Vaidy Sunderam

Professor and Chair, Computer Science
Emory University

Awards and Honors and Year Received

- 2009 Academic Leadership Program, Emory University, 2008-2009.
- 2002 Faculty Speaker at Emory College Graduation Honors Ceremony, May 2002.
- 1998 Distributed Computing Research Achievement Award, Computer Science Research and Education Association.
- 1994 Emory Williams Outstanding Teaching Award, Emory University.
- 1994 R & D 100 Research Innovation Award (with A. Beguelin, J. Dongarra, G. A. Geist, R. Manchek, University of Tennessee and Oak Ridge National Labs).
- 1992 IEEE Computer Society, Gordon Bell Prize for Parallel Processing Research, (with V. Rego, H. Nakanishi, Purdue University).

Involvement in CRA Activities

- 2019 Invited participant at CRA/NSF Broadening Participation Workshop
- 2018 CRA Congressional Visit delegate from Emory/Georgia
- 2018, 2016, 2014 CRA Snowbird Chairs Workshop Participant

Other Relevant Experience

- Founding Chair, Department of Computer Science, Emory University 2018-present
- Director, Emory Computational and Life Sciences (CLS) Strategic Initiative, 2006-2018
- Chair, Math and Computer Science (Joint) Department, Emory University, 2005-2018
- Gender Diversity Award in Computer Science and STEM, Emory University, 2009

Research Interests

- Data Privacy and Security
- Broadening Participation in Computing
- Cyberinfrastructure
- Collaborative Computing
- Distributed Systems
- Parallel Processing and HPC

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CRA
Computing Research Association

Personal Statement

I have been increasingly involved in CRA activities, ranging from active participation in Snowbird conferences to CRA Congressional visits and most recently the NSF CRA Broadening Participation in Computing Workshop. I have a deep commitment to advancing knowledge in Computing via research as well as to uplifting society at large through Computing education and inclusion. I have led interdisciplinary projects and workforce development projects that have contributed substantially to advancing the field while having broad impact. CRA's mission to enhance innovation, strengthen research, and promote education in computing is ideally aligned with my aspirations to serve on the CRA Board.

Vaidy Sunderam

Curriculum Vitae – September 29, 2019

Dept. of Mathematics & Computer Science
Emory University, Atlanta, GA 30322
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Atlanta, GA 30307
Email: vss@emory.edu

Education

1986   Ph.D., Computer Science, University of Kent, Canterbury, United Kingdom

1980   M. S., Computer Science, Indian Institute of Technology, Bombay, India

1978   B.S. *(Honors),* Engineering, Birla Institute of Technology & Science, Pilani, India

Positions Held

2018 –   Department Chair, Computer Science, Emory University

2006 – 2018   Director, Computational and Life Sciences Strategic Initiative, Emory University

2005 – 2018   Department Chair, Mathematics and Computer Science, Emory University

2008   Professeur Invite, Universite de Franche Comte, Belfort-Montbeliard, France

1997 –   Samuel Candler Dobbs Professor of Computer Science, Emory University

1996 –   Professor, Mathematics and Computer Science, Emory University

1995   Visiting Associate Professor, Technical University of Munich, Germany

1986 – 1996   Assistant/Associate Professor, Mathematics and Computer Science, Emory University

Administrative Experience

- Director, Emory Computational and Life Sciences (CLS) Strategic Initiative, 2006-2018

  - Coordinated vision, strategy, implementation, and integration approaches for Emory's University-wide CLS initiative involving four schools and 11 departments.
  - Stimulated creation of new interdisciplinary scholarship at Emory. CLS-enabled research projects and educational programs were awarded $22+M in external funding (2006-2016).
  - Central role in establishing Center for Comprehensive Informatics, and in subsequent formation of Biomedical Informatics Department within Emory School of Medicine.
  - Initiated CLS Postdoctoral Fellows program to promote interdisciplinary science. Coordinated creation of joint 3-2 BS program with Agnes Scott College (2008, 2011).
  - Led CLS participation in creation/enhancement of university-wide Core facilities.

- Chair, joint department of Mathematics and Computer Science, 2005-2018

  - 35 regular and ~15 visiting faculty/postdocs, 10 FTEs support staff, 110 graduate students, and 600+ majors (2018). Department taught 6000+ student enrollments each year.
  - Chaired department during period of growth (2005-2018): 4X increase in sponsored research; tripling of graduate students, majors, and enrollment; new subfields of distinction; marked increases in scholarly productivity, faculty and student honors and recognitions.
  - Oversight of $11.6 M all-funds annual budget ($6.2M educational & general + ~$2M research awards + $1.8M non-sponsored + $1.6M assistantships).

- o Overall responsibility for strategic planning; faculty recruitment, development, and evaluation; tenure and promotion; special initiatives; program enhancements; course offerings; teaching and research laboratories.
- o Increased research activity via mentoring programs for faculty; hiring grant-writer; support for pilot projects, startups, and labs; funded through donations, grants, and reallocations.
- o Coordinated multiple curricular revisions, introduction of new majors, and teaching excellence programs, while accommodating tripling of undergraduate population.
- o Restructured undergraduate responsibilities to enhance educational effectiveness, including workshops and mentoring program for instructors and visiting faculty.
- o Instituted equitable teaching plan that explicitly recognizes extraordinary faculty activity in research, grant funding, advising, and institutional/professional service.
- o Sponsored new undergraduate student organizations including Math/Robotics clubs, Girls Who Code; and departmental/interdisciplinary graduate organizations: Math Circle, Applied Math Graduate Seminar, Association for Women in Mathematics, and Association for Computing Machinery-Women's chapters.

- Faculty Initiatives

- o Led N16 Faculty Distinction initiative enabled by philanthropic gift. Recruited faculty cluster in Number Theory, and established Fellows program in MathCS (2007-2015).
- o Coordinated hiring of CLS interdisciplinary jointly-appointed faculty across schools and departments. Formulated processes, arbitrated negotiations, established MOUs for research, teaching, evaluation/tenure, compensation, and grants (2007-2013).
- o Led "Data Centric" cluster hire of six new faculty members in MathCS, creating Emory niche excellence in areas of contemporary importance (2013-2017).
- o Instituted practices for strategic recruitment, proactive retention, and ongoing professional development. Enhanced mentoring schemes for junior and mid-career faculty, including inter-constituency guidance and advising (2007-2017).
- o Oversight and guidance of 32 tenure and promotion cases. Number of full professors in MathCS increased from 6 to 15, named chairs from 2 to 8 during 2005-2018.

- Educational Programs and Research Partnerships

- o Helped coordinate overhaul of Emory College General Education Requirements (GER) as Chair of College Governance Committee (2007). Participant in current GER re-visioning and curriculum update (2017-2019).
- o Led curricular and organizational development of new interdisciplinary Ph.D. program in Computer Science and Informatics focused on Emory strengths; CSI programs are joint between ECAS-MathCS, SOM-BMI, and RSPH-BIOS (2007).
- o Partnered with Schools of Medicine and Public Health to create special concentration in Biomedical Informatics within Computer Science and Informatics Ph.D. (2010).
- o Coordinated design and launch of new B.S. major in Applied Math and Statistics jointly offered by MathCS and Institute for Quantitative Theory and Methods (2014).
- o Led restructuring and curricular revisions of four Computer Science M.S. degrees in new specializations; M.S. programs enroll ~30 students per year (2015). Developed "4+1" program in CS whereby Emory undergraduates can obtain Master's degree in one additional year.
- o Updated educational degree programs to include formal, for-credit, internships and practical training within institution or externally in industry/government.
- o Facilitated MathCS collaborations with Art History, Economics, History, Sciences, Emory Libraries, CDC. Key role in evolution of SPSRC into QuanTM (2006-2016).

- Fundraising and Outreach

  o Engaged with DAR to develop case statements for CLS and MathCS, identified and cultivated prospective donors, and presented philanthropic opportunities.

  o Central role in two major alumni gifts and numerous other pledges and donations in College, MathCS department, and CLS contexts. Key participant in several university- and college-level fundraising endeavors, and Alumni Association events.

  o Facilitated and catalyzed faculty engagement with corporations and foundations; MathCS faculty receive unrestricted gifts of approximately $200k each year.

  o Through departmental events and outreach efforts, created formal MathCS alumni network to mutually engage past students in department and student activities.

  o Established Emory as affiliate member of Building, Recruiting, and Inclusion for Diversity (BRAID) initiative in computing; and member of National Association of Mathematicians, promoting mathematics among underrepresented minorities.

- Selected Committee Contributions

  o Initiated explorations to create entrepreneurship office at Emory. Member, task force that proposed Emory Innovation Hub (EiHUB) to President/Provost (2015-2016).

  o Woodruff Health Sciences Research Advisory Committee, 2008-2019. Represented CLS and Arts & Sciences computational/quantitative interests. Member of "Interdisciplinary Research" and "Innovation" WHSC Strategic Plan Task Forces, 2010-2013 and 2016-17.

  o Member, Strategic Research Initiatives Executive Advisory Board. Focus on global research collaborations, optimizing research support systems (2015-2017).

  o Emory College Governance Committee 2004-2007; Chair 2006-2007. Led several governance initiatives: 3-tier lecture-track promotion processes, standing committee structures, new general education requirements, and links to University senate.

  o Graduate education financial models 2009-2010. Represented Arts and Sciences on task force to analyze and recommend financial models for sustainability and growth.

  o Chair, Emerson Center for Scientific Computing, 2006-2009, Leadership Committee 2004-2011. Technical, research, and administrative oversight including acquisitions, research computing allocations, subscription management, visiting Fellows program.

Selected Honors and Awards

2009	Academic Leadership Program, Emory University, 2008-2009.
2002	Faculty Speaker at Emory College Graduation Honors Ceremony, May 2002.
1998	Distributed Computing Research Achievement Award, Computer Science Research and Education Association.
1994	Emory Williams Outstanding Teaching Award, Emory University.
1994	R & D 100 Research Innovation Award (with A. Beguelin, J. Dongarra, G. A. Geist, R. Manchek, University of Tennessee and Oak Ridge National Labs).
1992	IEEE Computer Society, Gordon Bell Prize for Parallel Processing Research, (with V. Rego, H. Nakanishi, Purdue University).
1990	First Prize, IBM Supercomputing Competition (with G. A. Geist, Oak Ridge Labs).
1983 – 1986	United Kingdom Commonwealth Scholar.

External Funding

(Single Principal Investigator grants unless otherwise noted)

- Next Generation Frameworks for Secure DDDAS/Infosymbiotics Systems,
  Air Force Office of Scientific Research grant FA9550-17-1-0006, (*Co-PI, Li Xiong PI)*
  $499,783, November 15, 2016 – November 14, 2020.

- Enhancing Cyber-Infrastructure Usability Through Adaptive Middleware,
  National Science Foundation grant NSF OCI-1124418,
  $385,710, September 1, 2011 – August 31, 2015.

- PREDICT: Privacy and Security Enhancing Dynamic Information Monitoring,
  Air Force Office of Scientific Research grant FA9550-12-1-0240, (*PI, Li Xiong Co-PI).*
  $498,023, May 1, 2012 – April 30, 2015

- Integrative Approaches to Next-Generation Heterogeneous Computing,
  National Science Foundation grant NSF CNS-720761,
  $390,734, August 1, 2007 – July 31, 2011.

- The Harness Workbench: Unified and Adaptive Access to Diverse HPC Platforms,
  U. S. Department of Energy grant DE-FG02-06ER25729,
  $463,842, August 1, 2006 – July 31, 2010.

- Cooperative Fault Tolerant Distributed Computing,
  U. S. Department of Energy grant DE-FG02-02ER25537,
  $459,126, September 15, 2002 – September 14, 2006.

- Unifying Software Frameworks for Distributed Computing,
  National Science Foundation grant NSF ACI-0220183,
  $300,000, August 15, 2002 – July 31, 2006.

- Heterogeneous Adaptable Reconfigurable Networked Systems,
  U. S. Department of Energy grant DE-FG02-99ER25379,
  $426,418, March 15, 1999 – March 14, 2003.

- Metacomputing with the IceT System,
  National Science Foundation grant NSF ACI-9872167,
  $201,644, May 1, 1999 – April 30, 2003.

- Computer Systems for Computational Chemistry & Chemical Physics,
  National Science Foundation grant NSF CHE-0079627 (*Co-PI, Keiji Morokuma PI*),
  $300,000, October 1, 2000 – September 30, 2001.

- Computational Science at Emory University,
  U. S. Department of Energy grant DE-FG02-96ER25303,
  $300,000, September 1996 – August 1999.

- A Software Architecture for Scalable Simulations on Heterogeneous Networks,
  Army Research Office grant DAAH04-96-1-0083,
  $135,244, May 1996 – April 2000.

- Interfaces for Parallel and Distributed I/O,
  National Science Foundation grant NSF CCR-9523544,
  $95,431, May 1996 – April 1999.

- Collaborative Computing Frameworks for Natural Sciences Research,
  National Science Foundation grant NSF ASC-9527186, (*Lead PI and Project Director*)
  $1,328,102, October 1995 – August 1999.

- Enhancing Functionality and Performance in the PVM Network Computing System,
  U. S. Department of Energy grant DE-FG05-91ER25105,
  $127,000, September 1994 – August 1998.

- Reliable Distributed Interactive Simulations on Heterogeneous Environments, Department of the Army, U.S. DoD, DURIP award 33693-MA-RIP, $95,720, December 1994 – November 1995.

- High-Performance Concurrent Network Computing, National Science Foundation grant (UTK subcontract), NSF ASC-9214149, $141,385 ($403,651 total award), September 1993 – February 1997.

- Heterogeneous Distributed Computing for Computational Aerosciences, National Aeronautics and Space Administration grant NAG 2-828, $191,769, April 1993 – December 1997.

- Methodologies and Tools for Massively Concurrent Computing, Office of Naval Research grant N00014-93-1-0278, $151,990, January 1993 – March 1996.

- Issues in Heterogeneous Network Based Concurrent Computing, National Science Foundation grant NSF CCR-9118787, $139,349, January 1992 – June 1995.

- Network Based High-Performance Concurrent Computing, U. S. Department of Energy grant DE-FG05-91ER25105, $138,631, September 1991 – August 1994.

- Heterogeneous Network Computing, Faculty Research Participation Award; U. S. DoE Oak Ridge National Labs, 1989 – 1991.

Internal Grants

- Synergy Award for Collaborative Research, Emory University, 2017

- Program to Enhance Research and Scholarship (PERS) grant, Emory College, 2015

- Distributed Computing Research, Emory University Research Committee, 1990, 2004.

- Curriculum Development Summer Award, Emory CTC, 1998, 2002.

- Conference and Research Collaboration Travel, ICIS, ECAS/Woodruff, Various.

Publications – Refereed Journals

J-1. S. Guzzetti, T. Passerini, J. Slawinski, U. Villa, A. Veneziani, V. Sunderam, "Platform and Algorithm Effects on Computational Fluid Dynamics Applications in the Life Sciences", *Journal of Future Generation Computer Systems,* Vol. 67, pp. 382-396, 2017.

J-2. Daniel Garcia-Ulloa, Li Xiong, Vaidy Sunderam, "Truth Discovery for SpatioTemporal Events from Crowdsourced Data", *Proceedings of VLDB,* Vol 10, No. 11, pp. 1562-1573, 2017.

J-3. I. Zoraja, G. Trlin, V. Sunderam, "Eliciting the End-to-end Behavior of SOA Applications in Cloud Computing", *Journal of Computing and Informatics,* Vol. 35, 2016, No. 2, pp. 259–281, 2016.

J-4. L. Pournajaf, D. Garcia, L. Xiong, V. Sunderam, "Participant Privacy in Mobile Crowd Sensing Task Management: A Survey of Methods and Challenges", *ACM Special Interest Group on Management of Data SIGMOD Record,* Vol. 44, No. 4, December 2015.

J-5. J. Slawinski, V. Sunderam, "Towards Computing as a Utility via Adaptive Middleware: An Experiment in Cross-Paradigm Execution", *Journal of Parallel Processing Letters*, Vol. 23, No. 2, June 2013.

J-6. E. M. Macias, D. Sanchez, A. Suarez, V. Sunderam, "Optimization of Execution Time Inspired Cross Layer Design Using Effective Load Balancing in a LAN-WLAN Environment", *International Journal of Computational Science and Engineering*, Vol. 4, No. 3, pp. 182-194, 2009.

J-7.   J. Zich, Y. Kohayakawa, V. Rodl, V. Sunderam, "JumpNet: Improving Connectivity and Robustness in Unstructured P2P Networks by Randomness", *Journal of Internet Mathematics*, Vol. 5, No. 3, pp. 195-218, 2009.

J-8.   D. Kurzyniec, M. Slawinska, J. Slawinski, V. Sunderam, "Unibus: A Contrarian Approach to Grid Computing", *Journal of Supercomputing*, Vol. 42, No. 1, pp. 125-144, October 2007.

J-9.   J. C. Gomez, V. Rego, V. S. Sunderam, "Scheduling Communication in Multithreaded Programs", *Concurrency and Computation: Practice and Experience*, Vol. 18, No. 1, pp. 1-28, 2006.

J-10.   D. Kurzyniec, V. Sunderam, "Failure Resilient Heterogeneous Computing Across Multidomain Clusters", *International Journal of High Performance Computing Applications*, Vol. 19, No. 2, pp. 143-156, Summer 2005.

J-11.   G. Stuer, J. Broeckhove, V. Sunderam, "Towards OGSA Compatibility in Alternative Meta-computing Environments", *Future Generation Computer Systems*, Vol. 21, No. 1, pp. 221-226, January 2005.

J-12.   G. Stuer, J. Broeckhove, V. Sunderam, "Publishing H2O Pluglets in UDDI Registries", *Journal of Computing and Informatics*, Vol. 23, No. 4, 2004.

J-13.   Z. Nemeth, V. Sunderam, "Characterizing Grids: Attributes and Formalisms", *Journal of Grid Computing*, Vol. 1, No. 1, pp. 9-23, 2003.

J-14.   D. Kurzyniec, T. Wrzosek, V. Sunderam "Towards Self-Organizing Distributed Computing Frameworks", *Parallel Processing Letters*, Vol. 13, No. 2, June 2003.

J-15.   P. Gray, V. Sunderam, "Collaborative Metacomputing with IceT: Issues and Experiences", *Journal of Supercomputing*, Vol. 22, pp. 139-146, 2002.

J-16.   J. S. Pascoe, V. Sunderam, U. Varshney, R. J. Loader, "Middleware Enhancements for Metropolitan Area Wireless Internet Access", *Future Generation Computer Systems*, Vol. 18, No. 5, pp. 721-735, April 2002.

J-17.   J. S. Pascoe, R. J. Loader, V. S. Sunderam, "Collaborative Group Membership", *Journal of Supercomputing*, Vol. 22, No. 1, pp. 55-68, May 2002.

J-18.   M. Migliardi and V. Sunderam, "Emulating Parallel Programming Environments in the Harness Metacomputing System", *Parallel Processing Letters*, Vol. 11, No. 2 &3, pp. 281-295, September 2001.

J-19.   M. Bubak, D. Kurzyniec, P. Luszczek, V. Sunderam, "Creating Java to Native Code Interfaces with Janet", *Journal of Scientific Programming*, Vol. 9, No. 1, pp. 39-50, 2001.

J-20.   M. Migliardi, V. Sunderam, "Plug-ins, Layered Services and Behavioral Objects: Application Programming Styles in the Harness Metacomputing System", *Future Generation Computer Systems*, Vol. 17, No. 6, pp. 795-811, April 2001.

J-21.   A. Czygrinow, M. Karonski, V. S. Sunderam, "The Polling Primitive for Computer Networks", *Informatica*, Vol. 24, pp. 211-216, 2000.

J-22.   M. Migliardi, S. Schubiger, and V. Sunderam, "A Distributed JavaSpace Implementation for Harness", *Journal of Parallel and Distributed Computing*, Vol. 60, pp. 1325-1340, November 2000.

J-23.   V. Getov, P. Gray, V. Sunderam, "Aspects of Portability and Distributed Execution for JNI-Wrapped Message Passing Libraries", *Concurrency: Practice and Experience*, Vol. 20, No. 11, pp. 1039-1050, September 2000.

J-24.   The CCF Project Team, "CCF: A Collaborative Computing Framework", *IEEE Internet Computing*, Vol. 4, No. 1, pp. 16-24, January/February 2000.

J-25.   M. Beck, J. Dongarra, G. Fagg, A. Geist, P. Gray, J. Kohl, M. Migliardi, K. Moore, T. Moore, P. Papadapoulos, S. Scott, V. Sunderam, "Harness: A Next Generation Distributed Virtual Machine", *Future Generation Computer Systems*, Vol. 15, Nos. 5-6, pp. 571-582, October 1999.

J-26.   C.D. Carothers, B. Topol, R. M. Fujimoto, J. T. Stasko, V. Sunderam, "Visualizing Parallel Simulations that Execute in Network Computing Environments", *Future Generation Computer Systems* ,Vol. 15, No. 4, pp. 513-529, July 1999.

J-27. P. Gray and V. Sunderam, "Metacomputing with the IceT System", *International Journal of High Performance Computing Applications*, Vol. 13, No. 3, pp. 241-252, Fall 1999.

J-28. V. Getov, P. Gray, S. Mintchev, V. Sunderam, "Multi-language Programming Environments for High Performance Computing", *Journal of Scientific Programming*, Vol. 7, pp. 139-146, June 1999.

J-29. Rhee, S. Y. Cheung, P. Hutto, A. Krantz, V. Sunderam, "Group Communication Support for Distributed Collaboration Systems", *Journal of Cluster Computing: Networks, Software Tools, and Applications*, Vol. 2, No. 1, pp. 3-16, April 1999.

J-30. I. Zoraja, H. Hellwagner, and V. S. Sunderam, "SCIPVM: Parallel Distributed Computing on SCI Workstation Clusters", *Concurrency: Practice and Experience*, Vol. 11, No. 3, pp. 121-138, 1999.

J-31. P. Gray and V. Sunderam, "Developing Technologies for Broad-Network Concurrent Computing", *Journal of Systems Architecture*, No. 45, pp. 1279-1291, 1999.

J-32. B. Topol, J. Stasko, and V. S. Sunderam, "PVaniM: A Tool for Visualization in Network Computing Environments", *Concurrency: Practice and Experience*, Vol. 10, No. 14, pp. 1197-1222, 1998.

J-33. P. Gray and V. Sunderam, "Native-language-based Distributed Computing across Network and Filesystem Boundaries", *Concurrency: Practice and Experience*, Vol. 10, No. 11-13, pp. 901-909, 1998.

J-34. B. Topol, J. Stasko, and V. S. Sunderam, "Dual Timestamping Methodology for Visualizing Distributed Application Behavior", *International Journal of Parallel and Distributed Systems and Networks*, Vol. 1, No. 2, 1998, pp. 43-50.

J-35. A. Ferrari and V. S. Sunderam, "Multi-Paradigm Distributed Computing with TPVM", *Concurrency: Practice and Experience*, Vol. 10, No. 3, pp. 199-228, March 1998.

J-36. P. Gray and V. S. Sunderam, "IceT: Distributed Computing and Java", *Concurrency: Practice and Experience*, Vol. 9, No. 11, pp. 1161-1168, 1997.

J-37. J. Gomez, V. Rego, and V. S. Sunderam, "Efficient Multithreaded User-Space Transport for Network Computing: Design and Test of the TRAP Protocol", *Journal of Parallel and Distributed Computing*, Vol. 40, No. 1, 1997.

J-38. S. Moyer and V. S. Sunderam, "Characterizing Concurrency Control Performance for the PIOUS Parallel File System", *Journal of Parallel and Distributed Computing*, Vol. 38, No. 1, pp. 81-91, October 1996.

J-39. F. Knop, V. Rego, and V. Sunderam, "Fail-Safe Concurrency in the EcliPSe System", *Concurrency: Practice & Experience*, Vol. 8, No. 4, pp. 283-312, May 1996.

J-40. S. Moyer and V. Sunderam, "Parallel I/O for Distributed Systems: Issues and Implementation", *Future Generation Computer Systems*, Vol. 12, No. 1, pp. 25-38, May 1996.

J-41. S. Y. Cheung and V. S. Sunderam, "Performance of Barrier Synchronization Methods in a Multi-Access Network", *IEEE Transactions on Parallel and Distributed Systems*, Vol. 6, No. 8, pp. 890-895, August 1995.

J-42. F. Knop, E. Mascarenhas, V. Rego, and V. Sunderam, "Concurrent and Fail-Safe Replicated Simulation on Heterogeneous Networks: An Introduction to EcliPSe", *Journal of Simulation - Practice and Theory*, Vol. 3, pp. 121-146, December 1995.

J-43. A. Beguelin, J. Dongarra, A. Geist, R. Manchek, and V. S. Sunderam, "Recent Enhancements to PVM", *International Journal of Supercomputer Applications*, Vol. 9, No. 2, pp. 108-127, Summer 1995.

J-44. S. White, A. Alund, and V. S. Sunderam, "Performance of the NAS Parallel Benchmarks on PVM Based Networks", *Journal of Parallel and Distributed Computing*, Vol. 26, No. 1, pp. 61-71, April 1995.

J-45. S. Moyer and V. S. Sunderam, "Parallel I/O as a Parallel Application", *International Journal of Supercomputer Applications*, Vol. 9, No. 2, pp. 95-107, summer 1995.

J-46. H. Nakanishi, V. Rego, and V. S. Sunderam, "On the Effectiveness of Superconcurrent Computation on Heterogeneous Networks", *Journal of Parallel and Distributed Computing*, Vol. 24, No. 2, pp. 177-190, February 1995.

J-47.   V. S. Sunderam, G. A. Geist, J. J. Dongarra, and R. Manchek, "The PVM Concurrent Computing System: Evolution, Experiences, and Trends", *Journal of Parallel Computing*, Vol. 20, No. 4, pp. 531-546, March 1994.

J-48.   B. Schmidt and V. S. Sunderam, "Empirical Analysis of Overheads in Cluster Environments", *Concurrency: Practice and Experience*, Vol. 6, No. 1, pp. 1-32, February 1994.

J-49.   A. Beguelin, J. Dongarra, A. Geist, and V. Sunderam "Visualization and Debugging in a Heterogeneous Environment", *IEEE Computer*, Vol. 26, No.6, pp. 88-95, June 1993.

J-50.   V. S. Sunderam and P. Winkler, "Fast Information Sharing in a Complete Network", *Discrete Applied Mathematics*, Vol. 42, pp. 75-86, 1993.

J-51.   V. S. Sunderam, "Heterogeneous Environments for Network Concurrent Computing", *Future Generation Computer Systems*, Vol. 8, Nos. 1-3, pp. 191-203, July 1992.

J-52.   G. A. Geist and V. S. Sunderam, "Network Based Concurrent Computing on the PVM System", *Concurrency: Practice and Experience*, Vol. 4, No. 4, pp. 293-311, June 1992.

J-53.   V. Rego and V. S. Sunderam, "Experiments in Concurrent Stochastic Simulation: The ECLIPSE Paradigm", *Journal of Parallel and Distributed Computing*, Vol. 14, No. 1, pp. 66-84, January 1992.

J-54.   V. S. Sunderam and V. Rego, "ECLIPSE: A System for High Performance Concurrent Simulation", *Journal of Software: Practice and Experience*, Vol. 21, No.11, pp. 1189-1219, November 1991.

J-55.   V. S. Sunderam, "PVM: A Framework for Parallel Distributed Computing", *Concurrency: Practice and Experience*, Vol. 2, No.4, pp. 315-339, December 1990.

Publications – Refereed Conferences

C-1.   Layla Pournajaf, Farnaz Tahmesebian, Li Xiong, Vaidy Sunderam, Cyrus Shahabi, "Privacy Preserving Reverse k-Nearest Neighbor Queries", *Proc. 19th IEEE Intl. Conf. on Mobile Data Management (MDM 2018),* Aalborg, Denmark, June 2018 (Best paper runner up award).

C-2.   Ardavan Afshar, Joyce Ho, Bistra Dilkina, Ioakeim Perros, Elias Khalil, Li Xiong and Vaidy Sunderam, "CP-ORTHO: An Orthogonal Tensor Factorization Framework for Spatio-Temporal Data", *Proc. ACM SIGSPATIAL, 25th Intl. Conf. on Advances in Geographic Information Systems,* Redondo beach, CA, November 2017

C-3.   Jaroslaw Slawinski, Vaidy Sunderam, "Adaptive Execution of Parallel Programs on Grids and Clouds", *Intl. Conference on Parallel Computing (ParCo 2017),* Bologna, Italy, September 2017.

C-4.   Michael Solomon, Vaidy Sunderam, Li Xiong, Ming Li, "Mutually Private Location Proximity Detection with Access Control", *Proc. 31st Annual IFIP WG 11.3 Working Group Conference on Data and Applications Security and Privacy (DBSec '17)*, Philadelphia, PA, July 2017.

C-5.   Michael Solomon, Vaidy Sunderam, Li Xiong, Ming Li, "Enabling Mutually Private Location Proximity Services in Smart Cities: A Comparative Assessment", Proc. *IEEE Second Intl. Smart Cities Conference (ISC2),* Trento, Italy, September 2016.

C-6.   Xiaofeng Xu, Li Xiong, Vaidy Sunderam, "D-Grid: An In-Memory Dual Space Grid Index for Moving Object Databases", *Proc. 17th IEEE Intl. Conf. on Mobile Data Management (MDM 2016),* Porto, Portugal, June 2016 (Best paper award).

C-7.   Vaidy Sunderam, "Explorations in Fault-Accommodation to Enable Scalable Parallelism", *Proc. 24th Euromicro Conference on Parallel, Distributed and Network Based Processing*, Heraklion, Greece, February 2016.

C-8.   Li Xiong and Vaidy Sunderam, "Secure and Privacy-Preserving DDDAS/Infosymbiotics Systems", *Proc.Workshop on Architecture and Middleware for Infosymbiotics/DDDAS HiPC 2015,* Bangalore, India, December 2015.

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Professional Lectures

- "Adaptive Execution of Parallel Programs on Grids and Clouds", contributed talk, International Conference on Parallel Computing (ParCo), Bologna, Italy, September 2017.
- "Security and Privacy Issues in DDDAS-based IoT and Smart Systems", invited talk, 2nd International Conference on Infosymbiotics/DDDAS, Cambridge, MA, August 2017.
- "Cost and Utility Tradeoffs on IaaS Clouds, Grids and On-Premise Resources", invited talk, Conference on Clusters, Clouds and Data for Scientific Computing, Chemin de Chanze, France, October 2016.
- "Enabling Scalable Parallelism via Fault Accommodation", contributed talk, 24th International EuroMicro Parallel and Distributed Processing Conference, Heraklion, Greece, February 2016.
- "Secure Privacy-Preserving Infosymbiotics Systems", contributed talk, 22nd IEEE International Conference on High Performance Computing (HiPC), DDDAS Workshop, Bangalore, India, December 2015.
- "The PREDICT Project: Enhancing DDDAS/Infosymbiotics Systems with Privacy and Security", contributed talk, Institute for Operations Research and Management Sciences (INFORMS) Annual Meeting DDDAS Workshop, Philadelphia, PA, November 2015.
- "Security and Privacy Dimensions in Next generation DDDAS Systems", contributed talk, Intl. Conference on Computational Science DDDAS Workshop, Reykjavik, Iceland, June 2015.
- "A Unified Framework for Privacy Preserving Data-Driven Large Scale Systems", invited panel presentation, Dynamic Data Driven Application Systems Workshop, SC14, New Orleans, LA, November 2014.
- "Settling the Important Questions, Once and For All", invited panel presentation, Conference on Clusters, Clouds and Data for Scientific Computing, Chemin de Chanze, France, September 2014.
- "Cost and Utility Trade-offs on Clouds, Grids and On-Premise Resources", contributed talk, IEEE Intl. Conference on Cloud Engineering – Cloud Analytics Workshop, Boston, MA, March 2014.
- "Sustainability of Scientific Software", invited panel presentation, SC13 WSSPE Workshop, Denver, CO, November 2013.
- "The ADAPT Framework for Enhancing Parallel-Distributed Computing Execution", invited talk, IAENG World Congress on Engineering, London, UK, July 2013.
- "Issues in Communication Heterogeneity for Message-Passing Concurrent Computing", contributed talk, Heterogeneity in Computing Workshop, Intl. Parallel and Distributed Processing Symposium (IPDPS-HCW) 2013, Boston, MA, May 2013
- "Towards Computing as a Utility via Adaptive Middleware", invited talk, Clusters, Clouds and Data for Scientific Computing, CCDSC 2012, Chemin de Chanze, France, September 2012.
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- "Experiences with Target-Platform Heterogeneity in Clouds, Grids, and On-Premise Resources", contributed talk, Heterogeneity in Computing Workshop, Intl. Parallel and Distributed Processing Symposium (IPDPS-HCW) 2012, Shanghai, China, May 2012

- "A Practical SCVM-based Approach to Enhance Portability and Adaptability of HPC Application Build Systems", contributed talk, 2012 International Conference on Computer Science (IMECS 2012), Hong Kong, March 2012.

- "Towards Cross-Platform Cloud Computing", contributed talk, Workshop on Cloud Computing Projects and Initiatives, 17th Euro-Par 2011 Conference, Bordeaux, France, August 2011.

- "Unibus-managed Execution of Scientific Applications on Aggregated Clouds", contributed talk, Tenth International Symposium on Cluster, Cloud and Grid Computing, Melbourne, Australia, May 2010.

- "Provisioning Software applications on Diverse Resources", contributed talk, 16th International Conference on High Performance Computing (HiPC) – Workshop on Service Oriented Computing (WSOC), Cochin, India, December 2009.

- "The Unibus Approach to Aggregation of Heterogeneous Computing Infrastructures", contributed talk, 16th Intl. Conference on High Performance Computing – Workshop on Utility and Grid Computing (WUGC), Cochin, India, December 2009.

- "Collaborative Clouds: Utility Computing through Sharing", invited talk, Collaborative and Grid Computing Technologies Workshop, Cancun, Mexico, April 2009.

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- "Alternative Aspects of Cloud and Utility Computing", invited talk, Conference on Clusters and Computational Grids for Scientific Computing, Asheville, NC, September 2008.

- "From Parallel Virtual Machine to Virtual Parallel Machine: The Unibus System", invited plenary lecture, 15th EuroPVM/MPI Conference, Dublin, Ireland, September 2008.

- "Unibus: An Integrative Approach to Next-Generation Metacomputing", invited plenary lecture, 16th International Conference on Parallel, Distributed, and Network-based Processing (PDP 2008), Toulouse, France, February 2008.

- "Dynamic Collaborative Computing", invited talk, Workshop on Collaborative and Grid Computing Technologies, Cancun, Mexico, April 2007.

- "Automated Deployment Support for Parallel Distributed Computing", contributed talk, 15th Euromicro Conference on Parallel, Distributed and Network based Processing, Naples, Italy, February 2007.

- "Resource and Application Adaptivity in Message Passing Systems", invited talk, 13th EuroPVM/MPI Conference, Bonn, Germany, September 2006.

- "New Approaches to Distributed Middleware for Resource Sharing", invited talk, 6th International Workshop on Innovative Internet Community Systems (I2CS 2006), Neuchatel, Switzerland, June 2006.

- "Metacomputing Revisited: Alternative Paradigms for Distributed Resource Sharing", invited keynote address, International Conference on Computational Science (ICCS) 2006, Reading, England, May 2006.

- "Integrating Heterogeneous Information Services using JNDI", contributed talk, International Parallel and Distributed Processing Symposium (IPDPS-HCW) 2006, Rhodes, Greece, April 2006.

- "Unifying Metasystems through Virtualization", invited lecture, University of Genoa, Genoa, Italy, March 2006.

- "Virtualization Issues in Metasystems", invited keynote address, 2005 Cracow Grid Workshop, Krakow, Poland, November 2005.

- "Alternative Approaches to Metacomputing: Harness and H2O", invited keynote address, 2005 High Performance Computing and Communications Conference (HPCC 2005), Sorrento, Italy, September 2005.
- "Virtualization in Parallel Distributed Computing", invited keynote address, 12th EuroPVM/MPI Conference, Sorrento, Italy, September 2005.
- "The Ncast Primitive for Peer-to-Peer Networks", contributed talk, 2004 EuroPAR Conference, Pisa, Italy, September 2004.
- "Programming Metasystems with Harness and H2O", invited tutorial, International Conference on Computational Science (ICCS 2004), Krakow, Poland, June 2004.
- "True Grid: What Makes a Grid Special and Different?", invited keynote address, 2004 International Conference on Computational Science (ICCS 2004), Krakow, Poland, June 2004.
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- "Enabling Technologies for Ubiquitous Computing Environments", invited tutorial, IV Jornadas de Ingeneria y Telematica, Gran Canaria, Spain, September 2003.
- "Parallel Programming in Grids and Metacomputing Systems", invited talk, Fifth International Conf. on Parallel Processing and Applied Mathematics, Czestochowa, Poland, September 2003.
- "Current Trends in Parallel Distributed High Performance Computing", invited keynote address, Workshop on Parallel and Distributed Scientific and Engineering Computing and Applications 2003, Nice, France, April 2003.
- "RMIX: A Multiprotocol RMI Framework for Java", contributed talk, International Parallel and Distributed Processing Symposium 2003, Nice, France, April 2003.
- "Heterogeneous Access to Service-based Distributed Computing: the RMIX Approach", contributed talk. International Parallel and Distributed Processing Symposium (IPDPS-HCW) 2003, Nice, France, April 2003.
- "Harness and H2O: Alternative Approaches to Metacomputing", invited talk, University of Antwerp, Antwerp, Belgium, November 2002.
- "Network Quality Issues in Ubiquitous Computing", invited talk, Troisieme Cycle Romand D'Informatique – Specialized Seminar on Ubiquitous Computing, Fribourg, Switzerland, October 2002.
- "Performance, Scalability, and Robustness in the Harness Metacomputing Framework", invited talk, 9th EuroPVM/MPI Conference, Linz, Austria, September 2002.
- "Lightweight Self-Organizing Frameworks for Metacomputing", contributed talk, 11th High Performance Distributed Computing Symposium (HPDC-11) 2002, Edinburgh, Scotland, July 2002.
- "Reconciling the Characteristics of Wired and Wireless Networks", contributed talk, Fourth International Workshop on Active Middleware Services (AMS 2002), Edinburgh, Scotland, July 2002.
- "Towards Self-Organizing Distributed Computing Frameworks: The H2O Approach", invited talk, Workshop on Clusters and Computational Grids for Scientific Computing 2002, Chateau de Faverges-de-la-Tour, France, September 2002.
- "Microbe: A Component-based Toolkit for Java", contributed talk, 2002 International Conference on Computational Science, Amsterdam, The Netherlands, April 2002.
- "Standards Based Heterogeneous Metacomputing: The Design of Harness II", contributed talk, International Parallel and Distributed Processing Symposium (IPDPS-HCW) 2002, Ft. Lauderdale FL, April 2002.
- "Debugging and Visualization of Metacomputing Applications", contributed talk, Intl. Parallel and Distributed Processing Symposium (IPDPS-JPDC) 2002, Ft. Lauderdale FL, April 2002.

- "A Comparison of Conventional Distributed Computing Environments and Computational Grids", contributed talk, 2002 International Conference on Computational Science, Amsterdam, The Netherlands, April 2002.
- "A Comparative Analysis of PVM/MPI and Computational Grids", invited talk, EuroPVM/MPI '01 Conference, Santorini, Greece, April 2002.
- "Aspects of Middleware in Collaborative and Distributed Systems", invited colloquium talk, Northwestern University, March 2002.
- "Alternative Approaches to Metacomputing with Harness and IceT", invited talk, 2001 International Conference on Computational Science", San Francisco, CA, May 2001.
- "Collaborative Computing on High Speed Networks", invited talk, Fall 2000 Internet2 Member Meeting, Atlanta, GA, October 2000.
- "Emulating Parallel Programming Environments in the Harness Metacomputing System", invited talk, Workshop on Clusters and Computational Grids, Lyon, France, September 2000.
- "Metacomputing Systems and Technologies", invited lecture series, Escola de Computacao 2000, University of Sao Paulo, Sao Paulo, Brazil, July 2000.
- "Internet-Based Collaborative Simulation in Computational Prototyping and Scientific Research", contributed talk, Parallel and Distributed Processing Techniques and Applications Conference, Las Vegas, NV, June 2000.
- "The Harness PVM-Proxy: Gluing PVM Applications to Distributed Objects Environments and Applications", contributed talk, IPDPS Heterogeneous Computing Workshop 2000, Cancun, Mexico, May 2000.
- "Message Passing and Java", invited talk, Java-Grande BOF, Supercomputing '99, Portland, OR, November 1999.
- "Advanced Programming in Heterogeneous Systems", invited tutorial, Universitat Autonoma de Barcelona, Barcelona, Spain, September 1999.
- "PVM Emulation in Harness: A Plugin Based Approach", contributed talk, EuroPVM/MPI '99 Conference, Barcelona, Spain, September 1999.
- "Distributed and Collaborative Computing Systems", invited talk, Indian Institute of Technology, Bombay, India, August 1999.
- "CCF: Collaborative Computing Frameworks", contributed talk, IEEE Supercomputing Conference 1998, Orlando, FL, November 1998.
- "Metacomputing with the IceT System", invited talk, NSF-INRIA Workshop on Clusters and Computational Grids for Scientific Computing, Townsend, TN, September 1998.
- "Systems Infrastructures for Distributed Collaborative Computing", invited talk, Parallel and Distributed Processing Techniques and Applications 1998, Las Vegas, NV, July 1998.
- "Tools and Auxiliary Subsystems in PVM", invited talk, EuroPVM User's Group Meeting, Krakow, November 1997.
- "Client Server Computing on Message Passing Systems: Experiences with PVM-RPC", contributed talk, Third Intl. Euro-Par Parallel Processing Conference, Passau, Germany, August 1997.
- "Message Passing in Heterogeneous Environments", invited talk, High Performance Computing and Networking, HPCN'97, Vienna, Austria, April 1997.
- "The PVM System: Status, Trends, and Directions", invited talk, EuroPVM User's Group Meeting, Munich, Germany, October 1996.
- "Performance and Functionality Issues in Heterogeneous Systems", invited talk, University of Alberta, Edmonton, Alberta, September 1996.
- "Heterogeneous Network Computing: The Next Generation", invited talk, Workshop on Environments and Tools for Scientific Computing, Lyon, France, August 1996.
- "An RPC Facility for PVM", invited talk, High Performance Computing and Networking, HPCN'96, Brussels, Belgium, April 1996.

- "PVM Data Transfers on SCI Workstation Clusters: Early Experiences", contributed talk, 4th PVM User's Group Meeting, Santa Fe, NM, February 1996.
- "Performance and Functionality Issues in Heterogeneous Systems", invited talk, Dartmouth College, Hanover, NH, November 1995.
- "Recent Developments and Future Trends in Heterogeneous Concurrent Computing", invited talk, University of Fribourg, Fribourg, Switzerland, July 1995.
- "Concurrent Computing with PVM", invited tutorial, Technical University of Munich, Munich, Germany, June 1995.
- "Parallel and Distributed Computing with PVM", invited talk, Advanced School on Computing and Imaging, Het Heidjbros, The Netherlands, May 1995.
- "Heterogeneous Concurrent Computing with PVM: Recent Developments and Trends", invited talk, Brown University, Providence, RI, December 1994.
- "New Initiatives in Heterogeneous Parallel Computing", invited keynote address, Parallel Computing and Transputers Conference, Wollongong, Australia, November 1994.
- "Threads, I/O, and Distributed Computing with PVM", invited talk, European PVM User's Group Meeting, Rome, Italy, October 1994.
- "General Purpose Concurrent Computing in Networked Environments", invited talk, Symposium on Parallel Processing for Commercial Applications, U.S. Embassy, London, England, June 1994.
- "Heterogeneous Computing with Exportable Services", invited talk, 2nd CNRS-NSF Workshop on Environments and Tools, Townsend, TN, May 1994.
- "PVM: Recent Developments and New Initiatives", invited talk, 2nd PVM User's Group Meeting, Oak Ridge, TN, May 1994.
- "Experimental Systems and Methodologies for Network Computing", invited talk, National Institute of Standards and Technology, Gaithersburg, MD, May 1994.
- "Enhancing Functionality and Performance in the PVM Network Computing System", invited talk, University of Virginia, Charlottesville, VA, March 1994.
- "Heterogeneous Concurrent Computing with PVM: Recent Developments and Trends", invited talk, Washington University, St. Louis, MO, February 1994.
- "Heterogeneous Processing for Scientific Computation", invited talk, Workshop on Large Scale Scientific Computation and Modern Programming Style, Chalmers University of Technology, Gothenberg, Sweden, January 1994.
- "PVM : Past, Present, and Future", invited talk, Workshop on Distributed Computing for Computational Aerosciences, NASA Ames, Moffett Field, CA, October 1993.
- "Methodologies and Systems for Heterogeneous Concurrent Computing", invited talk, Parallel Computing 1993, Grenoble, France, September 1993.
- "Generalized Distributed Computing with PVM", invited talk, The Commercial Dimensions of Parallel Computing, U.S. Embassy, London, England, April 1993.
- "The PVM Concurrent Computing System", invited tutorial, The University of West London, London, England, April 1993.
- "Design Issues in Heterogeneous Concurrent Computing", invited talk, George Washington University, Washington, DC, March 1993.
- "The PVM Concurrent Computing System", invited tutorial, Digital Equipment Corporation, Europe, Paris, France, February 1993.
- "Tools for Heterogeneous Concurrent Computing" invited tutorial, Fachhochschule Regensburg, Regensburg, Germany, January 1993.
- "Concurrent Computing with the PVM System", invited talk, Second Cluster Computing Workshop, Florida State University, Tallahassee, FL, December 1992.
- "Paradigms and Tools for Heterogeneous Network Computing", contributed tutorial, IEEE Supercomputing 1992, Minneapolis, MN, November 1992.

- "Superconcurrent Network Computations with Eclipse", invited talk, IEEE Supercomputing 1992, Minneapolis, MN, November 1992.
- "Design Issues in Heterogeneous Computing Systems", invited talk, Georgia Institute of Technology, Atlanta, GA, October 1992.
- "Paradigms and Tools for Heterogeneous Network Computing", invited tutorial, High Performance Distributed Computing Symposium, Syracuse, NY, September 1992.
- "Scientific Computing on Heterogeneous Networks", invited talk, NASA Ames Research Center, Moffett Field, CA, May 1992.
- "Heterogeneous Network Computing: The PVM Perspective", invited talk, Sandia National Laboratory, Livermore, CA, May 1992.
- "Heterogeneous Network Computing: The PVM Perspective", invited talk, Naval Ocean Systems Center, San Diego, CA, May 1992.
- "Towards Standards for Heterogeneous Network Computing", invited talk, European RAPS Workshop, Bonn, Germany, May 1992.
- "Design Issues in Heterogeneous Concurrent Systems", invited keynote address, 6th Intl. Parallel Processing Symposium – Workshop on Heterogeneous Processing, Los Angeles, CA, March 1992.
- "Trends and Issues in Heterogeneous Network Computing", invited keynote address, Parallel and Distributed Systems Workshop, Florence, Italy, September 1991.
- "Concurrent Stochastic Simulation: Experiments with Eclipse", contributed talk, Intl. Conf. on the Performance of Distributed Systems and Communication Networks, Kyoto, Japan, September 1991.
- "A Rapid Prototyping Tool for Distributed Memory Parallel Programs", contributed talk, Parallel Computing Conference 1991, London, England, September 1991.
- "Experiments in Concurrent Simulation with Eclipse", invited talk, Oak Ridge National Laboratory, Oak Ridge, TN, August 1991.
- "Heterogeneous Network Computing: The PVM System", invited talk, North Carolina Supercomputer Center, Research Triangle Park, NC, August 1991.
- "Supercomputing on Heterogeneous Networks", invited talk, NCSA, University of Illinois, Urbana-Champaign, IL, June 1991.
- "Supercomputer Level Concurrent Computations on a Network of RS/6000 Powerstations", invited talk, Large Scale Computer Analysis and Modeling Conference, Park City, UT, April 1991.
- "High Level Distributed Computing Primitives for Networked Environments", invited talk, University of Tennessee, Knoxville, TN, February 1991.
- "An Inclusive Session Level Protocol for Distributed Applications", contributed talk, ACM Sigcomm 90 Symposium, Philadelphia, PA, September 1990.
- "Polling Algorithms for Hypercube Networks", contributed talk, 3rd Cumberland Conference on Computer Science and Graph Theory, Louisville, KY, May 1990.
- "Concurrent Computing in Heterogeneous Environments", invited talk, University of Kentucky, Lexington, KY, May 1990.
- "Issues in Heterogeneous Network Computing", invited talk, Worcester Polytechnic Institute, Worcester, MA, March 1990.
- "Structured Flowcharts for the Specification of Parallel Programs", contributed talk, Parallel Computing 89 Conference, Leiden, The Netherlands, August 1989.
- "PVM: A Framework for Parallel Distributed Computing", invited talk, Oak Ridge National Laboratory, Oak Ridge, TN, August 1989.
- "An Experiment with Network Shared Libraries", contributed talk, Summer Usenix Conference, Baltimore, MD, June 1989.
- "Process Migration in Unix Networks", contributed talk, Winter Usenix Conference, Dallas, TX, February 1988.

- "A Fast Transaction Oriented Protocol for Distributed Applications", contributed talk, Winter Usenix Conference, Dallas, TX, February 1988.
- "A Methodology for the Synthesis of Network Protocol Software", invited talk, University of Pittsburgh, Pittsburgh, PA, April 1987.

Postdoctoral Advisees

- Bogdan Cornea, 2012-2013.
- Magdalena Slawinska, 2005-2010.
- Matthias Conrad, 2008-2010.
- Henryk Witek, 2004-2005.
- Gunther Stuer, 2003-2004.
- James Pascoe, 2002-2003.
- Mauro Migliardi, 1998-2001.
- Injong Rhee, 1996-1998.
- Ted Goddard, 1996-1998.
- Soeren Olesen, 1996-1998.
- Paul Gray, 1995-1997.
- Alan Krantz, 1995-1998.
- Tony Lee, 1995.
- Steve Moyer, 1993-1995.

Postgraduate Advisees

- Jaroslaw Slawinski, 2006-2009.
- Maciej Malawski, August 2004-February 2005.
- David DeWolfs, January 2005-May 2005.
- Dirk Gorissen, January 2005-May 2005.
- Piotr Wendykier, May 2004 -September 2005.
- Tomasz Janiak, September 2003-April 2004.
- Andrzej Dudek, September 2003-September 2004.
- Tomasz Ampula, April 2003-October 2003.
- Dominik Drzewiecki, September 2002-May 2003.
- Tomasz Wrzosek, May 2002 -December 2003.
- Zsolt Nemeth, March 2001-September 2001.
- Dawid Kurzyniec, November 2000-August 2005.
- James Pascoe, June 2000-September 2001.
- Robert Lovas, June-December 2000.
- Tomasz Tyrakowski, February-August 2000.
- Joerg Trinitis, January-April 1999.
- Simon Schubiger, April-September 1998.
- Ivan Zoraja, February 1997-June 1998.

Student Advisees
(Emory's Ph.D. program in Computer Science was established in 2007)

- Daniel Garcia-Ulloa, Ph.D., November 2017, Co-advisor with Li Xiong.
  "Data Fusion and Truth Inference in Crowdsourced Applications".

- Layla Pournajaf, Ph.D., January 2017, Co-advisor with Li Xiong.
  "Privacy and Security in Participatory Crowd-Sensing Environments".

- Michael Solomon, Ph.D., November 2016, Co-advisor with Li Xiong.
  "Efficient Search and Computation on Encrypted Data with Access Control".

- Xiaofeng Xu, Ph. D., February 2016. Co-advisor with Li Xiong.
  Indexing Moving Objects for Spatiotemporal Queries.

- Jaroslaw Slawinski, Ph.D. May 2014.
  "Multi-target Application Deployment via Automated Adaptive Metabuild".

- Dawid Kurzyniec, Ph.D. May 2007.
  "Towards Lightweight and Reconfigurable Resource Sharing Frameworks".

- Sebastien Siva, M.S., May 2005.
  "Xcast: A Peer-to-Peer Network Communication Primitive".

- Todd Meyer, SIRE (Scholarly Inquiry and Research at Emory), Spring 2004.
  "Database Support and Micro-kernel VMs for Handheld Mobile Computing".

- Blake Roberts, SIRE (Scholarly Inquiry and Research at Emory), Spring 2004.
  "Issues in Spontaneous Mobile Collaboration Frameworks".

- Garrett Bryant, M.S., May 2003.
  "Peer-Assisted Reliability Mechanisms for Multicast Streaming Video".

- Peter Hwang, M.S., August 2003.
  "MPI Across Firewalls".

- Pearce Peck-Walden, M.S., April 2002.
  "Reducing Security Overhead in 802.11b Wireless Networks".

- Georgi Tonev, M.S., May 2002.
  "Network Quality Issues in IEEE 802.11b Environments".

- Jeremy Holland, SURE (Summer Undergraduate Research at Emory), Summer 2001.
  "Concurrency Control in Parallel Input-Output Systems".

- Yingzhi Zhang, M.S., August 2001.
  "Design and Implementation of a Totally Ordered Reliable Multicast Protocol in Java".

- Vidya Chandramohan, M.S., May 2001.
  "Certificate-Based Authentication for Software Repositories".

- Gopi Sankaran, M.S., May 2001.
  "Emulation of the PVM System in Harness".

- Azzari Caillier, SURE (Summer Undergraduate Research at Emory), Summer 1999.
  "Graphical Tools for Collaborative Image Editing".

- George Bozocea, M.S., May 1998.
  "NOMAD: An Agent Based System for Distributed Processing".

- Nallathambi Balaguru, M.S., May 1998.
  "MTCP: A Scalable, Responsive Congestion Control Scheme for Reliable Multicast".

- Michael Solomon, M.S., May 1998.
  "Performance Evaluation of Parallel I/O in a Database Environment".

- Adam Karchmar, M.S., May 1998.
  "A Java File Manager for the Collaborative Computing Framework Data Space".

- Carla Brueker, M.S., May 1997.
  "IMUX: An Input Multiplexer for Collaborative Computing".

- Radhika Rammohan, M.S., May 1997.
  "Techniques for Video Image Transmission Over Lossy Networks".

- Nancy Sedora, M.S., September 1995.
  "Implementation and Analysis of the NHT-1 I/O Benchmarks on PIOUS for PVM".

- Scott Shipley, M.S., June 1995 .
  "Enhancing the Efficiency of World Wide Web Servers".

- Xiaowu Lu, M.S., April 1995.
  "Implementation and Performance Issues of NAS Parallel Benchmarks on PVM 3.3"

- Adam Ferrari, M.S., April 1994.
  "Object-Based Parallelization for the Conch System".

- Doug Bowman, B. S. Honors, April 1994.
  "Performance Analysis of the Conch Concurrent Computing System".

- Benjamin Temko, M.S., August 1993.
  "Implementing Conch on the Intel Hypercubes".

- Scott M. White, M.S., April 1993.
  "The NAS Benchmarks on Virtual Parallel Machines".

- Brad B. Topol, M.S., April 1993.
  "Second Generation Heterogeneous Computing with Conch".

- Daniel Penn, M.S., April 1993.
  "A Simulation of Attractor Neural Networks in a Distributed Processing Environment".
  (1993 Sigma Xi Award for Outstanding Scientific Research)

- Melisa Kelley, M.S., April 1992.
  "An Interactive Tool for Data Parallel Concurrent Processing".

- Brian Schmidt, M.S., April 1992.
  "Empirical Analysis of Overheads in Cluster Environments".

- Charles Hartley, M.S., April 1992.
  "Distributed Object Programming on General Purpose Networks".

- Azita Miahnahri, M.S., April 1992.
  "Simulation of Attractor Neural Networks".

- Scott Bogartz, M.S., April 1991; B.S. Honors, April 1991.
  "Design and Implementation of a Distributed Groupware System".

- Loretta Auvil, Summer Internship, August 1990.
  "Graphical Interfaces for Distributed Computing".

- David Aguiar, Directed Study, August 1990.
  "Distributed Parallel Processing on Local Networks".

- Rebecca Powell, Summer Internship, August 1989.
  "A Debugging Interface for Network Programming".

- Robert Moore, Directed Study, December 1989.
  "Aspects of Local Area Networking".

- Raghavan Govindarajan, Directed Study, December 1988.
  "Fortran Case Studies in Physics".

- Hong Ryul Kim, M.S., August 1987.
  "A System for Tool Based Solutions to Application Problems".

Thesis Committees
(Emory University students except where indicated otherwise)

- Jinfei Liu, Ph. D., April 2017.
  Fast and Adaptive Algorithms for Skyline Computation.

- Yonghui Xiao, Ph. D., February 2017.
  Protecting Locations of Individual Movement under Temporal Correlations.

- Haoran Li, Ph. D., November 2016.
  Differentially Private Data Release and Learning Mechanisms.

- Liyue Fan, Ph. D., August 2014.
  Preserving Individual Privacy in Spatio-Temporal Data Analytics.

- Slawomir Goryczka, Ph. D., August 2014.
  Secure and Privacy-Preserving Distributed Data Release.

- Sarah Knepper, Ph.D., June 2011 .
  "Large Scale Inverse Problems in Imaging"

- Emily Wein, B.S. Honors, April 2011.
  "A Thorough Investigation of the Characteristic Phosphorous Couplings and PNMR Analysis in Attempts to Synthesize an Ifosfamide Analog".

- Ying Daniel Fan, Ph.D., July 2010.
  "Practical Image Deblurring with Synthetic Boundary Conditions, GPUs and Multiple Frames".

- Pawel Jurczyk, Ph.D., December 2009.
  "Distributed Anonymization: Achieving Privacy for both Data Subjects and Data Providers".

- Adrian Haffegee, Ph.D., University of Reading, May 2008.
  "VieGen: An Accessible Toolset for the Configuration and Control of Virtual Environments".

- Ismail Bhana, Ph.D., University of Reading, May 2008.
  "Coco: A Common Platform for Collaborative Computing in Heterogeneous Peer to Peer Networks".

- Brett Meager, B.S. Honors, April 2007.
  "Not Just for ADD Anymore: A Study of Prescription Stimulants in the U. S. Today".

- Syed Mehmood-Ul Hasan, Ph.D., University of Reading, July 2006.
  "Scalable Collaboration Across Heterogeneous Devices in Virtual Organizations".

- Sergio Maffioletti, Ph.D., University of Fribourg, June 2006.
  "UBIDEV A Homogeneous Service Framework for Pervasive Computing Environments".

- Jianjun Zhang, Ph.D., Georgia Institute of Technology, June 2006.
  "Efficient Information Dissemination in Wide Area Heterogeneous Overlay Networks".

- Simon Schubiger, Ph.D., University of Fribourg, October 2002.
  "Automatic Software Configuration: A Model for Service Provision in a Dynamic and Heterogeneous Environment".

- Karthik Sundaram, B.S. Honors, April 2002.
  "Preparation and Isomerization of Keggin Tungstogallates".

- Alicia Ruvinsky, M.S., March 2002.
  "Exploiting Agent Mobility to Optimize Performance of Distributed Computations".

- Patrick McConnell, B.S. Honors, April 2001.
  "A Web-Integrated Java Workbench For Protein Modeling".

- Peter Luksch, Habilitation, Technical University of Munich, May 2000.
  "Collaborative Systems and Problem Solving Environments".

- Ivan Zoraja, Ph.D., Technical University of Munich, May 2000.
  "Online Monitoring in Software DSM Systems".

- Kiet Mao, M.S., July 1999.
  "R-Serv: Remote Access to Java Classes".

- Brad Topol, Ph.D., Georgia Institute of Technology, March 1998.
  "The Mocha Framework for Distributed Computing".

- Oliver Krone, Ph.D., University of Fribourg, November 1997.
  "STL and PT-PVM: Concepts and Tools for Coordination of Multi-threaded Applications".

- David Hughes, M.S., August 1996.
  "A Study of Molecular Beam Epitaxy (MBE) with Long-Range (Levy) Diffusion".

- Yan Liu, M.S., April 1995.
  "Design and Implementation of a General Purpose Parallel Process Simulation System".

- Ed Mascarenhas, Ph.D., Purdue University, 1996.
  "Multithreaded Concurrent Distributed Computing"

- Eileen Kramer, Ph.D., Georgia Institute of Technology, August 1995.
  "A Framework, Tools, and Methodology for the Visualization of Parallel and
  Distributed Systems".

- Felipe Knop, Ph.D., Purdue University, 1995.
  "An Environment for High-Performance Fault-Tolerant Cluster-Based Simulation".

- Yang Wang, M.S., April 1991.
  "A Graphical User Interface Language".

- Karen Sopp, B.S. Honors, Economics, April 1991.
  "An Analysis of Real Estate Occupancy Rates and Rent Patterns".

- Christine Hollmann, B.S. Honors, Psychology, April 1990.
  "Remedial Effects of Internment on Juvenile Criminals".

- Raymond Leung, M.S., January 1989.
  "A Study of Graph Coloring Algorithms".

- Edgar Leon, M.S., August 1988.
  "Emacsim, The Emory Macintosh Simulator".

- Myung Sun Han, M.S., August 1988.
  "An Improvement of Earley's Recognizer and Parser of Context Free Grammars"

- Holly Heath, M.S., August 1988.
  "On the Trail of Eulerian Circuits".

- Mohammed Ouamrane, M.S., May 1987.
  "Relational Databases and Normal Forms".

- Chang-kwei Lin, M.S., May 1987.
  "An X25 Implementation in a Unix Environment".

Courses Taught

- CS110 Computer Science Fundamentals.

- CS150 Introduction to Computer Programming.

- CS170 Introduction to Computer Science.

- CS171 Computer Science II

- MATH190G Introduction to Computational Science.

- CS250 Data Structures and Algorithms.

- CS255 Computer Architecture and Organization.

- CS370 Software Engineering with Practicum.

- CS455 Computer Networks.
- CS470 Programming Languages.
- CS485 Systems Programming.
- CS555 Parallel Processing.
- CS558 Computer Networks.
- CS584 Networking and Distributed Processing.
- CS700 Computer Science Seminar

Professional Activities

- Grant Reviewing
  - National Science Foundation grant proposals
  - U. S. Department of Energy grant proposals
  - U. S. Department of Defense grant proposals
  - U. S. Air Force Office of Scientific Research grant proposals
  - Belgium Science Foundation grant proposals
  - The Netherlands Organization for Scientific Research grant proposals
  - Swiss National Science Foundation grant proposals
  - Hong Kong Research Grants Council grant proposals
  - Australia Scientific Research Organization grant proposals
  - Polish National Science Foundation grant proposals

- Journal and Conference Refereeing
  - IEEE Transactions on Computers
  - IEEE Transactions on Parallel and Distributed Systems
  - IEEE Transactions on Visualization and Computer Graphics
  - IEEE Computer
  - IEEE Parallel and Distributed Technology
  - ACM Transactions on Programming Languages and Systems
  - ACM Transactions on Computer Systems
  - Journal of Parallel and Distributed Computing
  - Journal of Parallel Computing
  - Journal of Systems Architecture
  - Journal of Concurrency: Practice and Experience
  - Communications of the ACM
  - International Symposium on Parallel and Distributed Systems
  - International Parallel Processing Symposium
  - International Conference on Computer Communications
  - Foundations of Software Technology & Theoretical Computer Science Conference
  - Symposium on Frontiers in Massively Parallel Computing
  - International Conference on Distributed Computing Systems

- Panelist

  - National Science Foundation: Review panels and site visits – Advanced Computing Research, Computer and Communications Research, Cross-Disciplinary Programs
  - U. S. Department of Energy, SciDAC program, and Base Funding programs
  - Marquette University External Review

- Tenure and Promotion Reviews

  - Vanderbilt University
  - Emory University School of Medicine
  - McGill University
  - Rutgers University
  - University of Houston
  - University of Minnesota
  - George Washington University
  - University of Westminster, UK
  - University of Georgia
  - University of Arizona
  - Cleveland State University
  - University of Virginia;
  - State University of New York, Albany
  - Utah State University
  - Technical University of Munich
  - University of Kentucky

- Conference Committees and Editorships

  - Associate Editor, Journal of Cluster Computing 1998-2016
  - Associate Editor, Journal of Computing and Information, 1995-2002
  - Guest Editor, Special issue on Heterogeneous Processing, Journal of Parallel and Distributed Computing, January 1994
  - General Chair, Heterogeneous Computing Workshop, 1998
  - Program Chair, Heterogeneous Computing Workshop, 1995
  - Tutorial Chair, High Performance Distributed Computing Symposium, 1994
  - Program Chair, International Conference on Computational Science, 2005
  - Program Chair, International Conference on Autonomic Computing, 2004
  - Program Chair, International Workshop on Programming Paradigms for Grids and Metacomputing Systems, 2004
  - Steering Committee, International Conference on Autonomic Computing, 2004-06
  - Steering Committee, Heterogeneous Computing Workshop, 1993-2009
  - Steering Committee, International Conference on High Performance Computing, 1994-2002
  - Program Committee, International Conference on Computational Science, 2002-04
  - Program Committee, International Workshop on Middleware Services, 1999-01
  - Program Committee, ACM Sigplan , 2000
  - Program Committee, ACM Java Grande Conference, 2000
  - Program Committee, International Conference on Parallel and Distributed Processing, 2001
  - Program Committee, Parallel Computing, 1997-2001

- o   Program Committee, EuroPAR Conference on Parallel Processing, 1998
- o   Program Committee, International Conference on Computing and Information, 1994-1998
- o   Program Committee, Workshop on Cluster Concurrent Computing, 1991-1993
- o   Program Committee, International Parallel Processing Symposium, 1992-1994
- o   Program Committee, Symposium on High Performance Distributed Computing, 1992-1996
- o   Program Committee, PVM & European PVM/MPI Conferences, 1993-2004
- o   Program Committee, International Conference on Distributed Computing Systems, 1994
- o   Member, IEEE Computer Society

Institutional Service

- Emory University Board of Trustees Faculty Counselor to Finance Committee, 2019-2022.

- Emory University Strategic Research Initiatives Executive Advisory Board, 2015-2018.

- Emory University Innovation and Entrepreneurship Task Force, 2015-2016.

- Woodruff Health Sciences Research Advisory Committee, 2008-2019.

- Emory University Associate Vice President for Research Administration Search Committee, 2013.

- Emory College Chief Business Officer Search Committee, 2013-2014.

- Laney Graduate School Committee on Sustainable Doctoral Education, 2010.

- Leadership Committee, Emory University Neuroscience Strategic Initiative, 2008-2010.

- Woodruff Health Sciences Interdisciplinary Research Task Force, 2009-2010.

- Emory College Fundraising Faculty Advisory Committee, 2009-2012.

- Emory University Center for Comprehensive Informatics Executive Committee, 2009-12; Charter Committee 2009-11.

- Emory College ReVisioning Committee, 2009-2010.

- Emory University Campus Life Faculty Advisory Committee, 2009-2011.

- Emory College Named Chair Selection Committee, 2009.

- Emory University Credit Hour Task Force, 2008-2009.

- Emory College Science Faculty Distinction Committee, 2007-2008.

- Emory University: Search Committee for Director, Center for Faculty Development and Excellence (CFDE), 2007-2008.

- Emory University Computational and Life Sciences Strategic Initiative, 2005-present; Interim co-Director 2005-2007; Director 2008-2011.

- Emory College Governance Committee, 2004-2007; Chair 2006-2007.

- Emory College Emerson Center Executive Committee, 2004-2011; Chair, 2006-2009.

- Emory University President's "Opportunity" Committee, 2004.

- Department Faculty Development Committee, Chair, 2002-2004.

- Emory University Senate Faculty Council, Presidential Appointee, 2003-2004.

- Emory University: Search Committee for Dean of Emory College, 2002-2003.

- Emory College: Search Committee for Senior Associate Dean of Undergraduate Education, 2003.

- Emory University Council on Information Resources and Technology, 1998-2002.
- Emory University: Search Committee for Vice-President of Campus Life, 2000.
- Emory University Senate Faculty Council, 1998-2000.
- Emory Electronic Research Administration Workgroup Co-Chair, 1998-1999.
- Emory College Faculty Science Council Executive Committee, 1998-2002.
- Emory College Faculty Science Council Graduate Committee, 1998-2001.
- Emory College Nominating Committee, 1997-2002.
- Emory College Center for Teaching and Curriculum, Advisory Committee, 1996-1998.
- Emory University Teaching Fund Committee, 1996-2000. Chair, 1996-1998.
- Emory College Curriculum Committee, 1987-1990; 1995-1998.
- Emory University Science Education Partnership Advisory Board, 1994-1995.
- Emory College Executive Committee, 1994-1995.
- Emory College Curriculum Reform (NS) Committee, 1994-1995.
- Emory College Honor Council Advisor, 1993-1998; 2000.
- Emory College Teaching Committee, 1990-1993.
- Emory College Computer Advisory Committee, 1986-1988.
- Emory College Freshman/Sophomore (FAME) Advisor, 1990-2007; PACE Advisor 2009-2017.
- Department Computer Science Committee, 1986-2004.
- Department Faculty Hiring Committee, 1989-2017.
- Department Undergraduate Committee, 1990-1992.