS	4504	Computer Organization	3.0	Spring 2008	9
CS	5504	Computer Architecture	3.0	Spring 2008	13
ECE	4504	Computer Organization	3.0	Spring 2008	10
ECE	5504	Computer Architecture	3.0	Spring 2008	12
CS	4504	Computer Organization	3.0	Spring 2007	7
CS	5504	Computer Architecture	3.0	Spring 2007	26
ECE	4504	Computer Organization	3.0	Spring 2007	9
ECE	5504	Computer Architecture	3.0	Spring 2007	1
CS	4504	Computer Organization	3.0	Spring 2006	7
CS	6204	Advanced Topics in Systems	3.0	Spring 2006	10
ECE	4504	Computer Organization	3.0	Spring 2006	17
CSE	6xxx	Power Conscious Computing	3.0	Spring 2005	9
CSE	4xxx	Computer Architecture	3.0	Fall 2004	26
CSE	5xxx	Advanced Computer Architecture	3.0	Spring 2004	6
CSE	4xxx	Computer Architecture	3.0	Fall 2003	25
CSE	6xxx	Performance Analysis	3.0	Spring 2003	8
CSE	4xxx	Computer Architecture	3.0	Fall 2002	31
CSE	4xxx	Computer Architecture	3.0	Fall 2001	24

SERVICE –BROADER NATIONAL AND INTERNATIONAL COMMUNITIES

EDITORIAL POSITIONS

Associate Editor: IEEE Transactions on Parallel and Distributed Systems , (2018 – present).

Associate Editor: Journal of Parallel and Distributed Computing , (2015 – present).

Associate Editor: IEEE Computer , (2014 – 2017).

Editorial Board: IEEE Computer , (2009 – 2014); editor of Green IT Column (2009 – 2014).

Editorial Board, Sustainable Energy Development Book Series, (2011 – present).

Guest Editor: IEEE Transactions on Parallel and Distributed Systems, Special Issue on Power-Aware Parallel and Distributed Systems (PAPADS), (2007 – 2008).

ELECTED COMMITTEES

Elected Member: NERSC User's Group Executive Committee (2007-2010).

INVITED INTERNATIONAL CONFERENCE ORGANIZATION POSITIONS

Technical Program Vice-Chair: CCGrid 2016 (Architecture, 2015-2016), CCGrid 2013 (Architecture, 2012-2013)

Technical Program Vice-Chair: SC 2015. (2014-2015)

Technical Program Co-Chair: CCGrid 2014. (2012-2014)

Workshop Co-Chair: Workshop on Energy Efficient Supercomputing (E2SC), 2012-2017.

Workshop Co-Chair: International Parallel and Distributed Processing Symposium (IPDPS), 2015-2016.

Co-Chair: Workshop on Variability in Systems (VarSys). (2015-2016).

Co-Chair: Workshop on Science of Power Management, Sponsored by NSF. (2008-2009).

Co-Chair: High-Performance Power-Aware Computing Workshop (HPPAC), 2007.

Publicity Chair: ACM International Conference on Supercomputing, 2011.

Steering Committee, IEEE Technical Committee on Scalable Computing – Technical Area of Green Computing (2011-).

Steering Committee, The First International Workshop on Energy Consumption and Reliability of Storage Systems (ERSS) 2011.

Steering Committee, IEEE/ACM International Conference on Green Computing and Communications (GreenCom), 2009-present.

Steering Committee, High-performance, power-aware computing workshop (HPPAC), 2005-present.

Steering Committee, International workshop on performance analysis and optimization of high-end computing systems Workshop (APART), 2007.

Session Chair, 29th International ACM Symposium on High-Performance Parallel and Distributed Computing (HPDC 2020)

Session Chair: 2018 Extreme Heterogeneity Workshop.

Session Chair: SC 2014, SC 2017, SC 2018, SC 2019.

Session Chair (Breakout Session): NSF CISE PI Workshop, May 2017, Orlando, FL.

Session Chair: MASCOTS 2014.

Session Chair, National Academy of Engineering Frontiers of Engineering Indo-American Symposium, 2014.

Session Chair, International Parallel and Distributed Processing Symposium (IPDPS), 2011.

Session Chair, IEEE/ACM International Conference for High-performance Computing Networking, Storage, and Analysis (SC), 2009.

Session Chair, High-performance, power-aware computing workshop (HPPAC), 2005-2010.

Session Chair, IEEE/ACM International Conference for High-performance Computing Networking, Storage, and Analysis (SC), 2005.

Session Chair, Workshop on Hardware/Software Support for Parallel and Distributed Scientific and Engineering Computing (SPDSEC), 2002.

Session Chair, International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA), 1999.

INTERNATIONAL CONFERENCE TECHNICAL PROGRAM COMMITTEES (MEMBER)

2021 IEEE/ACM International Conference for High-performance Computing Networking, Storage, and Analysis (SC)

2021 International Parallel and Distributed Processing Symposium (IPDPS)

30th International ACM Symposium on High-Performance Parallel and Distributed Computing (HPDC 2021)

2020 International Conference on Parallel Processing (ICPP 2020)

29th International ACM Symposium on High-Performance Parallel and Distributed Computing (HPDC 2020)

2020 IEEE/ACM International Conference for High-performance Computing Networking, Storage, and Analysis (SC)

2020 International Parallel and Distributed Processing Symposium (IPDPS)

28th International ACM Symposium on High-Performance Parallel and Distributed Computing (HPDC 2019)

2019 IEEE/ACM International Conference for High-performance Computing Networking, Storage, and Analysis (SC)

27th International ACM Symposium on High-Performance Parallel and Distributed Computing (HPDC 2018)

2017 IEEE/ACM International Conference for High-performance Computing Networking, Storage, and Analysis (SC)

2016 European Conference on Parallel Computing (EuroPar 2016)

2016 USENIX Workshop on Cool Topics in Sustainable Datacenters (CoolDC)

2015 IEEE/ACM International Conference on Parallel Architecture and Compilation Techniques (PACT 2015)

2014 International Parallel and Distributed Processing Symposium (IPDPS)

2014 IEEE/ACM International Conference for High-performance Computing Networking, Storage, and Analysis (SC)

2013 ACM SIG CHI [ad hoc reviewer]
 2013 IEEE HiPC
 22nd International ACM Symposium on High-Performance Parallel and Distributed Computing (HPDC 2013)
 2012 IEEE HiPC
 2012 IEEE CLUSTER
 2012 IEEE/ACM International Conference for High-performance Computing Networking, Storage, and Analysis (SC)
 21st International ACM Symposium on High-Performance Parallel and Distributed Computing (HPDC 2012)
 2011 High Performance Computing Conference (HiPC)
 2011 Workshop on Energy Consumption and Reliability of Storage Systems (ERSS)
 2011 International Workshop on Power Measurement and Profiling (PMP)
 2011 International Conference on Green Information Technology (GREEN IT)
 2010 International Green Computing Conference (IGCC)
 2010 European Conference on Parallel Computing (EuroPar 2010)
 2010 IEEE Cluster
 2010 Workshop on Energy Efficient Design (WEED)
 2010 USENIX Workshop on Sustainable Information Technology (Sustain IT)
 2010 Workshop on high-performance, power-aware computing (HPPAC)
 2009 IEEE/ACM International Conference for High-performance Computing Networking, Storage, and Analysis (SC)
 20th IEEE/ACM International Conference on Parallel Architecture and Compilation Techniques (PACT)
 2009 Workshop on high-performance, power-aware computing (HPPAC)
 2009 International Parallel and Distributed Processing Symposium (IPDPS)
 2008 International Conference on Parallel Processing (ICPP)
 2008 Workshop on high-performance, power-aware computing (HPPAC)
 2007 International workshop on performance analysis and optimization of high-end computing systems (APART)
 2007 International Conference on Parallel Processing (ICPP)
 2007 International Conference on Parallel and Distributed Computing Networks (PDCN)
 2007 ACM Southeastern Conference (ACMSE)
 2007 Workshop on high-performance, power-aware computing (HPPAC)
 2006 ACM Southeastern Conference (ACMSE)
 2006 Workshop on high-performance, power-aware computing (HPPAC)
 2005 IEEE/ACM International Conference for High-performance Computing Networking, Storage, and Analysis (SC)
 2005 Workshop on high-performance, power-aware computing (HPPAC)
 2004 International Conference on Parallel Processing (ICPP)
 2002 Workshop on Hardware/Software Support for Parallel and Distributed Scientific and Engineering Computing (SPDSEC)

NATIONAL AND INTERNATIONAL OUTREACH ACTIVITIES

Co-founder: CSGenome Project, 2018-present.
Co-founder: Green500 list of power efficient supercomputers, 2006-present. (Now merged with Top500.org)
Contributing Member: SPECPower Working Group 2005-present.
Awards Committee: Green Enterprise IT Awards, international competition for achievement in data center energy efficiency held annually at the IT Symposium, 2009-2012.
Session Chair: "Cloud, Serverless Computing, and HPC" session at NSF CISE PI Meeting, November, 2019.
Invited Participant, AFRL Cyber Energy Summit, 2011.
Invited Participant: 2010 US/EU Frontiers of Engr. Symposium, September 2010.
Invited Participant: EPA Stakeholders Workshop 2008.
Invited Participant: 2008 US Frontiers of Engr. Symposium, September 2008.
Invited Participant: EPA Tier II Energy Star Workshop 2007.
Invited Participant: National Security Agency Advanced Computing Systems (ACS) Workshop 2007.
Invited Participant: Interagency High-End Computing Revitalization Task Force, organized by the National Science and Technology Council 2003.

CONSULTING ACTIVITIES

Expert Consult: Decision Detective, SF Bay Area, California, 2015-2016.

Founder and CEO: MiserWare, Inc. Power management software company, 2007-2014.
Expert Witness: Commonwealth of Virginia, Office of the Attorney General, 2006-2007.
Expert Consult: Oracle via Oblon – Spivak, Alexandria, Virginia, 2014.
Advisory Board Member: READEX Project, Led by Technical University Munich (Germany), Funded by European Union’s Horizon 2020 research and innovation programme [No. 671657], 2015-2018.
Advisory Board Member: U.S. General Services Administration (GSA) Technical Operations (GTO) Technical Advisory Board (TAB) – technical advisory board member for GSA GTO \$237M contract awarded to AAC, Inc. 2014-2019.

SERVICE –UNIVERSITY COMMUNITY

VIRGINIA TECH COLLEGE- AND UNIVERSITY-WIDE ACTIVITIES

Member: LINK Search Committee (2021-)
Member: Innovation Campus Faculty Advisory Board (2020-)
Member: Innovation Campus Building Planning Committee (2020-)
Chair: CS Department Head Review Committee (2020-2021)
Member: COE Diversity Committee (2012-2016)
Director: stack@CS Center for Computing Systems (2013-)
Committee member: Associate Dean Search Committee (2010-2011), DH Review Committee Chair (2020-2021)
Faculty Mentor (2011): Jason Holliday (Forestry), Jules White (ECE), and Mantu Hudait (ECE).

VIRGINIA TECH DEPARTMENT OF COMPUTER SCIENCE OUTREACH ACTIVITIES

Associate Department Head, Graduate Studies (2014-2017), Research and Engagement (2018-)
HPC Lead, Virginia Tech Computer Science Alliance, coordinate activities with HBCU colleges in region, (2007-2010).
Founder and Chair, NSF CAREER Internal Review Committee, setup mock panels for junior faculty, (2006-2008).

VIRGINIA TECH DEPARTMENT OF COMPUTER SCIENCE ACTIVITIES

Director/Lead, Alumni and Corporate Relations, [2019-]
Director/Lead, Marketing and Communications, [2019-]
Director/Lead, Blockchain Initiative, [2018-]
Chair, Systems Faculty Search Committee [2018-2019]
Chair, CS Personnel (Tenure and Promotion) Committee, [2015-2016]
Member, CS Director of Undergraduate Studies Search [2021]
Member, CS Director of Graduate Studies Search [2021]
Member, CS Personnel (Tenure and Promotion) Committee, [2010-2011, 2013-2015, 2016-2018]
Member, CS Executive Committee, [2014-]
Member, CS Tech Lead Search [2014]
Member, CS External Relations Search [2014]
Member, CS Business Manager Search [2015]
Chair, Graduate Program Committee (2014-)
Chair, Systems Faculty Search Committee (2012-2013)
Faculty mentor for: Ali Butt (2010 – 2013), Dongyoon Lee (2014-), Danfeng Yao (2013-), Godmar Back (2013-), Thang Hoang (2020-), Matt Hicks (2019-), Bo Ji (2020-), Xun Jian (2019-), Kurt Luther (2016-)
Committee member, 40th Anniversary Event Committee (2011), 50th Anniversary Committee (2020-2021)
Course coordinator, CS 4504 (2005 – present)
Committee member, Marston Entrepreneurial Fund Committee (2007 – 2010)
Chair, Computer Resources Committee (2008 – 2010)
Member, Department Head Search Committee (2007-2008)
Member, Systems Faculty Search (2006, 2010, 2011-2012, 2013-2014)
Chair, Systems Qualifier Committee (2007-2008)
Member, Systems Qualifier Committee (2005-2008, 2016-2017)
Member, Graduate Admissions Committee (2006-2008, 2011-2014)

UNIVERSITY OF SOUTH CAROLINA ACTIVITIES

Faculty mentor for Jijun Tang (2004-2005)

Founder and Chair, NSF CAREER Internal Review Committee, setup mock panels for junior faculty, (2003-2005).

Founder and Chair, USC CSE Distinguished Lecture Series, (2003-2005).

Member, USC CSE Faculty Search Committee (2003-2005)

Member, USC Research and Productive Scholarship Committee (2004)

Member, USC CSE Computing Infrastructure Committee (2003-2005)

SERVICE –NATIONAL AND INTERNATIONAL REVIEWING ACTIVITIES

PROPOSAL REVIEWER

NSF CAREER Panel (~10 manuscripts), 2004, 2007, 2009, 2013-2021.

NSF CCF Panel (~10 manuscripts), 2015-2016, 2020, 2021.

NSF CNS Panel (~10 manuscripts), 2015-2016, 2020.

DOE Office of Science Ad Hoc Reviewer, (1 manuscript), 2014.

NSF Ad Hoc Reviewer, (2 manuscripts), 2014, 2018.

Engineering and Physical Sciences Research Council (UK), 2013.

University of Cyprus, 2012.

NSF SBIR Panel (8 manuscripts), 2010.

Department of Energy Early Career Panel (10 manuscripts), 2009.

NSF Ad Hoc Reviewer (1 manuscript) 2009.

NSF Expeditions Panel (9 manuscripts), 2008.

Ontario Research Fund, Canada, (4 manuscripts) 2007.

NSF CPA Panel (10 manuscripts), 2007.

Ontario Research Fund, Canada, (4 manuscripts) 2006.

NSF DDDAS Panel (12 manuscripts), 2005.

NSF REU Panel (11 manuscripts), 2005.

NSF ACR Panel (10 manuscripts), 2003.

NSF ITR Panel (12 manuscripts), 2003.

TEXTBOOK REVIEWER

Digital Principals and Design, 1e (702 pgs, McGraw-Hill).

JOURNAL MANUSCRIPT REVIEWER

IEEE Transactions on Computing

IEEE Transactions on Parallel and Distributed Systems

IEEE Micro

IEEE Computer

ACM Transactions on Computer Systems

ACM Journal of Emerging Technologies

ACM Computing Surveys

IBM Systems Journal

Journal of Future Generation Computing Systems

Journal of Systems Software

Journal of Parallel and Distributed Computing

IEEE Internet Computing

IEEE Transactions on Mobile Computing

Integration: The VLSI Journal

The Computing Journal

Parallel Computing

International Journal of High-Performance Computing

SERVICE – INTERNATIONAL PROFESSIONAL MEMBERSHIPS

Distinguished Scientist, Association of Computing Machinery (ACM)

Fellow, Institute of Electrical and Electronics Engineers (IEEE)

Upsilon Pi Epsilon (UPE) Honor Society for the Computing Sciences